ANNUAL REPORT 2021

FACTS AND TRENDS 2020/21

+ Chronicle 125 Years VDKi +

Import Coal Market at a Glance

		2018	2019	2020
World				
Hard Coal Production	Mill. t	7,060	7,273	7,057
World Hard Coal Trade	Mill. t	1,324	1,341	1,191
of which Seaborne Hard Coal Trade	Mill. t	1,208	1,232	1,083
of which Internal Hard Coal Trade	Mill. t	116	109	108
Hard Coal Coke Production	Mill. t	646	682	667
Hard Coal Coke World Trade	Mill. t	28	24	22
European Union (28, from 2020 EU 27)				
Hard Coal Production	Mill. t	73	65	57
Hard Coal Imports (incl. Internal Trade)	Mill. t	166	133	89
Hard Coal Coke Imports	Mill. t	9.0	9.5	5.8
Germany				
Hard Coal Use	Mill. TCE	48.7	37.0	30.8
Hard Coal Volume	Mill. TCE	47.1	40.2	29.7
of which import coal use	Mill. TCE	44.4	40.2	29.3
of which domestic hard coal production	Mill. TCE	2.7	-	-
Imports of Hard Coal and Hard Coal Coke	Mill. t	47.0	42.2	31.8
of which Steam Coal [1]	Mill. t	32.5	29.2	20.1
of which Coking Coal	Mill. t	12.4	11.2	10.1
of which Hard Coal Coke	Mill. t	2.1	1.9	1.6
Prices				
Steam Coal Marker Price CIF NWE	US$/TCE	108	72	58
Border-crossing Price Steam Coal [2]	EUR/TCE	95	80	64
CO_2 emission rights (EEX EUA settlement price)	EUR/EUA	15.82	24.84	24.73
Exchange rate (US$1 = €....)	EUR/US$	0.85	0.90	0.88

[1] Including anthracite and briquettes [2] Until end of 2018 BAFA, since 2019 update by VDKi

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See www.kohlenimporteure.de - Publications - Glossary to the Annual Report

AN INTRODUCTORY WORD

This year, the Coal Importer Association is celebrating its 125th anniversary.

On this occasion, it must be pointed out that hard coal still plays an important role in Germany's energy supply. Naturally, the VDKi acknowledges the significance of the fundamental measures for climate protection such as the Paris Climate Agreement and will play a constructive role during the German phase-out of coal-fired power generation mandated by the Act for the Exit from Coal.

The past 125 years of our existence have taught us at least one thing: fundamental changes in economic and social conditions do not happen "overnight". In our position as an association representing the interests of the hard coal industry, we will be happy to make a significant contribution to the activities leading us all towards the challenging goal of a "CO_2-neutral Europe" and to the resolution of the immense changes and processes that will be required.

One good example was the role played by hard coal in power generation during the first quarter of this year 2021. The volume of electricity generated in coal-fired power plants rose by more than one-fourth (26.8 %) to almost 40 TWh in comparison to the same period last year. Federal Economics Minister Altmaier said: "A spring without storms led to a decline in wind energy. In consequence, coal grew to become the most important energy source in the country in the first quarter." Hard coal's contribution to this increase was significant, growing by 14.8 %, impressively underlining its major role as a safeguard for the energy transition.

Speaking of the energy transition: In March 2021, the Federal Court of Audit criticised the Federal Ministry for Economic Affairs and Energy's (BMWi) management of the

„Hard coal – still an important partner for the security of the electricity supply over the course of the energy transition“

energy transition. It continues to be poor and is based in part on overly optimistic and implausible assumptions about the long-term security of electricity supply. The BMWi must improve its monitoring of supply security.

Globally, world hard coal production in 2020 decreased slightly by 3 % compared to the previous year due to the corona-virus pandemic.

In the medium term, and especially in 2021, world hard coal production and trade will again increase as hard coal will be used more intensively as an inexpensive and reliable energy source, especially by developing economies in Asia. Even in 2020, Asia's share of seaborne world trade amounted to 84 %, a figure that will increase primarily because of rising consumption in China, India and Vietnam.

At the end of August this year, we will celebrate our 125th anniversary in the knowledge that our members continue to make an essential and highly reliable contribution to the German economy through their hard coal activities.

Alexander Bethe
– CEO –

Manfred Müller
– Managing Director –

125 YEARS
VEREIN DER KOHLENIMPORTEURE e. V.

Since its foundation on 25 November 1896, the German Coal Importer Association *[Verein der Kohlenimporteure e. V.; VDKi]* has represented the ideals and economic interests of the coal importing industry. Throughout its history, the Association has been an important contact point for all questions concerning hard coal for consumers, traders, logisticians and service providers.

1896

25 November 1896

Founding of the "Association of Importers of English Coal" in Hamburg

1896 - 1914

Prosperous phase of the import coal trade – abruptly interrupted by the First World War

1933

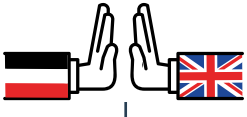
1933 - 1938

Anglo-German Agreement: No import of English coal without export of German coal

1939

1939 - 1945

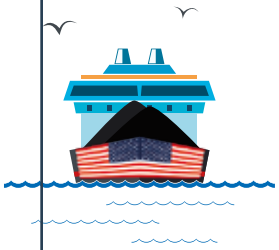
Imports of English coal were interrupted



1952

1952

Foundation of the Coal and Steel Community, establishing among other provisions a ban on subsidies; competence for foreign trade in hard coal remains with the member states.



1953 - 1957

Gradual lifting of quantitative import restrictions and foreign currency exchange management lead to a significant increase in hard coal imports, especially from the USA.

1959

Determination of an import duty on coal of twenty deutschemark per tonne for third-country purchases

1968

Foundation of *Ruhrkohle*.
At the same time, conclusion of the Steelworks Agreement, i.e. an agreement for the fulfilment of demand between *Ruhrkohle* and seven steelworks

1980

Conclusion of the so-called contract of the century between the German coal mining industry and the electricity industry with a procurement of 45 million TCE as of the end of the term of the contract (1995).

1953 1958 1959 1966 1968 1975 1980 1986

1958

Elimination of the general import licence for solid fuels (de-liberalisation) in view of the increasing sales problems of the German mining industry

1966

Enactment of the first Electricity Supply Act in favour of domestic coal. Further regulations of a similar nature follow. The Fifth Electricity Supply Act was passed in 1995.

1975

Enactment of the Third Electricity Supply Act – for the first time, lawmakers specify target quantities for the generation of electricity from domestic hard coal; introduction of the coal penny

1986

EC Commission sanctions subsidy policy favouring the German coal industry *(Decision No. 2064/86/ ECSC)* subject to certain requirements for modifications

1987

Coal Round of December foresees a reduction of German coal production by 15 million tonnes per year to 65 million tonnes per year in 1995

15 Million

1991

The EC Commission rules that hard coal may be imported into the Federal Republic of Germany in so-called intra-EC trade without application for a quota certificate

1995 - 1996

The Act Regarding the Customs Quota for Solid Fuels expired on 31 December 1995

25 November 1996

100 years "Verein Deutscher Kohlenimporteure e. V."

2000

The expansion of renewable energies is a major pillar of the energy transition. The Renewable Energies Act (EEG) enters into force.

1987 1990 1991 1994 1995 1996 1999 2000 2001

1990

During German reunification, the customs quota for solid fuels is not extended to the acceding territory

1994

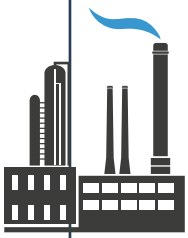
Enactment of the Act to Safeguard the Use of Hard Coal in Power Generation and to Amend the Atomic Energy Act (so-called Article Act)

1999

Termination of the Steelworks Agreement and replacement by separate contracts between RAG and steel producers

2001

Liberalisation of power markets in Europe promotes commoditisation of the power plant coal market



2003

Change of name from *Verein deutscher Kohlenimporteure e.V.* to *Verein der Kohlenimporteure e.V.*

2012

Commissioned Prognos study confirms that thermal power plants will continue to play an important role in security of supply over the long term

2016

Commissioned Pöyry study: Coal-fired power plants are climate-friendlier as backups for the energy transition than open-cycle gas turbines.

21 December 2018

Ceremony on the occasion of the farewell to the German coal mining industry

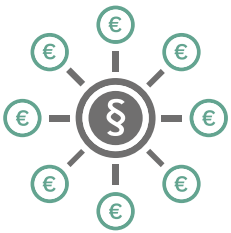
08 August 2020

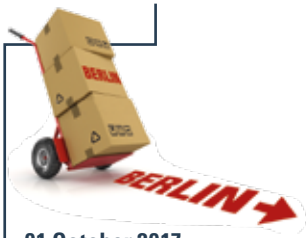
Passage of the Act for the Exit from Coal by the German Bundestag

2003 2007 2012 2015 2016 2017 2018 2019 2020 2021

20 December 2007

Enactment of the Coal Financing Act





01 October 2017

Relocation of VDKi headquarters from Hamburg to Berlin

2019

Commissioned Deloitte study confirms high relevance of hard coal-fired power plants for the energy system despite exit from coal

2015

Highest import volume of imported coal to Germany (57.5 million tonnes) since the founding of the VDKi

2021

VDKi celebrates its 125th anniversary under the difficult conditions of the coronavirus pandemic

FEDERAL REPUBLIC OF GERMANY

Germany masters the pandemic –
hard coal an element of the energy transition

FEDERAL REPUBLIC OF GERMANY

General Conditions of the Overall Economy

The annual report of the German Council of Economic Experts *(Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung, SVR)*, the so-called "Wise Men of the Economy" (completed and published at the beginning of November 2020), was dominated by the coronavirus crisis. Appropriately, the report was titled "Overcoming the Coronavirus Crisis Together, Strengthening Resilience and Growth". Developments up to the end of October 2020, in particular the countermeasures adopted by that time and the increase in infection levels in autumn 2020, were taken into consideration in the report. According to the report, the onset of the pandemic triggered one of the most severe recessions in the post-war period worldwide, including Germany, especially in the first half of last year.

In mid-March 2021, the SVR presented an updated economic forecast with preliminary data for 2020 and forecasts for 2021 and 2022. Their key economic data can be found in Table HT-D1. It turns out that the SVR's autumn forecast for German economic growth in 2020 (-5.1 %) was actually quite accurate. The SVR now expects a rate of change in real gross domestic product (GDP) of -4.9 % in 2020. The forecast for 2021 of +3.1 %, on the other hand, is somewhat weaker than previously estimated (+3.7 %). The German economy grew only slightly in the fourth quarter of 2020. Initial estimates by the Federal Statistical Office (DESTATIS) indicate a decline in the rate of change in real GDP by 1.7 % in the first quarter of 2021. Compared to the first quarter of 2020, there was a decline of around 3 % (adjusted for price and calendar effects). Private consumption fell relatively sharply because of new lockdown measures at the beginning of the year while exports contributed a supporting effect. With the gradual easing of the coronavirus restrictions, an improvement in economic performance in the second quarter of 2021 became evident. Despite temporary bottlenecks in intermediate products, German industrial production is benefiting from rising demand. There are also growing signs of a recovery in private consumption.

The development of consumer prices has picked up considerably since the beginning of 2021. This is explained by the reversal of the temporary VAT reduction to 16 % as well as the additional burdens from the federal government's climate package and the sharp rise in oil prices. In March 2021, the inflation rate rose to 2 % and came to 2.1 % in April. This is in line with the inflation rate that the SVR expects for the year 2021 as a whole. It should decrease slightly in the following year (2022).

According to the economic experts, the federal government's comprehensive package of actions and economic stimulus measures to mitigate the economic consequences of the pandemic have contributed significantly to alleviation and recovery of economic development. In the opinion of the economic experts, however, the measures should be more precisely targeted and fine-tuned in the future. Once the crisis has passed, however, the Council of Economic Experts warns that greater leeway for fiscal and monetary policy in Germany and the eurozone must be assured. This has proved to be a bottleneck in the current crisis. The instrument of short-time work, on the other hand, has proved to be highly effective and expedient, as it did during the financial crisis. Thanks to its use, a more dramatic increase in the unemployment rate was avoided, keeping it below 6 %. Furthermore, the Council of Experts refers above all to the energy sector, taking into account a stronger climate policy orientation. In speaking of a long-term structural change necessary for climate policy that seeks a climate-neutral economy (Climate Protection Plan 2050), the German Council of Economic Experts proposes among other measures an energy price reform that abolishes the EEG levy and reduces the electricity tax to the European minimum.

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

	Unit	2019	2020	2021 [1]	2022 [1]
Gross Domestic Product [2]	%	0.6	-4.9	3.1	4.0
Expenditures for Consumption	%	1.9	-3.5	0.3	6.9
Expenditures for Private Consumption [3]	%	1.6	-6.1	-0.3	9.6
Expenditures for Public Consumption	%	2.7	3.3	1.7	1.0
Gross Installation Investments	%	2.5	-3.1	3.7	4.1
Equipment Investments [4]	%	0.5	-12.1	7.3	6.3
Construction Investments	%	3.8	1.9	1.4	3.0
Other Investments	%	2.7	-1.1	4.8	3.8
Domestic Utilisation	%	1.2	-4.2	1.1	6.3
Trade Balance	% -Pts.	-0.6	-0.9	2.0	-1.9
Exports	%	1.0	-9.4	10.7	4.0
Imports	%	2.6	-8.5	7.0	9.3
Current Account Balance [5]	%	7.1	7.1	7.9	6.0
Workforce	Thousands	45,269	44,782	44,744	45,179
Employees Subject to Social Security Contributions	Thousands	33,518	33,578	33,767	34,245
Persons Registered as Unemployed	Thousands	2,267	2,695	2,682	2,429
Unemployment [6]	%	5.0	5.9	5.9	5.3
Consumer Prices [7]	%	1.4	0.5	2.1	1.9
Public Fiscal Balance [8]	%	1.5	-4.2	-4.1	-1.5
Per Capita Gross Domestic Product [9]	%	0.3	-5.0	3.0	3.9

[1] Projection of the Council of Economic Experts
[2] Adjusted for price. Change over previous year. Applies to all component elements of the GDP shown here.
[3] Including non-profit private organisations
[4] Including military weapons systems
[5] In relation to nominal GDP
[6] Registered unemployed persons in relation to complete civil labour force
[7] Change over previous year
[8] Regional authorities and social security in delineation of national economic total account; in relation to nominal GDP.
[9] Population develpment according to medium-term projection of the Council of Economic Experts.

Sources: Council of Economic Experts, Economic Forecast 2020/2021, March 17th, 2021/German Federal Statistical Office

HT-D1

These actions aim to improve the incentive and coordination functions of the CO_2 certificate price (in the EU Emissions Trading System – EU ETS) and create further incentives for so-called sector coupling. In this context, sector coupling refers to the increased use of electricity from renewable energy sources in the heating and transport sectors and industry in general.

Energy situation in Germany

According to preliminary calculations by the Working Group on Energy Balances (AGEB or AG *Energiebilanzen*), primary energy consumption (PEC) in Germany fell by 8 % in 2020 compared to the previous year to 402 million TCE (corresponding to 11 784 petajoules) (cf. HT-D2). This is by far the lowest level of consumption since the beginning of the 1970s. While there were minor improvements in energy efficiency, the impact of the coronavirus pandemic was the main factor in this development. With the exception of renewable energy sources (+2.9 %), the use of all other energy sources remained in some cases more, in some cases less than the level of the previous year. Lignite (-17.9 %) and hard coal (-16.8 %) were hit hardest by the declines.

This was due to the aforementioned overall decline in consumption as well as lower power plant capacities, unscheduled power plant outages, high availability of renewable energy sources prioritised for electricity feed-in such as wind power and photovoltaics, low natural gas quotations and high prices for CO_2 emission certificates. The reduction in the consumption of oil at just under 12 % was also considerable. The decline in natural gas consumption remained within narrow limits at 2.5 %. In terms of shares of PEC, oil remained the most important energy source with a share of more than one-third, followed by natural gas with a sold share of one-quarter. Renewables followed in third place; they were able to expand further their importance compared to the previous year by posting a share of just under 17 %.

Electric Power Generation

While the energy transition has not yet posted more than a slight impact on the heating market and in the transport sector, it is having a massive impact on the energy mix for electric power generation. Renewable energy sources have maintained the leading position in gross electricity generation since 2014. According to calculations by the Federal Association of the Energy and Water Industry (BDEW),

Primary Energy Consumption in Germany 2018 to 2020

Energy Source	2018	2019	2020 [1]	Changes 2020/2019		2019	2020
		Mill. TCE		Mill. TCE	%	Share in %	
Oil	151.6	153.9	135.6	-18.3	-11.9	35.2	33.7
Natural Gas	105.4	109.7	107.0	-2.7	-2.5	25.1	26.6
Hard Coal	48.7	37.0	30.8	-6.2	-16.8	8.5	7.7
Lignite	50.0	39.7	32.6	-7.1	-17.9	9.1	8.1
Nuclear Energy	28.3	27.9	24.0	-3.9	-14.0	6.4	6.0
Renewable Energy Sources	61.5	65.0	66.9	1.9	2.9	14.9	16.6
Electricity Exchange Balance	-6.0	-4.0	-2.5	1.5	…	-0.9	-0.6
Other	7.6	7.8	7.6	-0.2	-2.6	1.8	1.9
Total	**447.0**	**437.0**	**402.0**	**-35.0**	**-8.0**	**100.0**	**100.0**

[1] Provisional

Source: AGEB, "Energy Consumption in Germany in 2020 - Annual Report" for 2019/2020

HT-D2

their share in 2020 was at 44 % (+4.1 % compared to the previous year). Other than renewable energy sources, natural gas was the only energy source in Germany's gross electricity generation that recorded a slight increase (+2.1 %) in 2020. Natural gas benefited above all from low procurement prices and high CO_2 certificate prices, especially in comparison with hard coal.

All other energy sources displayed a decline. The use of hard coal fell by just under 25 % for the reasons already mentioned above (subchapter Energy Situation in Germany). Lignite use decreased by a good 19 % and nuclear energy also continued to decline (-14.2 %) as a result of the closure of the nuclear power plant Philippsburg 2 (1 402 MW) on 31 December 2019.

Gross Electric Power Generation in Germany per Energy Source

Energy Source	2018	2019	2020 [1]	2020 Shares	Change 2020/2019
	TWh			%	%
Lignite	145.6	114.0	91.9	16 %	-19.4 %
Nuclear Energy	76.0	75.1	64.4	11 %	-14.2 %
Hard Coal	82.6	57.5	43.2	8 %	-24.9 %
Natural Gas	81.6	90.0	91.9	16 %	2.1 %
Oil	5.1	4.8	4.3	1 %	-10.4 %
Renewable Energies	223.3	241.9	251.7	44 %	4.1 %
Other	20.5	19.5	18.5	3 %	-5.1 %
Total	**634.7**	**602.8**	**565.9**	**100 %**	**-6.1 %**

[1] Provisional

Sources: BDEW; March 22nd, 2021

HT-D3

In the ranking of the most important input energies to cover gross electricity generation, lignite and natural gas came in behind renewables and were in equivalent second and third place, each with a share of 16 %. Nuclear energy at 11 % and hard coal at 8 % followed.

Gross Power Generation from Renewable Energy Sources

Energy Source	2017	2018	2019	2020 [1]	2020 Shares	Change 2020/2019
	TWh				%	%
Hydroelectric Power	20.2	17.9	20.2	18.5	7 %	-8.4
Wind Onshore	87.9	90.9	101.1	105.3	42 %	4.2
Wind Offshore	17.7	19.5	24.7	27.3	11 %	10.5
Biomass	45.0	44.6	44.6	44.3	18 %	-0.7
Municipal Wastes (50 %) [2]	6.0	6.2	5.8	5.7	2 %	-1.7
Photovoltaics	38.0	44.0	45.1	50.4	20 %	11.8
Geothermal Energy	0.2	0.2	0.2	0.2	0 %	0.0
Total	**215.0**	**223.3**	**241.9**	**251.7**	**100 %**	**4.1**
Share of Renewables Energies in Gross Electric Power Generation	33 %	35 %	43 %	44 %		

[1] Provisional [2] Biogenic share of household wastes

Sources: BDEW, u. a. Fakten und Argumente; March 2021

HT-D4

Wind energy onshore provided as in the previous year a share of 42 % of the power generation from renewable energy sources, followed by photovoltaics and biomass at 20 % and 18 %, respectively. Wind onshore increased its contribution by 4.2 %; wind power offshore posted an even greater increase of 10.5 %.

Status of the Grid Expansion Pursuant to EnLAG and BBPIG

The Federal Requirements Plan is the primary instrument for the expansion of electricity grids at transmission level and is included as an annex in the Federal Requirements Plan Act (BBPIG). In the Grid Development Plan 2019-2030 (NEP), the transmission system operators determined what grid expansion requirements would have to be met between now and 2030 if the German government's climate target of a 65 % share of renewable energies in 2030 and other objectives were to be achieved. The Federal Network Agency, the competent supervisory authority, reviewed and confirmed the 2019-2030 Grid Development Plan.

Taking this plan as its basis, the Federal Ministry for Economic Affairs and Energy drafted the bill for a revision of the Federal Requirements Plan Act. Additional projects that the Federal Network Agency, during its review of the Grid Development Plan, determined to be essential for the energy industry and urgently required are expected to be included in the Federal Requirements Plan. At the same time, the proposal for solving the grid problems in the tri-border region of Bavaria, Hesse and Thuringia agreed between Federal Minister Altmaier and the energy ministers of the affected federal states of Bavaria, Hesse and Thuringia in June last year will be implemented. On 28 January 2021, the Bundestag passed the bill revising the Federal Requirements Plan Act. The approval of the Bundesrat followed on 12 February.

The projects pursuant to the Energy Transmission Line Expansion Act (EnLAG) comprise a total length of 1 827 kilometres, of which around 274 km were in the regional planning or planning approval process, 527 km had been approved and in preparation or under construction and 1 026 km had been realised at the end of 2020. In other words, 56 % of the total length had been built in comparison with 50 % in the previous year.

With a total length of 5 956 km, the projects according to the BBPIG comprise the larger part of the expansion projects, of which 207 km have been approved and are in preparation or under construction. Only 593 kilometres (10 %), however, have been realised as of this time. In the previous year, it was 6.4 %.

Development of Greenhouse Gas Emissions

According to current estimates by the Federal Environment Agency (UBA) issued in May 2021, German energy-related CO_2 emissions in 2020 fell to around 590 million tonnes of CO_2, a decline of 10.9 % compared to the previous year and of 40.4 % compared to the base year 1990, slightly exceeding the German target of 40 %. This significant reduction was due primarily to the effects of the measures initiated in the battle against the coronavirus pandemic, but structural changes in the German electricity mix in favour of renewable energy sources and at the expense of coal were also a factor.

Table HT-D5 still shows an earlier data status from March 2021, which in an initial estimate had assumed energy-related CO_2 emissions of 574 million tonnes of CO_2. We continue to use these older figures so that we can show the development of CO_2 emissions by energy source. They reveal that CO_2 emissions from all energy sources were down in 2020 compared to the previous year. The highest decline was in hard coal (-19 %), ahead of lignite (-18 %), oil (-16 %) and natural gas (just under -4 %).

CO_2 Emissions from Energy Generation in Germany by Energy Source

	CO_2 Emissions 2019	CO_2 Emissions 2020 [1]	Change 2020/2019	Emission Shares 2019	Emission Shares 2020
	Mill. t		%	%	
Oil	251.1	211.0	-16.0	37.9	36.8
Hard Coal [2]	93.8	76.0	-19.0	14.2	13.2
Natural Gas [3]	168.1	162.0	-3.6	25.4	28.2
Lignite	126.3	103.0	-18.4	19.1	17.9
Other [4]	23.5	22.0	-6.4	3.5	3.8
Total	**662.8**	**574.0**	**-13.4**	**100.0**	**100.0**

[1] Provisional [2] Incl. furnace and coke oven gas [3] Incl. mine gas [4] Incl. volatile emissions

Source: Schiffer, Hans-Wilhelm, "German Energy Market 2020"; et 03/2021

HT-D5

Climate Protection Programme 2030/Climate Protection Act

On 20 September 2019, the German government presented key points for a climate protection programme 2030. The Climate Protection Programme 2030 was adopted by the cabinet on 9 October 2019. The proposed measures will be successively implemented through legislation and funding programmes.

On 17 December 2020, the Bundestag passed the bill revising the Renewable Energies Act (EEG). The "EEG 2021" was intended to replace the current EEG 2017 and entered into force on 1 January 2021. The EEG 2021 firmly establishes the goal of achieving an electricity supply in Germany that is completely greenhouse-gas-neutral before the year 2050. This objective encompasses both the electricity generated here and the electricity consumed here. Renewable energies are to provide 65 % of Germany's electricity consumption in 2030. The law defines the target model of the Climate Protection Programme 2030 as binding and regulates the extent to which the various technologies should contribute to the 65 % target and the expansion paths with which this can be achieved.

In response to the demand from the Federal Constitutional Court on 29 April 2021 that lawmakers issue clear climate protection targets going beyond 2030, the Bundestag passed the revised Climate Protection Act on 24 June 2021. The revision cleared the Bundesrat on 25 June. The revision requires a reduction in CO_2 emissions by a minimum of 65 % by 2030 and by a minimum of 88 % by 2040 in comparison with the baseline year 1990. Climate neutrality is to be achieved by 2045 instead of 2050. The climate targets are continuously monitored. To achieve the ambitious climate protection targets set forth in the act, the federal government adopted an immediate funding programme of € 8 billion on 23 June. Since concrete proposals for measures for heightened climate protection from the EU Commission are still pending at the European level, the law schedule an assessment in 2022 to determine its congruence with European requirements.

To this end, the four transmission system operators (TSOs) submitted the draft scenario for the Grid Development Plan (2021) to the Federal Network Agency (BNetzA) on 10 January 2021. It was published and made available for public comment on 17 January 2021. On 26 June 2020, the BNetzA approved and published the scenario framework for the upcoming Grid Development Plan for Electricity 2035 Version 2021. The assumptions set forth in this framework are the binding basis of the TSOs' market and grid calculations for the Grid Development Plan 2035 (2021). On 26 April, the second draft of the Grid Development Plan 2035 (2021) was published and submitted to the Federal Network Agency. Although grid expansion ensures the north-south transport of power from renewable energy sources, it does not offer any protection from the fluctuations in their supply. Nor does a European association offer any change here, either, as the weather situation in

Europe is characterised by a high degree of simultaneity. As electricity generation from renewable energy sources increases across Europe, secure power plant capacity is indispensable.

The Deloitte study "Investigation of the Flexibility of Hard Coal-fired Power Plants for the Integration of Renewable Energies in Germany" commissioned by the VDKi determined that hard coal-fired power plants make an important contribution to the integration of renewables by adjusting output and operation to compensate for fluctuations in the latter. From a strictly technical point of view, the coal-fired power plants in Germany (as of 2018) could accommodate and integrate growing shares of renewables of 50 %, 60 % or 70 % without jeopardising the reliability of the electricity supply. Despite the decision to phase out coal, hard coal-fired power plants will remain indispensable for the foreseeable future – in the opinion of the VDKi, they are systemically relevant.

The first months of this year demonstrated that hard coal will continue to play an important role in the security of electricity supply. Power generation using coal overtook wind power again in Germany in the first quarter of 2021. "Low-wind months" caused a reduction in electricity generation from wind power of almost one-third. According to the Federal Statistical Office, the gap was closed by an increase in power generation from coal- and natural gas-fired power plants. A total of 138.2 TWh of electricity was generated and fed into the grid nationwide from January to and including March. According to preliminary results from the Federal Office, this was 2.6 % less than in the first quarter of 2020.

While the electricity in the same period last year came mainly from renewable energy sources such as wind power, biogas and solar energy (51.4 %), coal, natural gas and nuclear energy dominated at the beginning of this year (59.3 %). Its share of 28.9 % of the total amount of electricity fed into the grid meant that coal was the most important energy source for electricity generation in Germany in the first quarter of this year. The volume of electricity generated in coal-fired power plants rose by more than one-fourth (26.8 %) over the same period last year to almost 40 TWh. Power generation from natural gas increased by 24 % to 22.5 TWh. Wind power, on the other hand, fell by almost one-third (32.4 %). The feed-in of 33.5 TWh was the lowest value for this energy source for a first quarter since 2018. In the two previous years, wind power had posted significantly higher values because of high availability.

Coal-Fired Power Generation Termination Act (KVBG)

The Act for the Reduction of and Exit from Coal-fired Power Generation and the Amendment of Other Acts ("Act for the Exit from Coal") of 8 August 2020 regulates the step-by-step reduction of the net electrical capacity of lignite-fired power plants on the power market to 15 GW in calendar year 2022, 9 GW in calendar year 2030 and 0 GW by the end of calendar year 2038 at the latest.

The act also provides for the gradual reduction of the net capacity of hard coal-fired plants on the power market to 15 GW in calendar year 2022, to 8 GW in calendar year 2030 and to 0 GW by the end of calendar year 2038 at the latest. The first two tender procedures for the reduction of hard coal-fired plants and small lignite-fired plants were exceeded.

Eleven bids with a total bid volume of 4 788 MW in the first tender and three bids of 1 514 MW in the second tender were awarded. In the first tender, the result of which was announced by the Federal Network Agency on 1 December 2020, the volume-weighted average award value was € 66 259/MW and remained significantly below the maximum value of € 165 000/MW. The total awards amounted to € 317 million. The second call for tenders was issued on 1 April 2021. Bid values ranged from € 0 to € 59 000/MW and also remained well below the maximum price of € 155 000/MW. Six more tenders are scheduled between now and 2027. The maximum prices for these tenders will be successively reduced from € 155 000/MW to € 89 000/MW.

Hard Coal Market

Primary energy consumption of hard coal fell by 6.2 million TCE (16.8 %) from 37 million TCE in 2019 to 30.8 million TCE in 2020. The use of hard coal in power plants decreased by 21.7 %. Utilisation in the steel industry declined by 12.2 %. Overall, as in the previous year, this resulted in a considerable decrease of 16.8 % (cf. HT-D6).

Utilisation of Hard Coal in Germany

Utilisation	2018	2019 [1) 2)]	2020 [1) 2)]	Change 2020/2019
		Mill. TCE		%
Power Plants	27.2	18.0	14.1	-21.7
Steel Industry	20.4	17.2	15.1	-12.2
Heating Market	1.1	1.8	1.6	-11.1
Total	**48.7**	**37.0**	**30.8**	**-16.8**

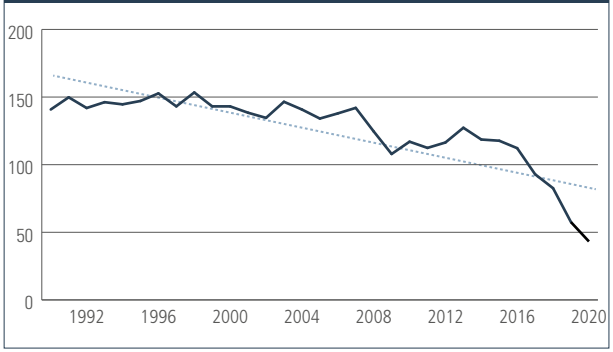
[1)] Provisional information, in part estimated [2)] statistical differences incl.

Source: AGEB, "Energieverbrauch in Deutschland 2020"; April 7, 2021

HT-D6

The use of hard coal for power generation is following a long-term downward trend, which has been exacerbated by the strong additional construction of solar and wind energy (which enjoys feed-in priority) and in recent years because of the rise in the CO_2 price. (Cf. HT-B2)

Power Generation from Hard Coal 1990-2020 in TWh



HT-B2

The contribution of import volumes to coal utilisation fell from 40.2 million TCE in 2019 to 29.7 million TCE in 2020 (-26.1 %) according to statistics from the *Arbeitsgemeinschaft Energiebilanzen* (AGEB). Since the end of the scheduled and socially acceptable adjustment and exit process of the German coal industry at the end of 2018, the German market has been supplied solely by imports, which always guarantee a secure and high-quality supply to the German market.

Volume of Hard Coal in Germany

	2018	2019	2020	Change 2020/2019
		Mill. TCE		%
Import Coal	44.4	40.2	29.7	-26.1
Domestic Production	2.7	-	-	
Total	**47.1**	**40.2**	**29.7**	**-26.1**

Source: VDKi, AGEB, own calculations

HT-D7

The tables HT-D6 and HT-D7 differ in that the one deals with supply and the other with use. The differences are due to changes in stock levels.

The quantity difference between the volume of import coal in Table HT-D7 and the total imports in Table HT-D8 is a consequence of the use of different measurement units. AGEB calculates volume in "TCE" (taking into account the calorific content) while imports are calculated for foreign trade statistics in "t = t" – the traditional metric tonne. Imports break down according to quality as shown here.

Imports per Grade in Mill. t (t = t)

Products	2018	2019	2020
		Mill. t	
Steam Coal [1)]	32.5	29.2	20.1
Coking Coal	12.4	11.2	10.1
Coke	2.1	1.9	1.6
Total	**47.0**	**42.2**	**31.8**

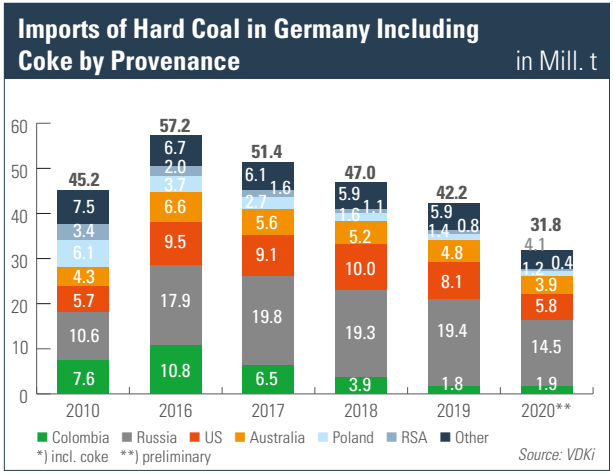
[1)] Including anthracite and briquettes

Sources: Federal Statistical Office / own calculations

HT-D8

The share of steam coal in imports in 2020 is 63.2 %, that of coking coal is 31.8 % and that of coke is 5 %. In view of the shrinking demand from power plants and the growing share of coal used by the steel industry in total consumption, it is pointed out here that injection coal (PCI coal), which is statistically included in steam coal, is actually attributable to the steel industry. Unfortunately, there is no separate category for injection coal in the official customs nomenclature and so there is not one in the eight-digit DESTATIS product index, either. It is recorded primarily as steam coal but may in part also be classified as anthracite.

Figure HT-B3 classifies the annual German hard coal import volumes according to the country of origin. According to preliminary data for 2020, Russia was in first place with 14.5 million tonnes (45.6 %). This represents a decline of 25 % over the previous year. Imports from almost all other countries also declined. Imports from the USA declined from 8.1 million tonnes to 5.8 million tonnes, securing a market share of 18.2 % for the United States. Shipments from Australia fell from 4.8 million tonnes to 3.9 million tonnes. The market share remained approximately at the same level as the previous year (12.3 %). Colombia was able to record slight gains in imports to Germany for the first time in years (2020: +6 %). Imports rose slightly from 1.8 million tonnes (2019) to 1.9 million tonnes. Imports from Poland dropped as they did in the previous year by 14.3 % and contributed 1.2 million tonnes of the supply to the German market. These imports consisted primarily of hard coal coke. Shipments from the Republic of South Africa continued to fall, dropping from 0.8 million tonnes (2019) to only 0.4 million tonnes in 2020.



HT-B3

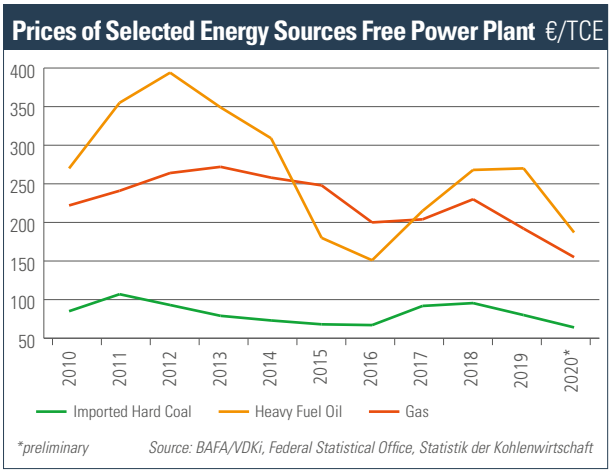
Russia is Germany's most important supplier of steam coal delivering 12.9 million tonnes. The USA follow with 2.0 million tonnes and Colombia with 1.9 million tonnes. Australia remains the most important supplier of coking coal with 3.9 million tonnes, closely followed by the USA with 3.8 million tonnes, Canada with 1.3 million tonnes and Russia with 0.9 million tonnes.

Total German coke imports in 2020 amounted to 1.57 million tonnes, of which 65.3 % came from Poland, 12.1 % from the Czech Republic, 4.5 % from Russia, 3.6 % from China, another 3.6 % from Colombia and 10.9 % from other origins.

The coal imports to Germany by country of origin are broadly distributed across all grades. Virtually all of the countries are politically stable. Logistics in Germany's seaports and in the ARA ports important for German imports were reliable and free of any disruptions. Significant, but only temporary, impairments can be caused by low and high water in domestic transport. As the specific impact on individual customers can vary greatly, they have as a rule implemented their own precautions for such cases (e.g. warehousing and/or alternative modes of transport).

Development of Energy Prices

According to calculations by the association Coal Industry Statistics, the price for heavy heating oil in 2020 averaged € 187/TCE, the natural gas price for power plants € 155/TCE and the VDKi price for imported coal (extrapolation of the BAFA price) € 64/TCE.



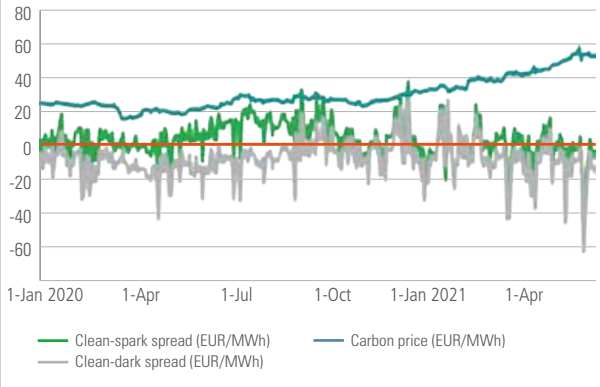
HT-B4

The energy price alone is not decisive for the use of energy sources in power plants; a number of influencing factors combine and are summarised in the clean dark spread and clean spark spread, the gross margins of hard coal-fired and gas-fired power plants, that are also dependent on the CO_2 certificate price and electricity price and other factors.

The illustration in Figure HT-B5 is based on a comparison of a new gas-fired power plant with an old hard-coal-fired power plant as a way of depicting the situations in which a "fuel switch" occurs. It shows that the clean dark spread (gross margin for hard coal) was often negative and the clean spark spread (gross margin for natural gas) was almost consistant above the clean dark spread. Electricity prices are under pressure – in no small part because of the COVID-19 pandemic – and were again negative in isolated cases. Negative electricity prices in spot trading are usually favoured by high feed-in of renewables in combination with low electricity demand. The system's remoteness from the market can also be seen in the fact that the EEG levy rose when market prices fell and the coronavirus crisis placed additional burdens on consumers.

The border-crossing prices for coking coal and hard coal coke were calculated using figures from the Federal Statistical Office (foreign trade statistics) and are shown in Figure HT-B6. The price of coking coal in 2020 reached its maximum in June (€ 142.37/ton) and its minimum in November (€ 90.66/ton). The arithmetic mean was € 125.51/ton, considerably below the previous year's average for the year of € 168.71/ton.

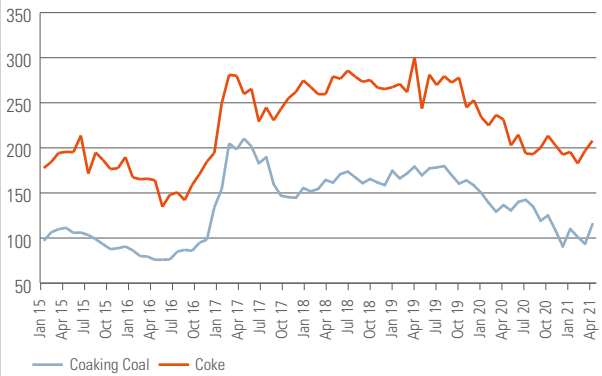
Clean Spark Spread (Gross Margin Natural Gas) and Clean Dark Spread (Gross Margin Hard Coal)



Source: IHS Markit, MCR, Issue 512, 13.06.2021

HT-B5

Cross-border Prices of Coking Coal and Hard Coal Coke in Germany €/t



HT-B6

The price development for coke in 2020 was similar to that of coking coal, although at a higher level. The price ranged from € 192.53/ton (in November) to € 236.52/ton (in February). The average price in 2020 was € 208.47/ton and was also significantly lower than in the previous year (€ 265.78/ton).

Steel Production

Crude steel production in Germany in 2020 fell by 10.1 % compared to 2019, the third year in succession of a decline in crude steel production. Moreover, at 35.7 million tonnes, it again remained below the mark of 40 million tonnes, just as in the previous year, and posted the lowest production level since the crisis year of 2009. World crude steel production decreased by only 0.2 % in the same period, mainly owing to increased production in China.

Pig iron production declined by 12.0 % to 22.5 million tonnes in 2020.

Crude Steel and Pig Iron Production

	2018	2019	2020 [1]	Change 2020/2019
		Mill. t		%
Crude Steel	42.4	39.7	35.7	-10.1
Pig Iron	27.3	25.5	22.5	-12.0

[1] Provisional

Source: Steel Federation

HT-D12

According to the German Steel Federation, the German steel industry has been hit hard by the COVID-19 pandemic because of its close integration in European added-value chains. Steel demand in 2020 shrank to an even lower level than was seen during the financial crisis in 2009. Steel companies in Germany and Europe are responding to these developments with individual

adjustments to their production. There are signs of improvement for 2021. About 3.4 million tonnes of crude steel were produced in April 2021. Compared to the same month last year, which was, however, strongly affected by the coronavirus pandemic, this is an increase of more than 30 %. During the first four months of the year, production increased in comparison with the previous year by about 9 %.

In important steel-producing countries, production is currently not being adjusted to the change in demand despite a global economic slump; indeed, in some cases it is even being drastically expanded. This is particularly true for China, where crude steel production is at record levels. Chinese crude steel production reached an all-time high of 97.85 million tonnes in April 2021. Although the government had promised to reduce annual steel production for environmental reasons, the production from January to April 2021 increased by 16 % compared to the previous year. This figure is based on the latest data from the Chinese National Bureau of Statistics.

Finding satisfactory solutions to the climate policy challenges for the reduction of CO_2 emissions in steel production is a fundamental prerequisite for securing the long-term future of the German steel industry.

On 28 May 2021, the Federal Ministry of Economics and Technology announced the projects that will be supported within the scope of the funding opportunities for hydrogen technologies and systems pursuant to the "Important Projects of Common European Interests (IPCEI)". The German Steel Federation welcomes the consideration and prioritisation of investment projects in the steel industry: "This focus on steel industry projects within the framework of the hydrogen IPCEI sends an important signal for the transformation towards green production processes for the steel industry site that is Germany. Companies competing internationally are dependent on political support for climate protection investments that will enable them to make a decisive contribution to the achievement of climate goals. The development of a European hydrogen economy is also a basic prerequisite for the successful transformation of CO_2-intensive industrial processes."

The startup support of hydrogen-based processes for the production of climate-neutral steel within the framework of the IPCEI would be an important step towards achieving substantial CO_2 reductions as early as 2030. In the view of the German Steel Federation, however, further measures must follow promptly: "Regarding the conversion of steel production to low-CO_2 processes, it would be especially important to find an answer to the question as to how a viable business model for green steel can be established despite the significantly higher operating costs. In addition, the infrastructural prerequisites for climate-neutral steel production must be created. Finally, important points still await clarification, especially at the European level, before the related investment decisions can be made responsibly in the steel companies." For example, the scope of conversion support must be improved in the revision of the EU guidelines on state aid and the preservation of the international competitiveness of companies must be taken into account in the revision of EU emission trading.

Projects such as Salzgitter AG's WINDH2 demonstrate the innovative capacity of the German steel industry. Its objectives include hydrogen generation through wind energy and the conversion of steel production from blast furnaces to direct reduction, initially based on natural gas and increasingly on hydrogen. When the conversion to direct reduction plants is ultimately complete, hydrogen would fully replace the carbon previously required for steel production and CO_2 emissions would fall by 95 %.

The use of one tonne of climate-neutral hydrogen would equate to a reduction of 26 tonnes of CO_2 in steel production. Compared with other industries, the steel industry has the greatest climate protection impact.

EUROPEAN UNION

Green Deal –
a challenge for all European countries

EUROPEAN UNION

Economic Growth in Europe

Great Britain's exit from the European Union (EU) went into effect on 31 January 2020. In consequence, texts, graphs and statistics in this report – especially in this chapter – have been changed from EU 28 to EU 27. The presentation of EU 28 data for the previous years up to and including 2019 is maintained in some of the figure overviews to preserve continuity. From 2020 onwards, data are reported for EU 27. Where relevant, this is indicated by footnotes.

Share in GDP of EU 27 and Economic Growth in EU 19/EU 27 in %

Member States	Share in GDP in EU 27[1)]	GDP change rates			
		2017	2018	2019	2020
EU 27	100.0	2.8	2.1	1.6	-6.1
Countries of the Eurozone (EU 19)[1)]	85.1	2.6	1.9	1.3	-6.6
Germany	25.1	2.6	1.3	0.6	-4.8
France	17.1	2.3	1.8	1.5	-8.1
Italy	12.4	1.7	0.9	0.3	-8.9
Spain	8.4	3.0	2.4	2.0	-10.8
The Netherlands	6.0	2.9	2.4	1.7	-3.7

[1)] in 2020

Source: Eurostat, per: 18/05/2021

HT-EU1

The coronavirus pandemic has hit the EU hard with respect to health, social structures and especially the economy, as can be seen in Table HT-EU1. Subsequent to the pandemic-related restrictions in the spring of 2020 and an economic recovery in the summer, renewed lockdowns, some of them even stricter, were implemented in the autumn when the number of COVID-19 cases increased drastically again. Economically speaking, the actions taken in autumn did not have as strong an impact as in spring. The industrial sector in particular was less affected.

According to Eurostat, the Statistical Office of the EU, the growth rate of real gross domestic product (GDP) in the European Union (excluding Great Britain (EU 27)) averaged -6.1 % in 2020 and that of the countries in the eurozone (EU 19) averaged -6.6 %. With the exception of Ireland (+3.4 %), all EU member states had negative GDP growth rates, with large sectoral differences between the less severely affected industrial production and the strongly impacted service sectors. The highest negative GDP change rates were in the Mediterranean countries Spain (-10.8 %), Italy (-8.9 %), France (-8.1 %), Croatia (-8.0 %) and Portugal (-7.6 %). The first three countries account for just under 40 % of total EU 27 GDP in 2020. Germany alone contributes over 25 %.

According to the IMF, economic growth in the EU 27 will recover over the next two years, increasing on average by 4.4 % (2021) and 3.9 % (2022). On 1 June 2021, the OECD issued a new revised economic outlook. It predicts that the economy in the eurozone will recover faster than the OECD had expected at the end of December. In this latest projection, the OECD economists expect GDP growth rates (taking -6.7 % in 2020 as the basis) of +4.3 % in the current year (2021) and +4.4 % next year (2022). In 2020, industrial production capacity in the eurozone was still underutilised by 7 %.

In spring 2021, production capacities in the eurozone (EU 19) still remained clearly below their potential. For 2021 as a whole, the EU Commission expects an output gap of -3.8 %. Trade in goods within and outside the eurozone (exports and imports) has recovered well and is almost back to pre-crisis levels.

Energy Consumption

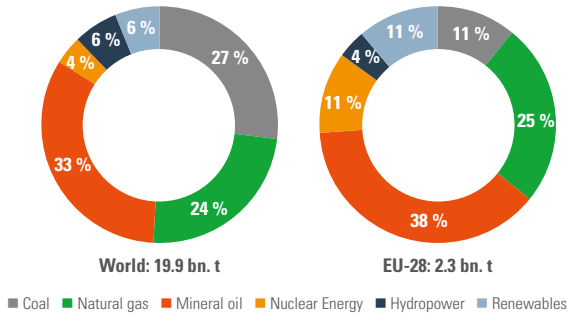
No data concerning primary energy consumption (PEC) in the EU were available for the coronavirus year 2020 by the editorial deadline. They will not become available until the publication of the next BP Statistical Review of World Energy in July 2020. As a consequence, the extensive economic and energy impact of the pandemic is not yet included in the presented data.

EU 28 primary energy consumption (PEC) of 2.3 billion TCE in 2019 was 1.5 % lower than the previous year, parallel to the drop in economic growth from 2.3 % (2018) to 1.7 % (2019). Excluding the United Kingdom, EU PEC was just under 2.1 billion TCE. The share of oil remained stable over the previous year at 38 % (900 million TCE) while natural gas at just under 25 % (577 million TCE) gained one percentage point. Coal's share fell again from 13 % in 2018 to 11 % (262 million TCE) one year later. The share of renewables (excluding hydropower) increased by one percentage point to 11 % (257 million TCE) while the share of hydropower fell from just under 5 % to just over 4 % (100 million TCE). Nuclear energy in 2019 remained at the 11 % mark (250 million TCE) of the previous year, the same level as coal and renewables. Together with hydropower, renewable energy sources posted a share of 15 %, the same level as in the previous year. The share of conventional energies (fossil fuels and nuclear energy) lost just under one percentage point compared to the previous year, but still contributed 85 % to the EU's energy supply.

The structure of the EU 28 PEC differs significantly from the structure of the global PEC solely with regard to coal and renewables. In contrast, the share of natural gas is at the global level, and that of oil is even significantly higher (Figure HT-B7).

The share of coal in the EU 28 was less than half that of the world average and the share of renewables (excluding hydropower) in the EU was almost twice as high.

Share of Coal in Primary Energy Consumption World and EU-28 2019



Source: BP Statistical Review of World Energy 2020

HT-B7

Hard Coal Market

The sharp decline in European hard coal production continued in 2020, falling by 13 % from 65 million tonnes to 56.5 million tonnes. Now that hard coal production has been discontinued in Germany and Spain, Poland and the Czech Republic are the only two countries still producing hard coal. Production fell by 12 % in Poland and by an even higher 38 % in the Czech Republic, albeit at a very different level (see Table HT-EU2).

Coal production in Great Britain is currently still at 1.7 million tonnes.

Hard Coal Production in the EU 27

	2018	2019	2020
	Mill. t (t=t)		
Germany	2.8	-	-
Spain	2.5	-	-
Poland	63.4	61.6	54.4
Czech Republic	4.5	3.4	2.1
Total	**73.2**	**65.0**	**56.5**

Source: EURACOAL, May 2021

HT-EU2

A "coal commission" based on the German model has been established in the Czech Republic. It is composed of three working groups dealing with the scheduling, legislation and social and economic impacts of the phase-out of lignite and hard coal mining. The commission's recommendation of December 2020 is a coal exit in 2038. In its recommendation, the Commission makes the coal exit dependent on the two conditions that, on the one hand, other energy sources are expanded and, on the other hand, the Czech Republic's energy supply is secured. Under pressure from environmental groups and activists, there will now be another debate with the ministers and civil society organisations concerned before the government make a decision. The year 2033 or earlier is now under discussion as an exit date. A decision is not expected until the summer of this year at the earliest.

Poland's coal exit in 2049 is discussed in greater detail in the country reports section.

Table HT-EU3 shows total hard coal volumes in the European Union. In 2020, EU 27 hard coal imports fell by almost 30 % to just under 89 million tonnes (excluding Great Britain). Hard coal production in the EU 27 also decreased by a good 13 % to 56.5 million tonnes. The EU 27's hard coal production now amounts to 145.3 million tonnes. Compared to the hard coal production of the EU 27 in the previous year (191.9 million tonnes), this is a decrease of 24.3 %.

Hard Coal Volume in the EU [1)]

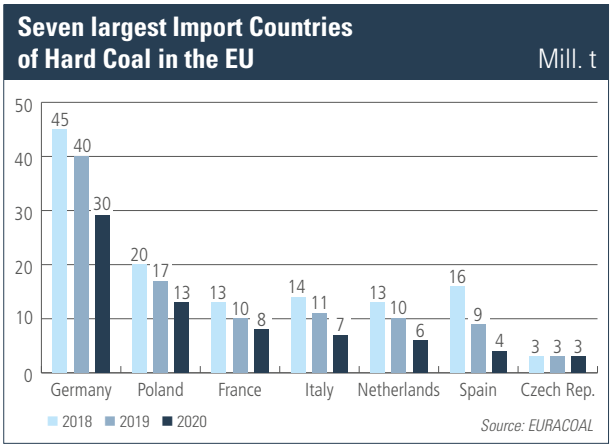
	2018	2019	2020
	Mill. t (t=t)		
Hard Coal Production	73.2	65.0	56.5
Hard Coal Imports	165.6	133.1	88.8
Total - Hard Coal Volume	**238.8**	**198.1**	**145.3**

[1)] until 2019: EU 28, from 2020: EU 27 (without UK)

Source: EURACOAL, May 2021

HT-EU3

In Germany, hard coal imports have been declining steadily for five years. Nevertheless, a volume of almost 30 million tonnes means that Germany remains by far the most important importing country for hard coal in the European Union as is shown in Chart HT-B8. Poland and its imports of just under 13 million tonnes is in second place, followed by France with just under 8 million tonnes and Italy with a good 7 million tonnes. Imports of hard coal in all EU countries fell sharply compared to the previous year; in some cases, change was measured at high double-digit percentage rates.



HT-B8

Emission Trading

The EU Commission expects the European Emissions Trading System (ETS) to remain the primary instrument for climate protection in the European Union. Introduced in 2005, the ETS is a "cap and trade system"; this means that upper limits (caps) have been set and that the participating parties engage in trade with one another to sell excess emission quantities or to buy quantities to make up shortfalls. The amount of CO_2 that may be emitted annually has been set for about 11 000 plants in the energy business and energy-intensive industry in all of Europe. Since special attention has been directed at the inclusion of all coal-fired power plants in the system, the compatibility of electric power generation using hard coal and lignite with the targets set for European climate protection is always assured.

Chart HT-B9 shows the price development on the EEX (European Energy Exchange, Leipzig) spot market for EU CO_2 emission allowances since 2015. Following the thorough revision of the ETS Directive and the introduction of a market stability reserve at the beginning of 2019, the price dynamics in the EU ETS have increased significantly. The € 30 hurdle on the EEX spot market was exceeded at the beginning of December 2020 and the € 40 mark was broken for the first time on 9 March 2021. New records were subsequently set almost daily. Since the final confirmation of the ambitious EU climate targets in the trialogue negotiations on 21 April 2021, the price push has increased again. For example, the spot price for EU CO_2 emission allowances climbed to more than € 56/EUA (EUA stands for EU Allowance for one tonne of CO_2) in mid-May 2021. Companies that fall under the ETS and have not yet acquired sufficient stocks of certificates could run into financial difficulties as a result of the rising price spiral. On the other hand, the pressure to invest in lower CO_2 production will continue to increase (leverage effect of the EU ETS).

Price for EU Emission Allowances on the futures market €/t CO_2 (daily settlement prices)

HT-B9

EU 28 greenhouse gas emissions were reduced by 24 % between 1999 and 2019. Compared to 2018, the decrease in 2019 was 3.7 %. Greenhouse gas emissions not covered by the ETS (from the sectors transport, buildings, agriculture, waste management and parts of industry) remained almost unchanged from the previous year. According to the Effort Sharing Regulation (ESR) of 2018, CO_2 reduction in these sectors is a matter for the federal states. The governments of the member states have enacted their own measures tailored to the specific regions and have set separate reduction targets. For instance, the German reduction target for 2020 is -14 % over 2005. A reduction of 38 % (compared to 2005) is the objective by 2030.

Because of the onset of the COVID-19 pandemic, 2020 was a special year, and the development of CO_2 emissions under the ETS regime was no exception; indeed, it was especially affected.

As the EU Commission announced in mid-April 2021, the highest annual decrease in CO_2 emissions in the EU to date was recorded in 2020, a decline of -13.3 % over the previous year. This means that 1,331 billion tonnes of CO_2 equivalents were released in the EU in 2020. In the electricity supply sector alone, CO_2 emissions were down by 14.9 %. The reduction was due mainly to the extensive lockdowns and the significantly weaker demand for electricity associated with these measures. In addition, there were displacement effects to the disadvantage of coal pursuant to higher feed-in from renewable energy sources and as a result of the increasing use of natural gas. The reductions were also immense in sectors outside the ETS. CO_2 emissions in the building sector fell by 11.2 % and in air transport (excluding intercontinental flights) by 64.1 %. Industry also reported high reductions in CO_2 emissions: -11.7 % in iron and steel production, -5.1 % in the cement industry, -4 % in the chemical industry and -8.1 % in the refinery sector.

Green Deal

The European Green Deal is the European Commission's reaffirmation of its ambitious goal of making "Europe the first climate-neutral continent by 2050". It has proposed a comprehensive package of measures headed by this promising slogan.

At the heart of the package is the first European climate act aimed at ensuring achievement of the goal formulated in the European Green Deal of making the European economy and society climate-

neutral by 2050. This means posting net zero greenhouse gas emissions for all EU countries, mainly by reducing emissions and investing in green technologies and protecting the natural environment. The European Climate Law is the Commission's proposal of a legally binding target of net zero greenhouse gas emissions by 2050. The EU institutions and the member states are obligated to implement the necessary measures at EU and national level to achieve the objective while taking into account the promotion of fairness and solidarity among member states.

The Climate Law includes tools to track progress and make any necessary adjustments on the basis of existing systems such as the governance process for member states' national energy and climate plans, regular reports from the European Environment Agency and the latest scientific findings on climate change and its impacts. Progress will be reviewed at five-year intervals in line with the global inventory under the Paris Agreement.

Based on a comprehensive impact assessment, the Commission has since proposed a new EU target for 2030 for inclusion in the law that would reduce greenhouse gas emissions by at least 55 % compared to 1990 levels. The Commission will review all relevant policy instruments by July 2020 and propose any revisions that may be necessary to achieve the additional emission reductions for 2030. An EU-wide greenhouse gas emission reduction target path for the period 2030-2050 will also be set to measure progress and give public authorities, enterprises and citizens the opportunity to adapt well in advance.

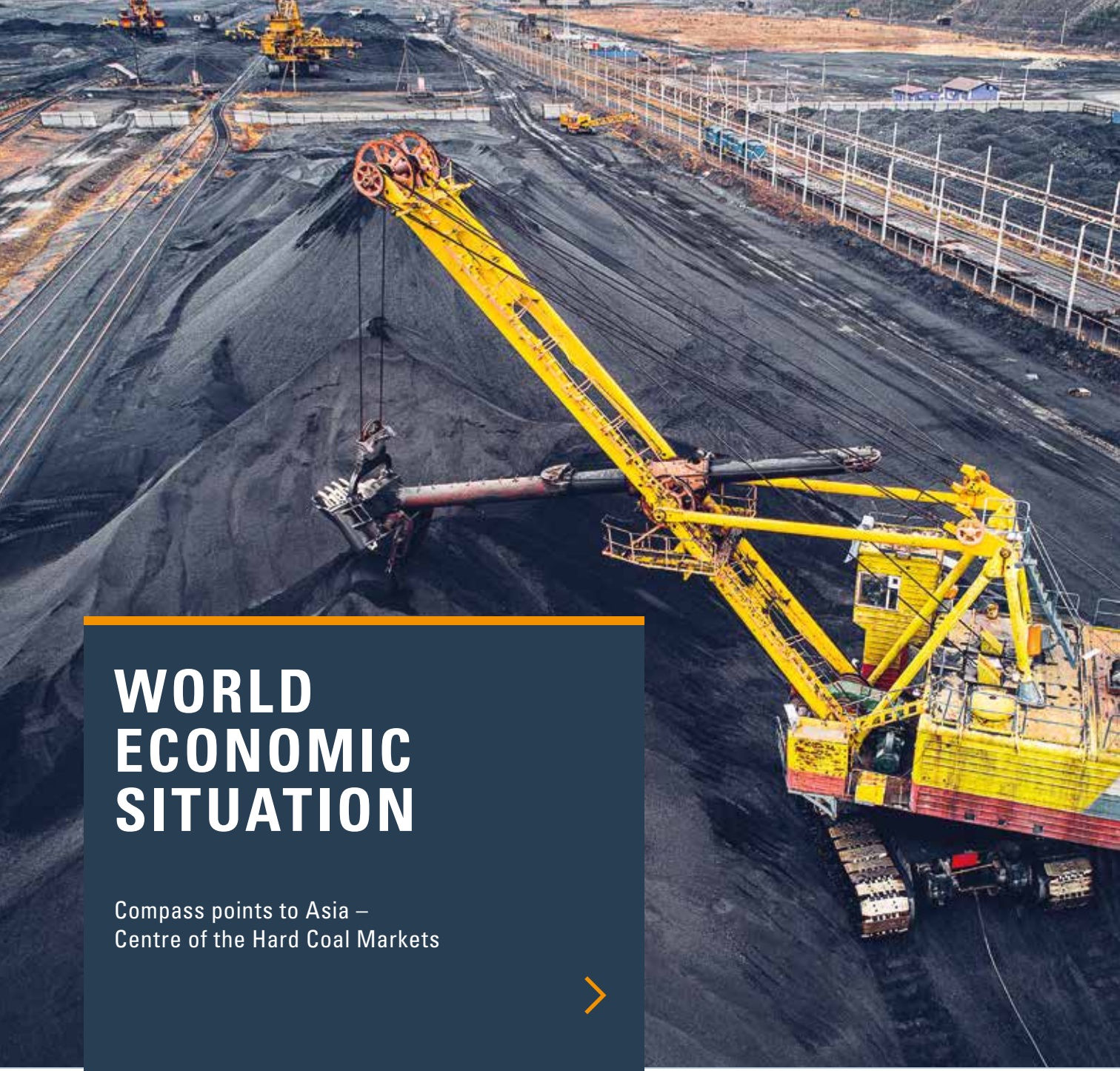
By September 2023 and every five years thereafter, the Commission will assess whether EU and member state actions are consistent with the climate neutrality target and the 2030-2050 target path. Member states will also be required to develop and implement adaptation strategies to strengthen resilience and reduce vulnerability to the impacts of climate change.

The European Parliament and the Council reached a preliminary agreement on the Climate Protection Regulation in April 2021. The dossier is now being prepared for formal adoption and is expected to be adopted before the next climate summit in Glasgow.

In view of this goal of an increased climate target for 2030 to -55 % compared to 1990 and climate neutrality by 2050, the German Steel Federation warns against a tightening of EU emission trading and a further reduction of the total number of free certificates that has been fixed. Even now, steel companies will have to bear costs for the acquisition of certificates in the billions of euros by the end of the trading period in 2030. This will strain the international competitiveness of the steel industry and deprive companies of the financial resources they need for climate protection investments. The German Mechanical and Plant Engineering Association (VDMA) described the outcome of the negotiations on the EU Climate Law as "ambitious, but necessary". If the stricter climate target is to be achieved, a fast, market-oriented revision of the political framework is now required. The German Chemical Industry Association (VCI) called for a revision of emission trading and stronger protective measures against carbon leakage. The negative consequences for the competitiveness of companies and other detrimental effects must be minimised through a revision of European state aid law.

Emission trading should be reformed to increase the costs of CO_2 emissions so that additional incentives for companies to invest

in emission-free or low-emission technologies are created. The EU is also planning a law for a CO_2 border adjustment, the so-called CBAM (Carbon Border Adjustment Mechanism), that will protect electricity-intensive industries such as steel production and chemicals. It aims to ensure that imported goods are subject to the same charges as products manufactured in the EU.

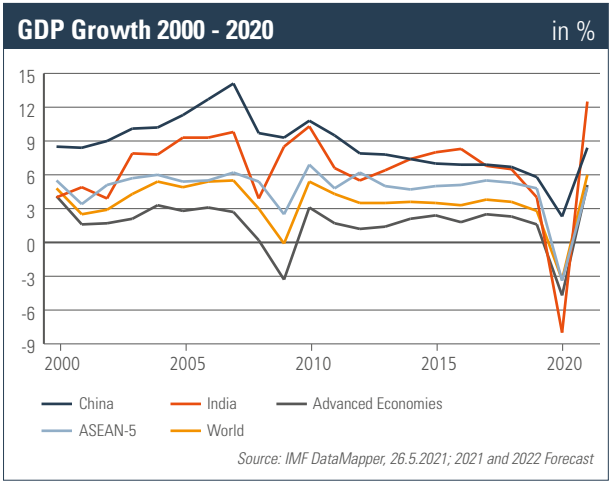


WORLD ECONOMIC SITUATION

Compass points to Asia –
Centre of the Hard Coal Markets

WORLD ECONOMIC SITUATION

World Production and World Trade



HT-B10

As can be seen in the economic reports of the Kiel Institute for the World Economy, both global production and world trade as a whole had returned almost to their pre-pandemic levels by spring 2021. The global service sector – especially those areas that require direct personal contact – is still lagging far behind. Global industrial production in December 2020 was 1.3 % higher than in December 2019, before the pandemic outbreak. China, Taiwan, South Korea and other Asian emerging markets have benefited significantly from higher demand for electronic products and many other consumer goods.

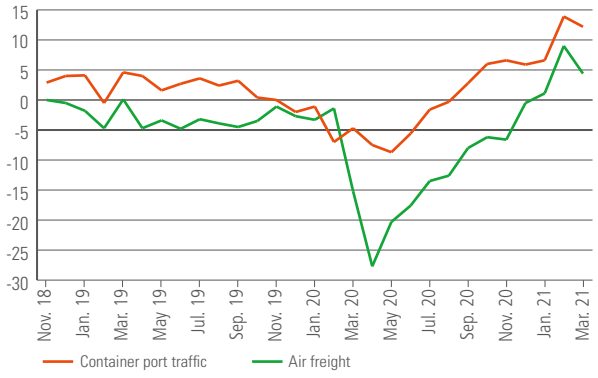
Industrial production in the eurozone countries had just barely reached their pre-crisis level at the end of December 2020 while industrial production in the United States and Japan remained below pre-crisis levels. World trade also picked up significantly, especially in the fourth quarter of 2020, and in December was 1.3 % above the level of the same month last year. The development of world trade to date is also depicted in Chart HT-B11a, which traces the percentage rates of change in container and air freight (compared to the same month of the previous year). The international transport of goods by ship or plane was temporarily subject to massive restrictions during the pandemic. Other important indicators for the assessment of world trade are in particular freight volumes and freight rates in international maritime trade. Developments in the maritime transport of bulk commodities (such as ores or coal) will be discussed in more detail in the section on the world coal market. The course of developments in the container transport business was similar. While sea freight rates for container ships were still at a low, occasionally very low level during the pandemic in the first three quarters, they rose steeply in December 2020. This was true above all for trade in goods with China.

According to the International Monetary Fund (IMF), real gross domestic product (GDP) worldwide fell by 3.3 % in 2020 because of the COVID-19 pandemic. Negative growth – sometimes more, sometimes less – has been recorded in almost all countries and regions of the world. In the highly developed economies,[1] the real GDP growth rate averaged -4.7 %. The emerging and developing countries ended up with a minus of 2.2 %. Among them, India stands out with a decline of 8 %. The People's Republic of China was one of the few countries with a positive GDP change rate (2.3 %).

[1] *As of 2020, the IMF classifies 40 nations as advanced economies (criteria: https://www.imf.org/external/pubs/ft/weo/2020/01/weodata/groups.htm)*

According to the aforementioned OECD Economic Outlook of 1 June 2021 (cf. subchapter "Economic Growth in Europe" above), the global economy will also recover faster than the OECD had expected as late as the end of December. However, this was not a "normal recovery", as the title of the report indicates. Developments vary greatly from country to country. From a starting point of historically low growth rates related to the coronavirus in 2020, the "strongest growth in almost fifty years is expected this year," as the FAZ [Frankfurter Allgemeine Zeitung] wrote on 2 June 2021. According to the report, the OECD economists expect global economic growth of +5.75 % for 2021. Essentially, however, the growth will come from recovery effects.

Global Trade Indicators – Percentage change rates vs. prior-year month



Source: OECD Wirtschaftsausblick – May 21 Projection, published on 1st of June, 2021

HT-B11a

World Energy Consumption and CO_2 Emissions

According to the BP Statistical Review of World Energy 2020, world energy consumption (PEC) rose by 1.3 % to 19.9 billion TCE in 2019. The major point of consumption was clearly in the Asia-Pacific region with a share of 44.1 %. In that region, PEC increased by 3.3 % to 8.8 billion TCE over the previous year. North America follows in second place with a share of 20 %. North American PEC declined by 1 % to 4 billion TCE. The third-highest primary energy consumption worldwide was recorded in Europe (geographical definition including countries bordering the Mediterranean), which accounted for a share of almost 14.4 %

Primary Energy Consumption (PEC) in Billion TCE - Major Energy Sources -

	2016	2017	2018	2019	Change 2019/2018	Share of PEC 2019
Coal*	5.294	5.312	5.418	5.386	-0.6 %	27.0 %
Natural Gas	4.390	4.488	4.731	4.826	2.0 %	24.2 %
Oil	6.510	6.581	6.532	6.586	0.8 %	33.1 %
Nuclear Energy	0.845	0.853	0.824	0.850	3.1 %	4.3 %
Hydroelectric Power	1.305	1.314	1.274	1.285	0.9 %	6.4 %
Renewable Energies and Others	0.596	0.700	0.881	0.989	12.2 %	5.0 %
Total	**18.940**	**19.249**	**19.662**	**19.923**	**1.3 %**	**100.0 %**

* Hard coal and lignite

Source: BP, Statistical Review of World Energy 2020

HT-W2

Development per energy source (HT-W2) shows that oil had a share of one-third and remained the leader among energy sources. In 2019, oil consumption rose by 0.8 % while natural gas consumption rose by 2 %. Coal consumption, in contrast, declined by 0.6 %. Coal's share is 27 %, that of natural gas 24 %. These shares are equivalent to those of the previous year.

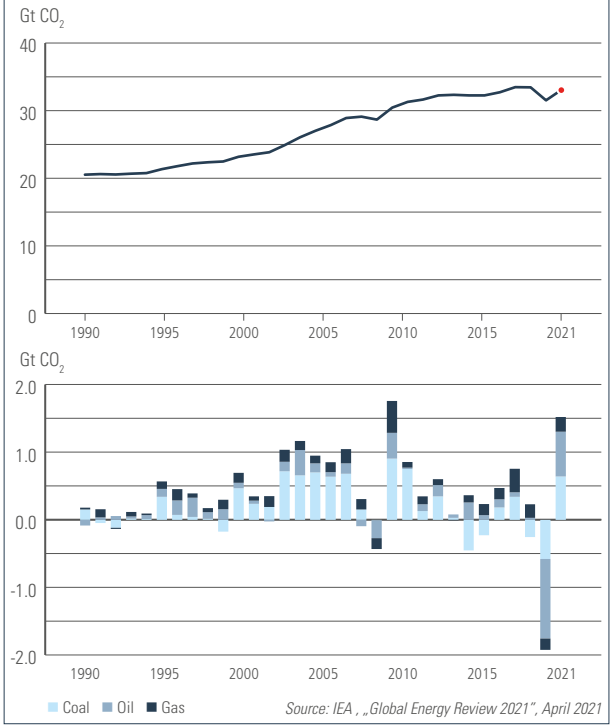
The strongest growth was in renewables (including miscellaneous) at +12.2 %. Their share in the coverage of consumption worldwide is only 5 %. Still, the share of hydroelectric power comes to 6.4 % so that the aggregate share is a 11.4 %.

According to the IEA's first estimate, global primary energy consumption decreased by 4 % in 2020 as a consequence of the pandemic and the countermeasures. This would be the highest percentage decline since the Second World War and the highest ever in absolute terms. The drastic decline did not affect all energy sources equally. Oil consumption suffered the most, falling by 14 %. Coal follows in second place, with consumption falling by 4 % (220 million TCE). The use of natural gas benefited from low gas prices at the expense of coal and declined by only 2 %. Renewable energy sources, on the other hand, were able to increase their use by 3 % thanks to privileged electricity market access and strong capacity expansion.

According to the IEA (in the Global Energy Review 2021, April 2021), the coronavirus year 2020 saw the highest-ever decline in global CO_2 emissions at -5.8 %. This decline was higher than that in primary energy consumption as it was mainly the fossil energy sources oil and coal that were affected by the degressive effects of the pandemic. Despite the decline in global CO_2 emissions, energy-related CO_2 emissions remained at the previous year's level of 31.5 gigatons. This means that the highest average concentration level of CO_2 in the Earth's atmosphere to date was reached in 2020 (peak of 412.5 parts per million).

Another record is expected for 2021, but this time in the opposite direction. Energy-related CO_2 emissions – especially as a result of the recovery of the oil, natural gas and coal industries – will presumably rise again by 4.8 % (corresponding to more than 1 500 million tonnes of CO_2) compared to the previous year. However, total global CO_2 emissions for the year in 2021 will nevertheless not return to their pre-crisis levels but remain below the peak of 2019. This is because

Development of global energy-related CO_2 Emissions and yearly change by energy sources



HT-B11b

the effects of the pandemic continue in 2021 and will continue to affect the international movement of goods, products and people. Coal consumption, on the other hand, will recover in 2021, leading to an increase in coal-related CO_2 emissions of 640 million tonnes of CO_2 to 14.8 gigatonnes of CO_2, exceeding the peak of this figure in 2019 by 0.4 %. The global electricity market as a whole had a share of 50 % of the decrease in emissions in 2020, but will account for 80 % of the increase in CO_2 emissions in 2021.

This is attributed to the rapid increase in coal-fired power generation in Asia. According to the IEA data, emerging and developing countries accounted for more than two-thirds of global CO_2 emissions in 2020.

World Climate Policy

In August 2019, the Intergovernmental Panel on Climate Change (IPCC) presented a special report on achieving the Paris climate goals. The IPCC called for a reorientation of land use and nutrition. Reforestation measures and the cessation of woodland clearance to create new pastures and areas for the cultivation of livestock feed and energy crops could avoid as much as 35 % of CO_2 emissions could by 2030.

Three years after the Paris Climate Agreement entered into force, the US administration declared its cancellation of the treaty on 4 November 2019 and officially initiated the process of withdrawing from the international climate agreement. This decision has since been reversed by the Biden administration.

The 25th UN Climate Summit (COP 25) took place in Madrid from 2 to 15 December 2019. The most important point of negotiation revolved around the new regulations for emission trading. In 2020, the member states of the Paris Climate Agreement are to submit new national climate protection plans for 2030. All countries set out in individual Nationally Determined Contributions (NDCs) how they intend to achieve their CO_2 reduction targets

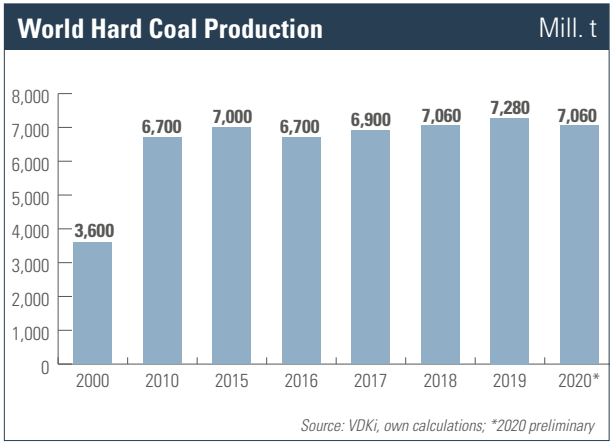
When the 2020 Climate Summit had to be cancelled because of the coronavirus, an online meeting with 40 heads of state and government took place on Earth Day in mid-April, with the US announcing a 50 to 52 % reduction in greenhouse gas emissions over 2005 at the level of the overall economy.

By meeting this goal, the USA would fulfil a requirement of the Paris Climate Agreement. China's head of state Xi Jinping promised to reduce his country's coal consumption from 2025 on and Russia wants to participate in joint climate projects. Other countries such as Japan and Canada made further concrete commitments to reduce emissions. The day before the summit, the European Union had officially committed to a reduction of greenhouse gases by at least 55 % by 2030 and an economy without new climate burdens by 2050. This online climate summit is viewed as an important preparation for the next climate summit in Glasgow in November of this year, in which all countries, five years after the climate summit in Paris, are set to improve their climate targets.

The VDKi is committed to fair climate protection, which must not place an undue burden on the German economy and should be based on undogmatic climate science.

World Hard Coal Production

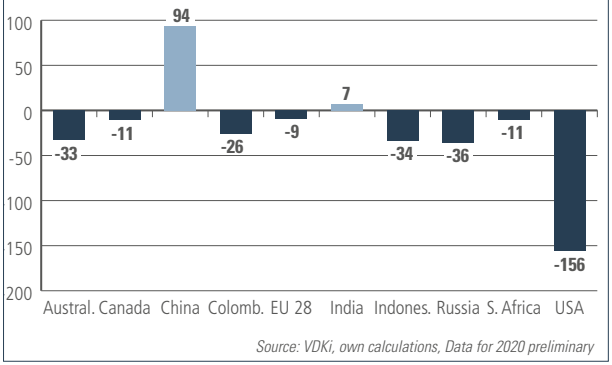
After the "peak coal" of 2019, world hard coal production fell by 3 % to 7 060 billion tonnes in the pandemic year 2020, so world coal production remains at the "high plateau" that has existed since 2015.



HT-B12

The major causes of this drop in the reporting period were the developments in the USA (-156 million tonnes), in Russia (-36 million tonnes) and in Colombia (-26 million tonnes). China was able to mitigate this decline with a production increase of 2.5 % (+94 million tonnes). The EU 27 recorded a decrease in production of 9 million tonnes to only 56 million tonnes (cf. Chart HT-B13).

Change in Hard Coal Production in 2020 in individual Countries Mill. t



Source: VDKi, own calculations, Data for 2020 preliminary

HT-B13

Table HT-W13 lists the most important countries that mine hard coal. The three largest are found on the Pacific market. China alone accounts for more than half of hard coal production. Together with the Asian countries Vietnam and India, China was one of the few countries that was able to increase its production in 2020. The greatest declines among the top 10 were in Colombia (-33 %), the USA (-24 %) and Poland (-12 %). Background information on the underlying developments in each case is presented in detail in the country reports.

TOP 10 Hard Coal Production Countries
(according to values of 2020)

Rank	Country	2018 Mill. t	2019 Mill. t	2020 Mill. t	Growth 2020/2019 %	2019 Shares in %	2020 Shares in %
1	China	3,546	3,746	3,840	2.5	51.5	54.4
2	India	716	711	718	1.0	9.8	10.2
3	Indonesia	471	532	498	-6.4	7.3	7.1
4	USA	686	641	485	-24.4	8.8	6.9
5	Australia	470	472	439	-7.0	6.5	6.2
6	Russia	433	437	401	-8.2	6.0	5.7
7	RSA	253	259	248	-4.1	3.6	3.5
8	Kazakhstan	107	106	106	0.0	1.5	1.5
9	Colombia	84	80	54	-32.5	1.1	0.8
10	Poland	63	62	54	-11.8	0.8	0.8
	Vietnam	42	46	47	2.2	0.6	0.7
	Canada	55	52	41	-21.1	0.7	0.6
	Ukraine	26	26	22	-15.4	0.4	0.3
	Czech Republic	5	3	2	-33.3	0.0	0.0
	UK	3	2	2	0.0	0.0	0.0
	Others	100	100	100	0.0	1.4	1.4
	Total	7,060	7,273	7,057	-3.0	100.0	100.0

Source: MCR, partly estimated

HT-W3

World Hard Coal Market

The world hard coal market sank by 151 million tonnes (11.2 %) in 2020. Domestic trade decreased slightly by 0.9 % and seaborne trade significantly by 12.1 % (corresponding to 149 million tonnes). This was the largest drop so far in a market that has been characterised by growth for decades. World hard coal trade developed as shown below in 2020.

World Hard Coal Trade

	2016	2017	2018	2019	2020	Change 2020/2019	
	Mill. t					Mill. t	%
Seaborne Trade	1,116	1,157	1,208	1,232	1,083	-149	-12.1 %
Internal Trade	110	127	116	109	108	-1	-0.9 %
Total	**1,226**	**1,284**	**1,324**	**1,341**	**1,191**	**-150**	**-11.2 %**

Source: VDKi own analyses

HT-W4

A major decrease in coking coal exports of 40 million tonnes (-13.2 %) was posted in seaborne trade, a consequence of the drop in worldwide steel production (Table HT-W5). Steel production declined especially in countries such as the USA, Japan, India and Germany. Of the world's largest steel producing countries, only China, Iran, Russia and Turkey were able to increase their steel production in the reporting year (cf. Table HT-W11).

The steam coal market also fell strongly by 109 million tonnes (-11.7 %). Seaborne trade of 1 083 million tonnes broke down into 819 million tonnes of steam coal and 264 million tonnes of coking coal.

Seaborne Hard Coal World Trade

	2017	2018	2019	2020	Change 2020/2019	
	Mill. t				Mill. t	%
Steam Coal	869	902	928	819	-109	-11.7 %
Coking Coal	288	306	304	264	-40	-13.2 %
Total	**1,157**	**1,208**	**1,232**	**1,083**	**-149**	**-12.1 %**

Source: VDKi own analyses

HT-W5

World production in 2020 – owing to the special situation in China (+94 million tonnes) – decreased by only 3 %; world trade, as already mentioned, fell by 12.1 %. As a result, the share of world trade in production was reduced to 15.3 % (HT-W6).

World Production/Global Seaborne Trade

Hard Coal	2017	2018	2019	2020	Change 2020/2019	
	Mill. t				Mill. t	%
World Production	6,852	7,060	7,277	7,057	-220	-3.0 %
Global Seaborne Trade	1,267	1,208	1,232	1,083	-149	-12.1 %
Share Global Seaborne Trade in Production	**18.5 %**	**17.1 %**	**16.9 %**	**15.3 %**		

Source: VDKi own analyses

HT-W6

Figure HT-B14 shows the primary trade flows in seaborne trade. Just as last year, Indonesia shipped 99 % of its exports in 2020 almost exclusively to Asia. Australia's seaborne trade also concentrates very strongly on Asia (94 %).

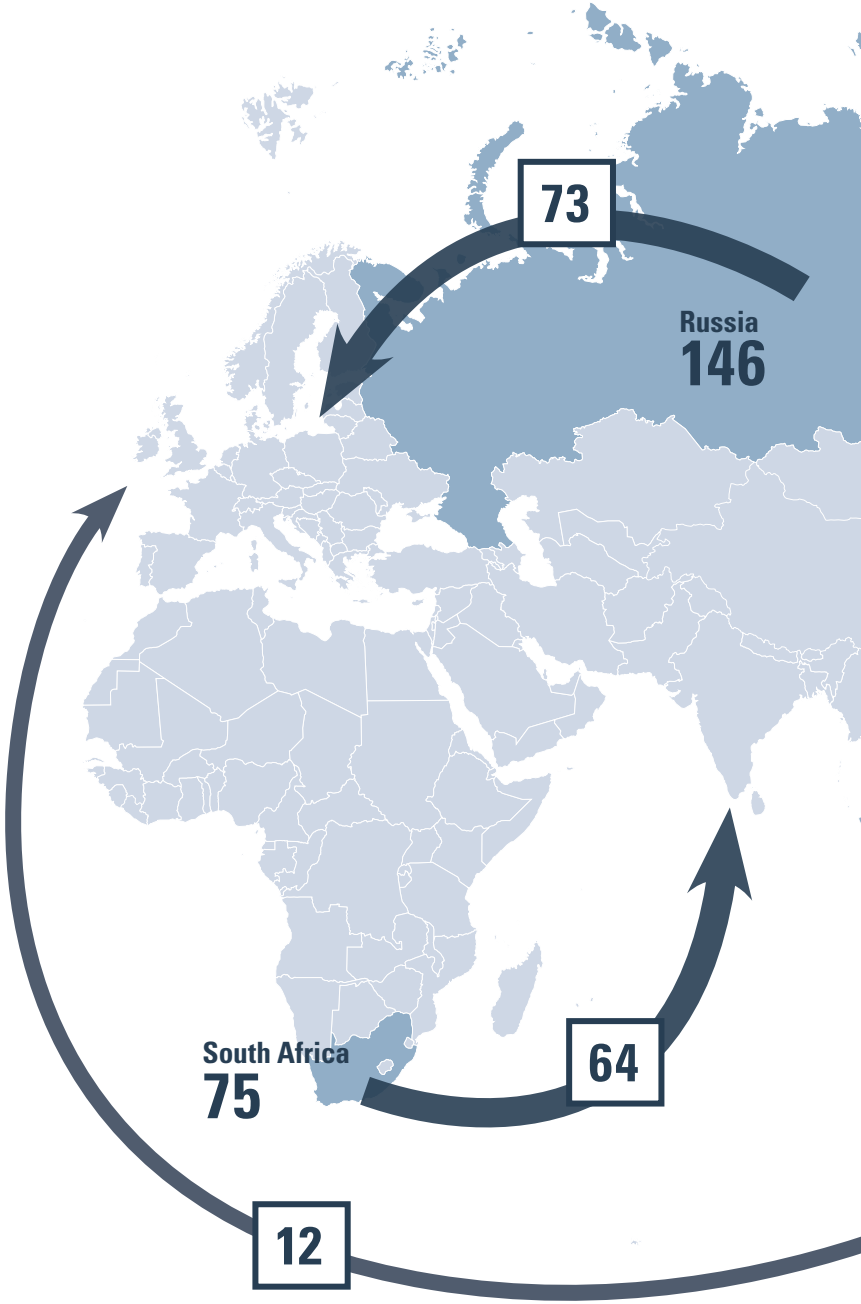
South Africa also shipped primarily to Asia (85 %) in 2020. India alone was the destination for 51 % of total exports. Only about 4 % of hard coal exports was sent to Europe (including the countries bordering the Mediterranean).

Similarly, Russia, Canada and the USA can supply both markets thanks to their geographical location. Trade from these countries is also increasingly shifting to Asia.

Colombia shipped 9 million tonnes, 18 % of its total exports, to Asia in 2020. The United States was the recipient of 2.5 million tonnes. Europe (including the countries bordering the Mediterranean) remains Colombia's main market with 24 million tonnes, 15 million tonnes of which were purchased by Turkey alone.

MAIN SEABORNE COAL TRADE FLOWS

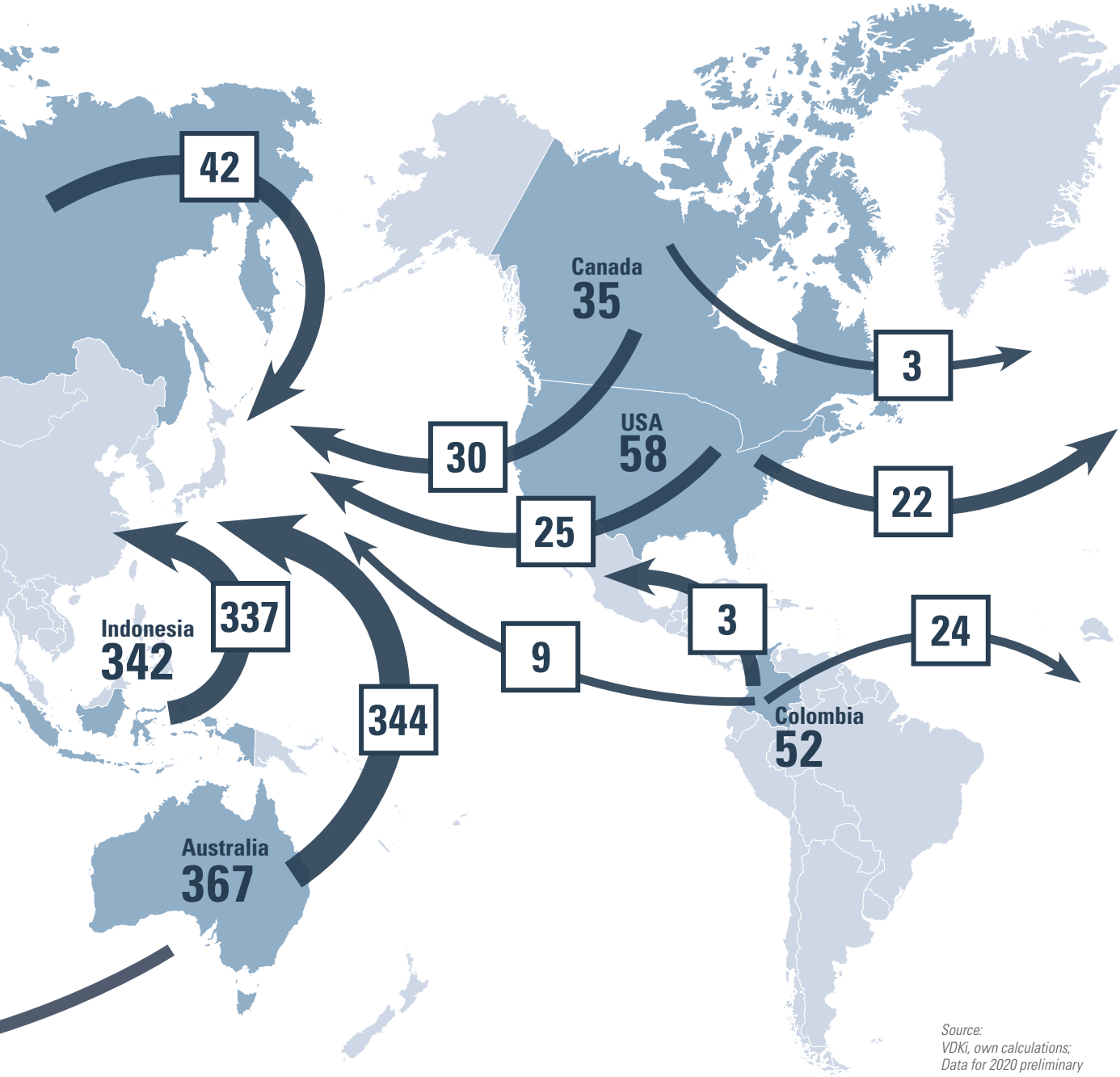
Global Seaborne Trade	
2019	2020
Mill. t	
1,232	1,083



Legend:

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

HT-B14



Source:
VDKi, own calculations;
Data for 2020 preliminary

The most important import countries are without exception found in the South-East Asia region, which accounts for about 84 % of seaborne transport of hard coal.

India is the leader with 207 million tonnes, of which 153 million tonnes are steam coal and 54 million tonnes are coking coal. It is followed by China with 176 million tonnes, closely followed by Japan with 174 million tonnes and South Korea with 124 million tonnes.

Major Hard Coal Importing Countries/Regions 2020 in Mill. t [1)]

	Total	Steam Coal	Coking Coal
Asia, of which	909	719	190
Japan	174	134	40
PR China [2)]	176	122	54
India	207	153	54
South Korea	124	103	21
EU 27, of which	91	64	27
Germany	30	20	10

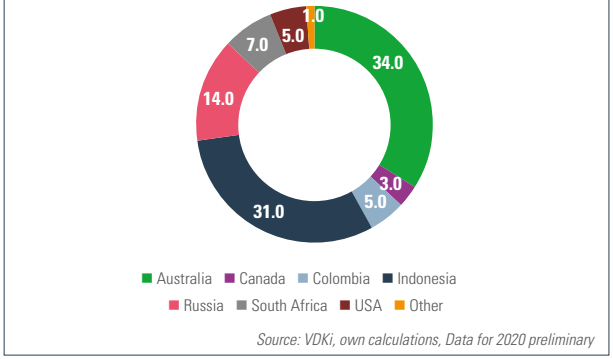
[1)] Incl. anthracite [2)] Excl. lignite

Source: Own calculations; seaborne traffic only

HT-W7

In 2020, EU 27 imports (91 million tonnes) were significantly lower than those of the Asian countries mentioned above. Within the EU 27, Germany, the largest member state and largest industrialised country, imported the most coal (30 million tonnes).

Shares of Seaborne Hard Coal Exports 2020 in %



Source: VDKi, own calculations, Data for 2020 preliminary

HT-B15

Australia was also the largest exporter of hard coal in 2020 with 367 million tonnes, a market share of 34 %. Of this figure, 197 million tonnes were steam coal and 170 million tonnes were coking coal. Indonesia, (342 million tonnes) and Russia, (146 million tonnes) follow. South Africa maintained its export level (75 million tonnes) at an almost stable level and is now ahead of the USA (59 million tonnes) and Colombia (53 million tonnes). All major exporting nations posted reductions in 2020. Solely Canada (36 million tonnes) was able to export exactly as much in 2020 as in the previous year (cf. HT-W8/HT-B15).

The Largest Hard Coal Exporting Countries in 2020 in Mill. t [1)]

	Total	Steam Coal	Coking Coal
Australia	367	197	170
Indonesia	342	342	0
Russia	146	117	29
USA	59	24	35
Colombia	53	52	1
South Africa	75	75	0
Canada	36	2	34

[1)] Seaborne only

Source: VDKi own analyses

HT-W8

World Market for Steam Coal

Demand for steam coal on the Pacific market was dominated above all by India, Japan, China, South Korea and some of the ASEAN countries. China was the only one of the aforementioned countries to note an increase in demand from 112 million tonnes to 122 million tonnes. All other major importing countries imported less in 2020 than in the previous year. India's imports fell from 184 to 153 million tonnes. Imports of steam coal into South Korea fell from 119 to 103 million tonnes, and the corresponding figures from Japan fell slightly from 143 to 134 million tonnes. Overall, demand for steam coal in Asia fell from 757 to 719 million tonnes. The EU 27's imports fell by one-third to 58 million tonnes (Table HT-W7).

Steam Coal Prices

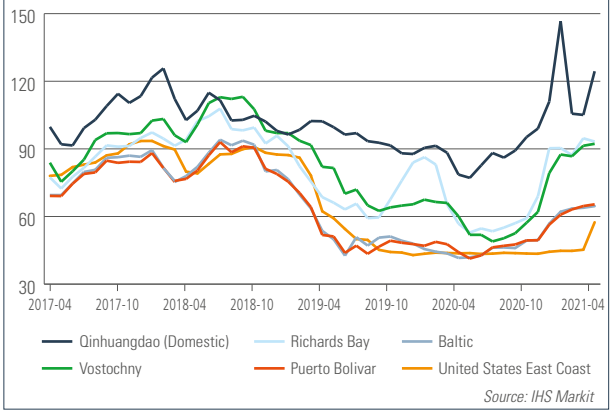
Prices for steam coal have been in decline since the beginning of 2018. At the beginning of 2019, however, they genuinely collapsed when, on the one hand, China increased domestic production in 2019 and, on the other hand, temporary market-supporting factors declined in influence. Moreover, low LNG (liquid natural gas) prices put further pressure on the consumption of steam coal, especially in Europe, and encouraged the switch from coal to natural gas.

The COVID-19 pandemic affected steam coal prices at the beginning of 2020 – with a lead time that was visible in the price on the Chinese domestic market. China's domestic as well as international benchmark prices increased slightly after the spread of the virus accelerated from late January 2020 and China's domestic production was initially impaired by the spread of the virus. At the same time, however, slower economic activity as a consequence of COVID-19 lowered electricity consumption and reduced the demand for steam coal.

Owing to higher demand from the Asian market, prices have been rising steadily again since the third quarter. FOB prices for steam coal from Colombia were around US$ 44/ton in August 2019, US$ 43/ton in May 2020, rising again to US$ 65/ton in April 2021. In contrast, prices for steam coal from South Africa moved from a level of US$ 59/ton in August 2019 to US$ 53/ton in May 2020 and US$ 93/ton in April 2021. Russian shipments (via Vostochny) to Rotterdam increased from US$ 62/ton in September 2019 and US$ 49/ton in July 2020 to US$ 92/ton in April 2021 (HT-B16).

At the beginning of June this year, API#2 was at US$ 100.50/ton while forwards are gradually falling to just below US$ 78/ton by 2024. The development of API#4 from US$ 113.00/ton to US$ 85/ton is taking a parallel course.

Development of fob prices for Steam Coal to Rotterdam in US$/t



HT-B16

World Crude Steel and World Pig Iron Production

The pig iron production decisive for the consumption of coking coal, PCI coal and coke decreased slightly by 8 million tonnes from 1 321 million tonnes in 2019 to 1 313 million tonnes (-0.6 %) in 2020. Crude steel production, on the other hand, recorded a slight increase. (HT-W9)

Crude Steel and Pig Iron Production in the World

	2018	2019	2020	Change 2020/2019
	Mill. t			%
Crude Steel	1,826	1,874	1,877	0.2 %
Pig Iron	1,258	1,321	1,313	-0.6 %
Share of Pig Iron in Crude Steel	68.9 %	70.5 %	70.0 %	-0.8 %

Source: World Steel Association (64 Member States recorded)

HT-W9

China's crude steel production, on the other hand, increased by another 7 % to 1 065 million tonnes. China now accounts for 56.7 % of global crude steel production. China's pig iron production, which is relevant for coke and coking coal demand, increased by 4.3 %. The share of world pig iron production increased further to just over two-thirds (67.6 %) (HT-W10).

Crude Steel and Pig Iron Production in PR China

	2018	2019	2020	Change 2020/2019
	Mill. t			%
Crude Steel	929	995	1,065	7.0 %
Pig Iron	780	851	888	4.3 %
Share of Pig Iron in Crude Steel	84.0 %	85.5 %	83.3 %	-1.7 %
Share of Crude Steel Prod. in World Production	50.9 %	53.1 %	56.7 %	7.3 %
Share of Pig Iron Prod. in World Production	62.0 %	64.4 %	67.6 %	7.3 %

Source: World Steel Association/Statista.com

HT-W10

In 2020, global crude steel production increased from 1 874 million tonnes to 1 877 million tonnes, an increase of 0.2 %. The production growth of +1.5 % for the ten largest steel-producing countries was above the world average in 2020. This development was mainly driven by the increase in China (+70 million tonnes). Iran and Turkey contributed +3 million tonnes and +2 million tonnes, respectively.

As in the previous year, Iran recorded by far the largest relative increase in 2020 at +13.4 %; it is ranked tenth, however. It is followed by China at +7 %, Turkey at +6 % and Russia at +2.5 %.

All other countries in the top 10 recorded declines. The worst hit countries were the USA at -17.2 %, Japan at -16.2 %, India at -10.6 % and Germany at -10 %.

TOP 10 Steel-producing Countries

Country	2018	2019	2020 [1]	Change 2020/2019
		Mill. t		%
PR China	926	995	1 065	7.0 %
India	106	111	100	-10.6 %
Japan	104	99	83	-16.2 %
Russia	72	72	73	2.5 %
USA	87	88	73	-17.2 %
South Korea	72	71	67	-6.0 %
Turkey	37	34	36	6.0 %
Germany	42	40	36	-10.0 %
Brazil	35	33	31	-4.9 %
Iran	25	26	29	13.4 %
Total	1,505	1,568	1,592	1.5 %
Total World	**1,808**	**1,874**	**1,877**	**0.2 %**

[1] Provisional figures

Source: World Steel Association

HT-W11

Coking Coal Market

While world pig iron production declined by 0.6 %, trade on the seaborne world coking coal market fell by a significantly greater amount (-13.2 %).

Market Share Seaborne World Coking Coal Market

	2018		2019		2020	
	Mill. t	Share	Mill. t	Share	Mill. t	Share
Australia	179	59 %	183	60 %	168	64 %
USA [1]	52	17 %	46	15 %	35	13 %
Russia	40	13 %	38	13 %	29	11 %
Canada [2]	29	10 %	33	11 %	30	11 %
Others	6	1 %	4	1 %	2	1 %
Total	**306**	**100**	**304**	**100**	**264**	**100**

[1] Excl. trade with Canada [2] Excl. trade with USA

Source: VDKi own analyses

HT-W12

There has been a slight shift in the market shares of the various countries on the seaborne world coking coal market. Australia's seaborne coking coal exports fell by 15 million tonnes in 2020, but market share still rose from 60 % to 64 %. Canada was able to maintain its market share at 11 %. Russia (-9 million tonnes) and the USA (-11 million tonnes) exported less coking coal and fell to a market share of 11 % and 13 %, respectively, in 2020.

World Coke Market

Coke production declined worldwide from 682 million tonnes to 667 million tonnes (-2.2 %). World coke trade continues at a lower level, declining from 26 million tonnes to 24 million tonnes. The share of word trade in world coke production decreased once again from 3.8 % to 3.6 %.

World Coke Market

	2018	2019	2020 [1]
		Mill. t	
Global Trade	28	26	24
World Coke Production	646	682	667
% of World Coke Production	4.4 %	3.8 %	3.6 %

[1] Provisional

Source: Own calculations

HT-W13

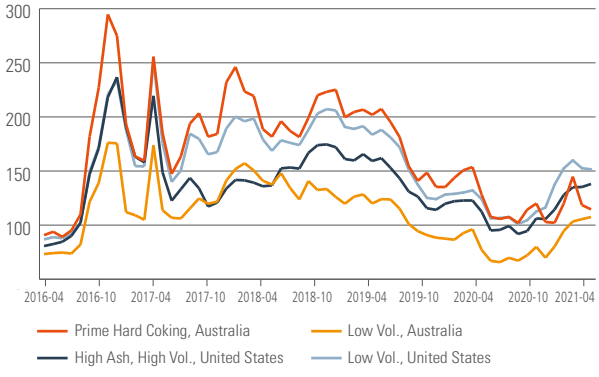
Chinese coke exports in 2020 came to 3.5 million tonnes in comparison with 6.5 million tonnes in the previous year. This is a dramatic decline of around 45 % caused by increased domestic demand and weaker demand from the world market in the pandemic year 2020 and the associated decline in steel production in the most important importing countries. China is not only far and away the largest exporter of coke; it is also the largest coke producer. China produced 471 million tonnes, the same level as in 2019 and accounting for 71 % of world production. In 2014, China recorded production of 477 million tonnes, the highest level in history. Russia produced about 27 million tonnes of coke in 2020. Compared to the previous year, this was a slight increase of 1 %. Ukraine, excluding the separatist-occupied territories, produced 9.2 million tonnes of coke (+3.0 %). In Europe, coke production amounted to just under 34 million tonnes in 2020, a share of 5.0 % of world coke production.

The European coke market (geographical definition) had a volume of 8 million tonnes in 2020, a decline over the previous year of 16 % and the lowest trade volume since 2015. With a share of one-fifth, Germany remained the most important importing country in Europe in terms of European trade volume. The United Kingdom accounted for 14 % and Spain for 11 %. Significant provenances (countries of origin) were Colombia (0.7 million tonnes), Russia (0.5 million tonnes) and Japan (0.4 million tonnes). By far the largest share, however, was accounted for by intra-European deliveries. More than half of the European coke trade volume was found in volumes from Poland (4.2 million tonnes) and the Czech Republic (0.5 million tonnes), a share of almost 60 %.

Coking Coal and Coke Prices

In 2020, the demand for metallurgical coal via seaborne transport was slowed down (-13.2 %; Table HT-W5) by declining global economic growth. At the same time, new mining capacities began operation in Australia, Russia and Mongolia, which led to an overall dampening of metallurgical coal prices.

Development of fob prices for coking coal to Rotterdam in US$/t



HT-B17

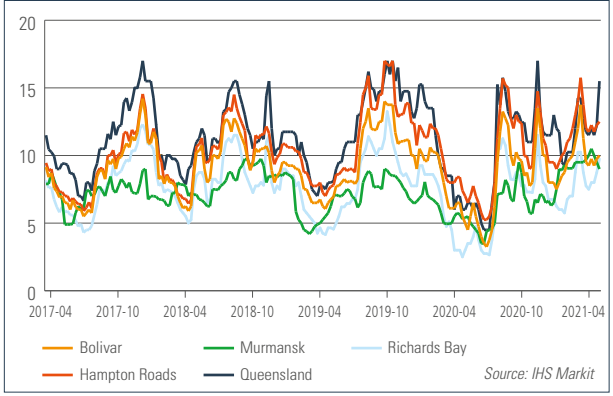
Prices for premium coking coal FOB Australia have been in a permanent downward trend since posting almost US$ 300/ton in October 2016 and just over US$ 250/ton in April 2017. After falling to lows of around US$ 135/ton in November 2019, the spot price for Australian premium hard coking coal (HCC) stabilised at US$ 150/ton in the first quarter of 2020. In the second and third quarters of 2020, the price level was between US$ 100 and US$ 120/ton. A new price peak of around US$ 160/ton was not reached until January of this year. From that point, the price fell back to the low level by April.

The blast furnace coke price FOB China (65 % CSR) has been on a constant downward trend from a level of around US$ 400/ton since the end of 2018. In the middle of last year, the price had settled between US$ 250 and US$ 270/ton. Beginning in August, the price rose to between US$ 460 and US$ 470/ton, its highest level since 2016. A parallel development has also taken place in the CFR-ARA price, albeit at a lower level, since mid-2019 (from well below US$ 250/ton to between US$ 360 and US$ 390/ton). Price quotations have been falling slightly again since March.

Freight Rates

The Baltic Dry Index (BDI) is calculated from the indices of the four ship groups differentiated according to cargo volume: Capesize, Panamax, Supramax and Handysize. In the mid-2000s, it was used as a leading indicator for the development of global industrial production. Since the financial crisis, however, the BDI has lost its significance as a leading indicator as it has been characterised more by an oversupply of ships than by the demand for cargo. More than 90 % of the coal trade is seaborne. Moreover, seaborne coal trade accounts for about a quarter of total seaborne bulk trade, ahead of grain (9 %) and slightly less than iron ore (28 %).

Sea freight rates (fob) for Hard Coal to ARA-ports in US$/t



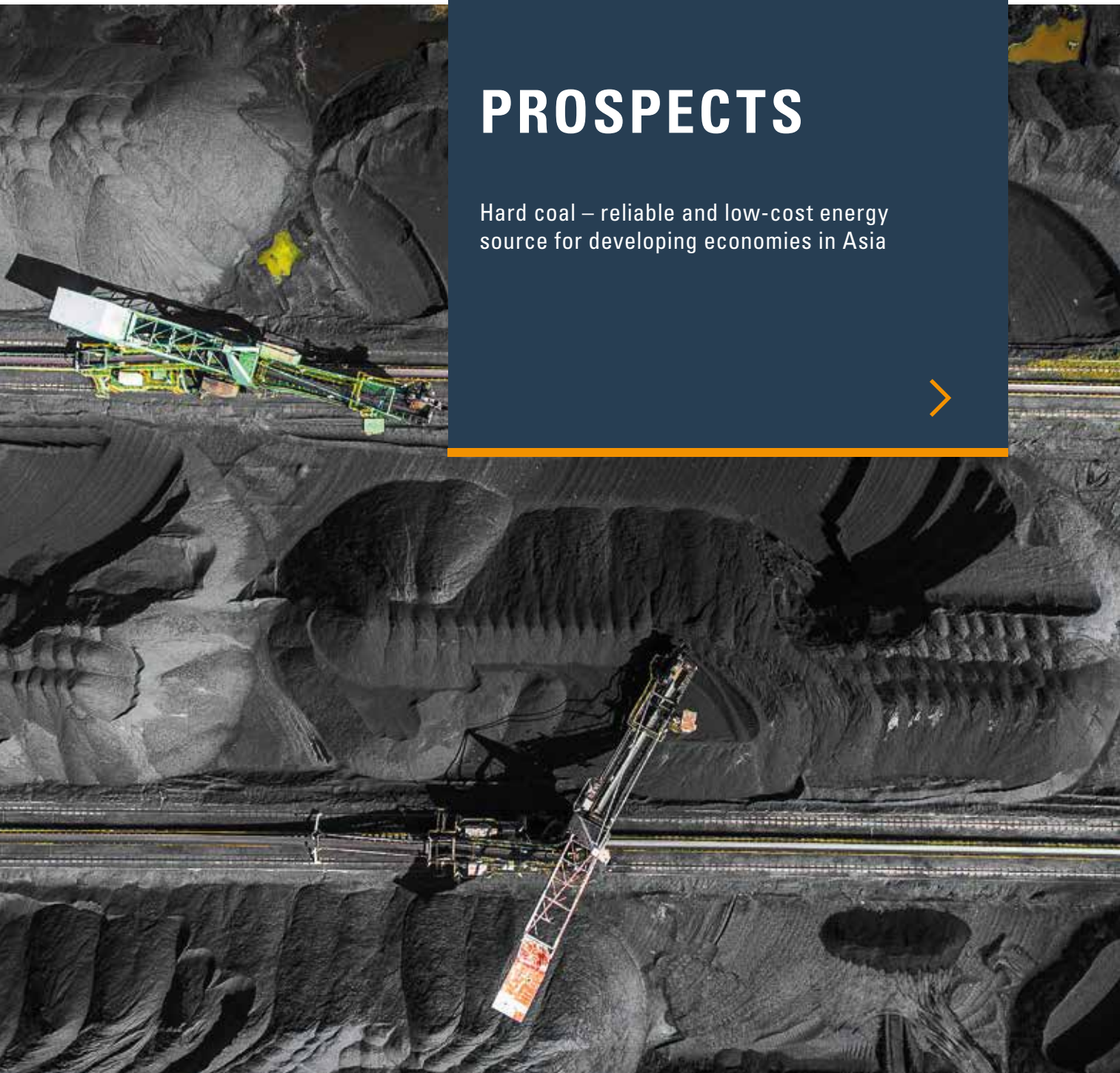
HT-B18

In the wake of the collapse in demand for coal and iron ore triggered by the COVID-19 pandemic, freight rates plummeted in the first quarter of 2020. This affected above all freight rates on the Queensland-Rotterdam and Newcastle-Japan routes, which are served mainly by Capesize vessels. Freight rates from Indonesia to China, where Panamax vessels are the primary carriers, were less affected by the pandemic. This is partly due to the fact that grain transport, which is also handled mainly by Panamax vessels, was less affected than the transport of iron ore, which is handled by Capesizers. In Capesizers, grain would be crushed by its own weight. Capesizers are bulk carriers with an average cargo volume of 156 000 dwt and cannot pass through the Panama Canal because of their high draught. They have no choice but to take the longer route via Cape Horn.

The upswing in the steel industry in China led to a strong recovery in freight rates, especially in the bulk business, by mid-2020. Freight rates shot up again at the beginning of October as China's booming demand for iron ore was met by rising Brazilian exports.

At the beginning of June this year, freight from Porto Bolivar and Richards Bay to Rotterdam was about US$ 11/ton, with forwards on both routes gradually falling to about US$ 7/ton by 2023.

Freight rates in bulk transport are likely to continue to rise for the foreseeable future. Current factors contributing to this development are the strong demand for restocking, the continued strong growth of the Chinese economy and the increased demand for steel inside and outside China. Moreover, the rest of the world economy is gradually recovering to pre-COVID-19 levels.



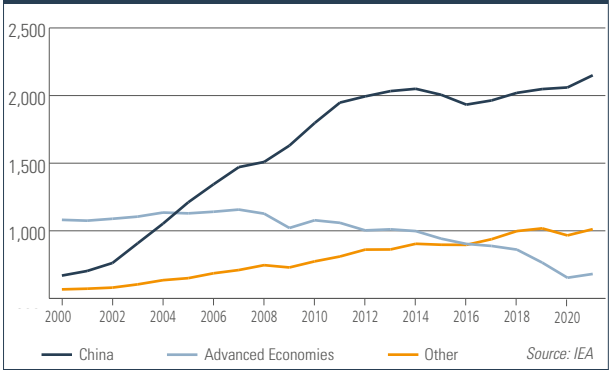
PROSPECTS

Hard coal – reliable and low-cost energy source for developing economies in Asia

PERSPECTIVES

Global coal demand fell by 4 % in 2020, the largest decline since World War II. The main driver of the decline was lower electricity demand because of the COVID-19 restrictions and the resulting economic downturn. Structural effects with a lasting impact exacerbated the situation. The increasingly prioritised feed-in or use of renewable energies on many markets displaced natural gas and especially coal in the electricity mix. Lower natural gas prices led to a significant shift away from coal as a fuel, especially in the USA (shale gas boom) and the European Union, where the use of coal for power generation fell by 20 % and 25 %, respectively. Overall, more than 40 % of the lower global demand in 2020 was attributable to declines in the power sector. The COVID-19 pandemic also affected industrial production, especially in the steel and cement sectors, which reduced the demand for coal even further.

Coal Consumption by region, 2000 to 2021 in Mtoe



HT-B19

For 2021, we expect recovering economic activity to reverse the decline in the demand for coal in 2020 and bring about a year-on-year increase in global demand for coal of around 4.5 %. This would exceed the level of the pre-crisis year 2019. The rapid increase in coal-fired power generation in Asia is already becoming apparent and should account for about three-quarters of the rebound in 2021. Natural gas prices are expected to rise globally in 2021, leading to some extent to a return to coal – especially in the USA and the European Union. However, this could be inhibited by a continued expansive course of CO_2 certificate prices in the EU ETS. The growth in coal consumption in 2021 is a continuation of the upturn in global coal demand that began in the last quarter of 2020 and continued in the first quarter of 2021. While an exceptional cold spell in North-East Asia in December was partly responsible for the rise in coal demand, the rapid growth in coal-fired power generation is a reminder of the key role coal still plays in supplying some of the world's major economies.

China is the only major economy where coal demand increased in 2020. Strong economic growth will continue to support demand for electricity in 2021. The IEA expects demand for coal in China to increase by more than 4 % in 2021.

The Chinese coal-fired power plant fleet (including combined heat and power plants) accounts for about one-third of global coal consumption. The future of both Chinese and global demand for coal is highly dependent on the Chinese power system. Growth in the demand for electricity remains closely linked to economic growth in China; demand rises in a ratio of one-to-one with GDP. What additional share of electricity demand will be met by coal depends on how quickly new renewable energy and nuclear power

capacities come online. Last year, despite the COVID-19 outbreak, additions of renewable energy rose to over 100 GW, largely due to a rush to complete projects before subsidies expired. Owing to the accelerated expansion of renewables, coal is expected to cover only 45 % of the projected 8 % increase in electricity demand in 2021.

In India, April 2020 marked the lowest level of coal consumption in many years as a significant economic slowdown in the second half of 2019 was followed by a strict COVID-19 lockdown. Since then, economic recovery has led to a steady rebound in coal consumption, which increased by 6 % in the fourth quarter of 2020. Higher demand for coal was also triggered by a decline in hydropower generation following exceptionally high hydropower availability in 2019. The IEA's estimate for India's coal consumption assumes a strong economic recovery in 2021, which will lift India's GDP well above the 2019 level and boost the demand for coal by almost 9 % to 1.4 % above 2019 levels.

In the USA, coal consumption remains in structural decline, even though 2021 is forecast to be the first year of growth in consumption since 2013. Rising electricity consumption and higher gas prices supported the increase in coal consumption in December 2020. This was the first year-on-year monthly increase since November 2018. Demand for coal from the power sector is expected to recover from the 2020 lows and increase by 10 %. Nevertheless, this will still leave demand for coal below the 2019 level. Electricity generation accounts for 90 % of coal consumption in the USA. This contribution has been more than halved since 2010, with demand between 2018 and 2020 in particular falling by one-third.

In the European Union, coal-fired power generation is dwindling or becoming increasingly negligible in a growing number of countries. Austria and Sweden closed their last coal-fired power plants in 2020; others, such as Portugal, will do so this year. The "Green Deal" (with a target of "zero CO_2 emissions in 2050") and the high prices of carbon certificates are accelerating the complete EU coal exit. Against this backdrop, coal demand is expected to grow by only 4 % in 2021, driven mainly by the recovery in industrial consumption. This increase is far from offsetting the 18 % decline in demand in 2020. Recent policy announcements indicate a further decline in coal use. Throughout 2020, there were frequent announcements of green economic stimulus packages, zero emissions targets by the middle of the century and plans to cut coal generation capacity.

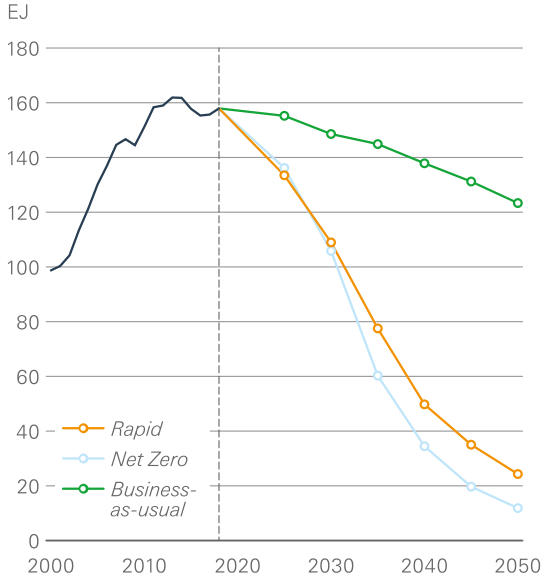
According to a study just published by BP, global coal consumption will decline steadily over the next 30 years and will never again be able to reach the peak value of 2013. BP has presented this study in three scenarios up to 2050: Rapid, Net Zero and Business-as-Usual (BAU).

The extent of the decline is particularly pronounced in Rapid and Net Zero, in which coal will be almost completely eliminated from the global energy system over the next 30 years, falling by between 85 % and 90 %. Coal's share of global PEC will decline to less than 5 % by 2050 in both scenarios.

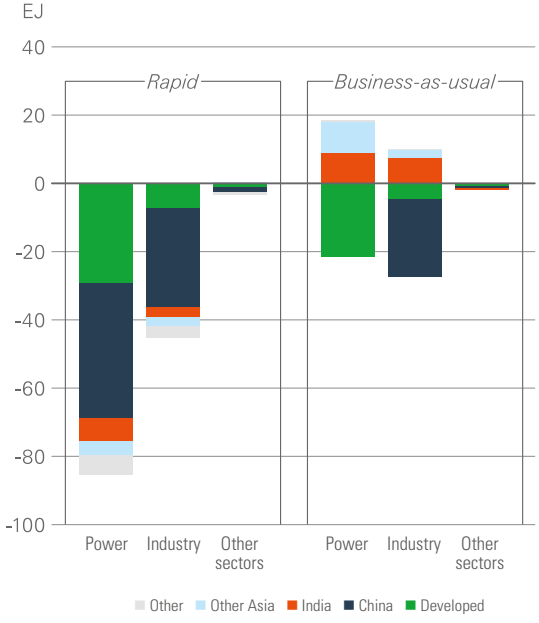
The decrease in demand for coal in the Rapid and Net Zero scenarios affects China to a major degree as the People's Republic is shifting to a more sustainable growth pattern and a lower-carbon fuel mix. The decline in Chinese coal consumption

Coal Consumption and Change in Coal Demand by Region

Coal consumption by scenario



Change in coal demand by sector and region, 2018-2050



Source: bp.com

HT-B20

accounts for about half of the total decline in global demand in these two scenarios, supported by declines in the OECD, India and the rest of Asia.

The decline in coal consumption is less pronounced in the BAU scenario, falling by around 25 % by 2050, although the rate of this decline accelerates over the course of the projection. Here as well, China is responsible for most of the decline, followed by the USA and the EU. The overall decrease in global coal consumption is partly dampened by continued increases in India and other Asian countries. Until 2050, the developing countries in Asia (China, India and other Asia) will account for over 80 % of total coal consumption in the BAU scenario.

The decline in consumption will be concentrated in the sectors of power and industry. In the Rapid and Net Zero scenarios, about two-thirds of the decline are in the power sector because power generation will be largely decarbonised while in BAU the decline

is more or less evenly distributed between the two sectors. Until 2050, the power sector will account for about two-thirds of the remaining coal consumption in BAU. In both Rapid and Net Zero, most of the coal consumption remaining in 2050 will be used in conjunction with CCUS (carbon capture use and storage) and be concentrated in the power sector and blue hydrogen production.

The decrease in global coal demand is matched on the supply side by significant reductions in Chinese coal production, which account for the majority of the production drops for both Rapid and BAU.

BP's forecast is contrasted, at least for the period up to 2030, by a recent study from the Global Energy Monitor, which analyses the results of a comprehensive global survey on coal mining projects. (cf. Coal Mine Proposals June 2021)

According to its findings, coal producers would have to stop all new mines and mine expansions and reduce production by 11 % every year to limit global warming to 1.5 °C and keep the goals of the Paris Climate Agreement within realistic reach. But instead of throttling production, operators continue to plan and build new mines. Based on the global survey, 2 277 million tonnes of new coal mining capacity are currently being developed every year.

While three-quarters (1 663 million tonnes per year) of the planned coal mine capacity are in an early planning stage and could still be cancelled, the remaining one-quarter (614 million tonnes per year) of the planned mine capacity is already under construction. Global decarbonisation efforts put these projects at risk of up to US$ 91 billion in stranded assets.

The study conducted by Global Energy Monitor includes all active coal mine proposals with a capacity of 1 million tonnes per year or more.

There are 432 new mine developments and expansion projects with a total capacity of 2 277 million tonnes per year that have been announced or are under development worldwide. Of these capacities, 614 million tonnes per year are under construction and 1 663 million tonnes per year are in the planning stage.

The development of these new mines runs counter to the IEA's new road map for net zero emissions. The IEA has proclaimed that limiting global warming to 1.5 °C would be possible solely if no new coal mines or mine expansions take place after 2021. According to the UN and leading research organisations, achieving the 1.5-degree target will require global coal production to fall by 11 % per year until 2030.

China, Australia, India and Russia account for more than three-quarters of new mine developments. China has 452 million tonnes per year under construction and another 157 million tonnes per year in planning. Australia is currently building 31 million tonnes per year and has plans for another 435 million tonnes per year. India is now constructing 13 million tonnes per year and planning 363 million tonnes per year, and Russia has 59 million tonnes per year under construction and 240 million tonnes per year in planning. About 24 % (544 million tonnes per year) of the world's planned mining capacity is located in four Chinese provinces and regions: Inner Mongolia (234 million tonnes per year), Xinjiang (123 million tonnes per year), Shaanxi (95 million tonnes per year) and Shanxi (92 million tonnes per year).

Most of the planned projects are publicly financed. The majority of planned coal mines in China and India are sponsored by companies that are wholly or partly owned by the government. This means that taxpayers' money continues to subsidise mining projects to boost the economy of the affected provinces and the country as a whole.

The world's largest energy companies such as Glencore, Mechel and BHP continue to invest in new mines and mine expansions, although small and independent companies are showing the greatest appetite for new projects, especially in Australia and Russia. Greenfield developments are leading the way. Almost two-thirds of the mining projects are "greenfield" projects.

While mega coal mining projects often face fierce opposition from climate activists and pose a high financial risk for investors, the coal industry relies primarily on medium-sized operations with a lower public profile. The average size for a new coal project is around 3.5 million tonnes per year.

Although power generation from coal-fired power plants has been declining since 2019, steam coal still dominates with 71 % of planned mine development. In North America, however, the ratios are reversed; here, metallurgical coal for steel production accounts for 70 % of the planned capacities.

CORPORATE SOCIAL RESPONSIBILITY

Assume responsibility –
key principle of the VDKi

CORPORATE SOCIAL RESPONSIBILITY

Due Diligence Obligations Act

On 3 March 2021, the German cabinet adopted the draft of an "Act Regarding Corporate Due Diligence Obligations in Supply Chains". The Due Diligence Obligations Act – better known as the so-called "Supply Chain Act" – is divided into six sections and is scheduled to enter into force on 1 January 2023. It is intended to promote the international protection of human rights in supply chains by establishing specific requirements for responsible and sustainable management of supply chains of certain companies and sectors.

A structure for compliance with due diligence obligations based on the United Nations Guiding Principles on Business and Human Rights has been established for sustainability management of companies in the supply and added-value chain. In fulfilment of their due diligence obligations, companies should identify risks of human rights violations and environmental damage in their own business fields as well as in supply and added-value chains and take measures to avoid or mitigate such risks. The next step is the evaluation of the initiated measures and their transparent presentation in public reporting.

The law includes the improvement of human rights protection and worldwide compliance with basic human rights standards such as the prohibition of child labour and forced labour. Companies in Germany are also expected to assume responsibility for the achievement of this goal. They are called upon to analyse the risks of a possible violation of human rights in their supply chains and to initiate measures to minimise these risks continuously.

The law seeks to provide greater legal certainty by defining criteria defining the due diligence obligations of companies. The law will apply to companies with more than 3 000 employees from 2023 and to companies with more than 1 000 employees from 2024. On 27 May 2021, the grand coalition reached an agreement on the Due Diligence Obligations Act after defining some fundamental changes. The bill now provides for its application to foreign companies in Germany, the granting of information rights for economic committees to works councils and, the expansion of environmental aspects by reference to a treaty in waste trade; the text of the act explicitly precludes the possibility of holding companies responsible under civil law for human rights violations. The act was passed by the Bundestag on 11 June 2021.

Even before the Due Diligence Obligations Act enters into force in Germany, work is being done on the issue at the European level. At the beginning of March 2021, the EU Parliament agreed on the key points of a Europe-wide law that is likely to go significantly further than the German Due Diligence Obligations Act in decisive regulatory points. The draft foresees application across Europe of the regulations to companies with 250 or more employees.

Furthermore, the European law is aimed at covering the full length of the supply chain.

The VDKI will work to ensure that an agreed industry-specific standard is established for coal as a basis for fulfilling corporate due diligence obligations.

Statement of Principles of the VDKi

As far as is possible for the Association, the VDKi assumes responsibility for social, ecological and ethical principles. The Association supports its members in their efforts to achieve a high level of corporate social responsibility (CSR) in all of their business activities. The VDKi and its members expect all of the parties participating in the hard coal supply chain (hereinafter known as the suppliers) to observe and support the following basic principles as the fundamental ground rules for a business relationship based on trust. The VDKi therefore adopted a resolution recognising the following basic principles for responsible, social, ethical and environmentally sound actions in the hard coal supply chain during its Members' Assembly on 25 June 2015.

Basic Principles

We expect the compliance of all suppliers with any and all relevant laws and regulations of the country in which they operate. Moreover, we expect suppliers to orient their business to at least one of the following three international standards and guidelines:

- The Ten Principles of the United Nations Global Compact
- The OECD Guidelines for Multinational Enterprises
- The IFC Performance Standards on Environmental and Social Sustainability

We monitor the further development of standards specific to mining and coal and maintain an ongoing dialogue with our suppliers so that we can support them in the fulfilment of their social responsibility.

We expect our suppliers to advocate sustainable business activities within the full scope of their responsibilities and interests and not to limit their efforts to establishing sustainable business models for themselves alone. In this sense, we expect our suppliers to communicate the basic principles declared here as their expectation of their own suppliers and market partners.

We are open for dialogue with all of the relevant stakeholders who wish to contribute to responsible corporate action in the hard coal supply chain in the sense of a continuous improvement process.

We expect our suppliers to commit to the basic values of the following four areas set forth in the UN Global Compact and to strive to implement these principles in practice.

1. Human Rights

We expect all suppliers to support and respect the United Nations Universal Declaration of Human Rights and to ensure that they themselves are not party to any violations of human rights. The reference framework for responsible handling of human rights is established by the "UN Guiding Principles on Business and Human Rights" and any national action plans based on these principles for the relevant region.

2. Labour Standards

We expect the compliance of all of our suppliers with the laws and regulations of their country, including those related to occupational safety and health protection on the job.

Moreover, we expect compliance with the following basic principles and related core labour standards of the International Labour Organisation (ILO):

- Freedom of association and the right to collective bargaining
- Abolition of forced labour
- Elimination of child labour
- Prohibition of discrimination in employment and profession

3. Environmental Protection

We expect all of our suppliers to ensure their responsible treatment of the environment and to work continuously on reducing the environmental impact of their activities on water, land, in the air and on biodiversity. Moreover, we expect them to encourage the development and distribution of technologies to protect the environment and to use natural resources efficiently.

4. Ethical Business Standards

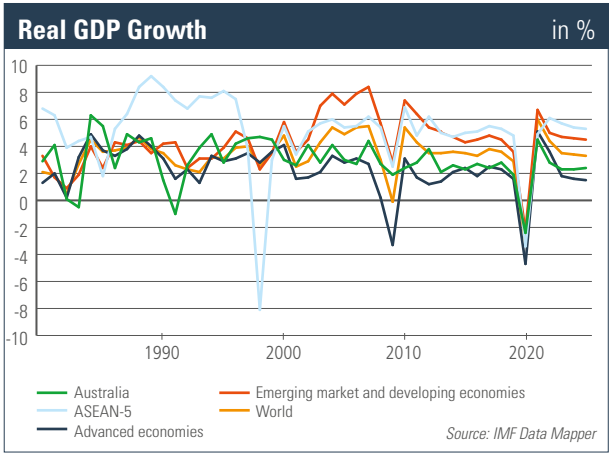
We expect all of our suppliers to comply with a high level of business ethics and to combat every form or corruption or bribery, including fraud and extortion. The reference framework for ethical business standards is found in the UN Convention Against Corruption.

The VDKi has created a work group on this subject, and CSR is a regular point on the agenda of the meetings of the Board of Directors. The VDKi is open to the sharing of experience with all groups and associations interested in CSR.

COUNTRY REPORTS

From Australia to India to the USA:
the topic of hard coal remains important

AUSTRALIA



LB-B1

General

The Australian economy grew steadily for three decades up to and including 2019. According to the International Monetary Fund (IMF), the gross domestic product (GDP) decreased by -2.4 % in real terms in 2020, the first time since 1991 that the growth rate was negative. In previous years, GDP growth rates were still +2.8 % in 2018 and +1.9 % in 2019 (World Economic Outlook, WEO, April 2021). Despite the still uncertain further development of the COVID-19 pandemic, growth of +4.5 % is expected for 2021 and of +2.8 % for 2022. According to IMF estimates, per capita GDP (at current prices) will increase by +3.9 % year-on-year to US$ 65 183 in 2022, still five times higher than the world average of US$ 12 837. According to the IMF, the increase in the consumer price index in 2021 will be +1.7 %, significantly below the world average of 3.5 %. IMF estimates indicate that per capita GDP (at current prices) will fall by 3 % year-on-year to US$ 52 825 in 2020, still almost five times higher than the world average of US$ 11 058. According to the IMF, the increase in the consumer price index in 2020 is 0.9 %, significantly below the world global percentage of 3.2 %.

In the view of the chief economist in the Australian Department of Industry, Innovation and Science, Australia's export revenues from metallurgical coal declined in real terms from the record value of AU$ 44.6 billion in fiscal year 2018-19 to AU$ 34.6 billion in fiscal year 2019-20. A volume of AU$ 22.7 billion is projected for 2020-21. A projected price increase will possibly lead to a rise in export earnings to AU$ 30.6 billion in fiscal year 2025-26. The real value of Australia's steam coal exports is expected to fall sharply from AU$ 20.6 billion in 2019-20 to AU$ 14.9 billion in 2020-21 because of the recent price decline. By 2025-26, after a slight increase in the interim, the 2020-21 level of AU$ 14.7 billion is expected again.

Companies with Australian coking coal mines face an uncertain future as prices are falling again in the new year after a brief rise; moreover, there is no end in sight to Beijing's ban on imports of Australian coal and the slowdown in production is hesitant because of fixed infrastructure costs. Queensland's metallurgical coal mines were largely unprofitable from July to December when metallurgical coal prices fell to their lowest level in almost five years over long periods of time. There was brief relief at the beginning of the year, but January's gains were largely wiped out

in February and early March, leaving mining companies with the prospect of another period of losses.

It is difficult for Australian producers to adjust production to market conditions as they are tied to fixed procurement or payment arrangements for port and rail infrastructure. The agreed cost of these contracts, according to Dalrymple Bay Infrastructure, the owner of Dalrymple Bay Coal Terminal (DBCT), ranges from AU$ 25.22/ton (equivalent to US$ 19.33/ton) at Wiggins Island Coal Export Terminal (Wicet) in Gladstone to AU$ 11.96/ton at Dalrymple Bay Coal Terminal (DBCT) in Mackay for coking coal producers in the central Bowen Basin. This is a fixed cost block that must be paid regardless of how much coal is transported via the rail or port system.

This level of fixed costs forces Australian coal mines to push coal onto the market via the rail and port systems even when world prices are at low levels. For most Australian coal mines, there is an extremely close correlation between higher volumes and lower costs. Australian coking coal export volumes fell to 58.4 million tonnes in the July-December 2020 period from 61.4 million tonnes a year earlier, but this has more to do with safety closures at mines such as Anglo American's Grosvenor mine (5 million tonnes/year) and the bankruptcy of some operators such as Bounty Mining.

Larger operators such as Anglo American and BHP, on the other hand, can afford to hold on to their high-grade coking coal mines and wait for profits to return in a higher-price environment. But next year will be critical for smaller local players like Stanmore and for multinationals with less robust balance sheets like Peabody and Coronado.

Argus assessed the price of high-grade, low-volatile coking coal at US$ 119.85 FOB Australia on 8 March, down from US$ 139.30/ton FOB Australia on 19 February and from the most recent high of US$ 157.25/ton FOB in early February. From June to December 2020, the price fluctuated generally between US$ 100 and US$ 110/ton FOB.

Production

The eastern parts of the country, New South Wales (NSW) and Queensland (QLD), are the sources of virtually all of Australia's hard coal. Most of the coking coal comes from QLD while steam coal comes primarily from NSW. Smaller quantities of hard coal were produced in West and South Australia as well as Tasmania (21 million tonnes in total) in 2020, but they remained exclusively on the domestic market.

Usable Production of the Major Production States of Australia

	2018 Mill. t	2019 Mill. t	2020 Mill. t
New South Wales (NSW)	198	201	198
Queensland (QLD)	251	250	220
Total NSW/QLD	**449**	**451**	**418**
Rest of Australia	21	21	21
Total	**470**	**472**	**439**

Source: Queensland Department of Natural Resources, Mines and Energy/IHS Markit

LB-T1

About 80 % of the total usable production comes from opencast pits, 20 % from underground mines. Total coal production fell from 472 million tonnes in the previous year to 439 million tonnes, a decrease of 7 % The reduction in production of 33 million tonnes comprised to 90 % production in Queensland.

The Australian Department of Industry, Innovation and Science's forward price curve currently projects prices up to 2026, showing an initial rise to US$ 70/ton by 2023 (starting from US$ 75/ton in 2019 for Newcastle 6 000 kcal/kg grade) and subsequently falling back to US$ 60/ton. Production and exports are expected to increase slightly. According to the same source, the Australian premium spot price for hard coking coal (HCC) will rise from the low of US$ 110/ton in 2020 to an average of US$ 136/ton in 2021

and to US$ 166 (in real terms) by 2026. Production and exports are expected to increase only marginally by 7 % between now and 2026. International market participants see calendar year 2024 prices for the NEWC index at just over US$ 85/ton in May.

In March of this year, massive rainfall triggered the worst floods ever in New South Wales. Both the mines in the Hunter Valley and the main railway line to Newcastle, the world's largest coal export port, were affected, disrupting operation for several days.

Conditions at separate mines vary. BHP production fell from 20 million tonnes in the first half of 2020 to 19 million tonnes in the second half of the year. However, BHP has not yet revised its production forecast of 40-44 million tonnes for fiscal year 2020-21. Actual production is expected to be more in the lower half of the range. Illawarra Metallurgical Coal and Whitehaven increased their production in the second half of 2020, the former by means of production in three instead of two longwall operations. Whitehaven also had to cope with production restrictions pursuant to air pollution requirements from the Narrabri project. In addition, production stops at Peabody's Wambo mine in New South Wales or Glencore mines, for example, led to production cuts in the first half of 2020 because of the drop in prices.

Exploration spending may have peaked. The comparison of Q4 2020 values to Q4 2019 shows exploration spending fell by 30 % to AU$ 54 million but remains higher than the lows in 2016 and 2017. The increase compared to 2016 probably results from the coking coal prices, which had risen again in the interim to an average level of US$ 200.

The investment in coal between 11/2019 and 10/2020 in the amount of approximately AU$ 40 billion represented 8 % of the project investments for commodities in Australia, putting the coal sector in only fourth place following LNG/natural gas/oil, iron ore and gold. In addition, the recent downturn in metallurgical and steam coal prices is weighing on future investment decisions. Consequently, several coal projects have been downgraded to "unlikely realisation". Still, coal exploration spending has increased for the third year in a row, this time to AU$ 300 million. This is the highest level since 2013/14 and brings exploration spending back to a level broadly in line with the ten-year average.

In September 2020, the Australian authorities granted Pembrobe Resources a mining licence for the Olive Downs Mine in Queensland. The Olive Downs open pit mine is located 40 kilometres south of Moranbah and is expected to become the third-largest coal mine in Queensland from production of 15 million tonnes, 90 % of which is metallurgical coal. Construction is due to start this year and will employ 1 000 people in the long term. The production from the open pit mine is supposed to increase gradually from 6 million tonnes per year to as much as 15 million tonnes per year and to be exported to the Asian market by rail via the Dalrymple Bay Coal Terminal.

The most recent boom in wind and solar power makes Australia one of the world's leading countries in wind and solar power generation. After a slow start in the first half of the last decade, Australia has experienced a wind and solar boom in recent years. These sources now supply 17 % of Australia's electricity, a significant increase from the 7 % share in 2015. This is the third-highest value among the G20 countries, trailing Germany and the UK, where wind and solar power are leading players with much higher rates of 33 % and 29 %, respectively. Since 2015, coal-fired generation has lost 10 % of its share, indicating that it has been replaced by wind and solar. Nevertheless, coal remains dominant in Australia's electricity generation mix and will account for more than half of the electricity generated in 2020. Besides coal, natural gas also plays an important role in Australia's power generation mix. It accounted for about 20 % of electricity generation in Australia in 2015-2020. Australia ranks fifth in the G20 for fossil fuel dependency with a share of 75 %. Last year, electricity demand in Australia fell slightly by 1 % (2 TWh). There was a 22 % increase in wind and solar power

generation (8 TWh). This development coincided with a 5 % (7 TWh) decline in coal-fired power generation – the largest decrease in a year since 2015. This is mainly due to the deteriorating profitability of coal-fired power generation caused by lower electricity demand and stronger competition from low-cost renewable capacities. The increasing unavailability of some ageing coal-fired power plants may also have contributed to the sharp decline in coal-fired power generation observed last year.

Infrastructure

In October 2019, the Queensland-based Indian company Adani Mining awarded a contract worth AU$ 100 million (about US$ 68 million) to the Australian company Martinus Rail for the construction of a 200-kilometre rail line. This railway line will connect the Carmichael coal mine in the Galilee Basin with the existing Goonyella railway network. The Carmichael coal mine's coal production, initially estimated at around 10 million tonnes per year, is to be exported via the Abbot Point Coal Terminal. As of this time, more than AU$ 450 million (about US$ 306 million) in contracts has been awarded for the Carmichael project. According to the company, construction work on the Carmichael mining and rail project is in full swing. Adani Mining expects to start coal production from the Carmichael mine in 2021.

Export

The Chinese government regularly adjusts its import restrictions based on a two-track policy: protection of the domestic mining industry on the one hand and assurance of reliable supplies to the power and steel plants on the other. In the absence of official government announcements, however, there is a high degree of opacity and uncertainty. For one, the Chinese government allowed low-priced imports as a means of preventing growth loss in China, but for another, it controlled even more strictly the ports through which imported coal was delivered to the Chinese steel regions.

The actions had an especially major negative impact on deliveries of Australian steam coal. The Australian-Chinese trade conflict certainly played a decisive role in this. This culminated in Australian coal worth half a billion euros being "at anchor" in Q4.

84 % of Australian hard coal production was exported in 2020. Table LB-T2 below shows the loading ports used for export of the coal. Dalrymple Bay posted the largest decline at 7.8 million tonnes (-11.5 %). We point out here that the transshipment figures from the coal loading ports do not always correspond precisely to the export figures. There may be customs-related reasons for this.

Exports of the Largest Coal Loading Ports

Coal Loading Ports	2018 Mill. t	2019 Mill. t	2020 Mill. t
Abbot Point	29.8	29.3	30.5
Dalrymple Bay	72.3	67.7	59.9
Hay Point	49.3	51.0	47.6
Gladstone	58.4	60.7	59.4
Brisbane	7.0	6.5	4.3
Total Queensland	**216.8**	**215.2**	**201.7**
PWCS	106.7	110.4	113.2
Port Kembla	6.7	8.4	8.0
NCIG	50.7	53.1	54.0
Total New South Wales	**164.1**	**171.9**	**175.2**
Total	**380.9**	**387.1**	**376.9**

Source: IHS Markit (Monthly throughput from key export ports)

LB-T2

Australia's total coal exports in 2020 decreased by 7 % year-on-year to 367 million tonnes.

Hard Coal Exports According to Grade

Coal Grade	2018 Mill. t	2019 Mill. t	2020 Mill. t
Coking Coal (HCC)	119	122	115
Semi-soft Coking Coal and PCI Coal	60	61	55
Steam Coal	207	212	197
Total	**386**	**395**	**367**

Source: Australian Department of Industry, Innovation and Science, Office of the Chief Economist / IHS Markit

LB-T3

Exports of steam coal in 2020 fell by 7 % year-on-year to 197 million tonnes. This was largely due to the Chinese government's ban on importing coal from Australia in the fourth quarter of 2020 and the problematic situation in the steel industry around the world. Exports of metallurgical coal also fell by 7 % year-on-year to 170 million tonnes, with declines for most major export destinations. 2019 exports came to just under 183 million tonnes.

Development of Australia's Exports to PR China

	2018 Mill. t	2019 Mill. t	2020 Mill. t
Coking Coal (HCC)	31.1	34.1	36.7
Semi-soft Coking Coal and PCI Coal	8.4	8.4	5.6
Steam Coal	49.8	49.9	37.9
Total	**89.3**	**92.4**	**80.2**

Source: IHS Markit

LB-T4

Steam coal exports to China fell dramatically by 24 % year-on-year to 37.9 million tonnes from 50 million tonnes in 2019. In contrast, exports to Japan, Australia's largest export destination for steam coal, were much less affected, falling by 5 % to 71.1 million tonnes.

Exports to South Korea fell by 14 % year-on-year from 33.1 million tonnes to 28.4 million tonnes as the country reduced coal-fired power generation to minimise the impact of air pollution on the environment. India, on the other hand, increased its imports from Australia by 91 % year-on-year from 3.5 million tonnes to 6.7 million tonnes as the country sourced Australian coal with high ash content to replace Indonesian coal with lower calorific values that was diverted to the Chinese market.

Australian exports of coking coal to China fell by 0.5 % year-on-year from 42.5 million tonnes to 42.3 million tonnes.

India remained the main destination for Australian coking coal in 2020. However, the impact of COVID-19 on global steel production meant that coking coal exports to India in 2020 at 42.2 million tonnes were 8.6 % lower than the previous year.

Exports of coking coal to Europe fell to 11.9 million tonnes (-27 %) due to declining demand for steel products and were the most affected by the economic impact in 2020.

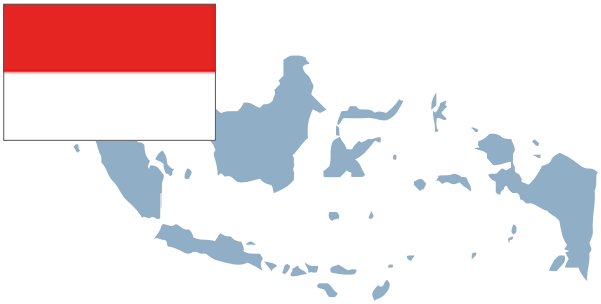
Key Figures Australia

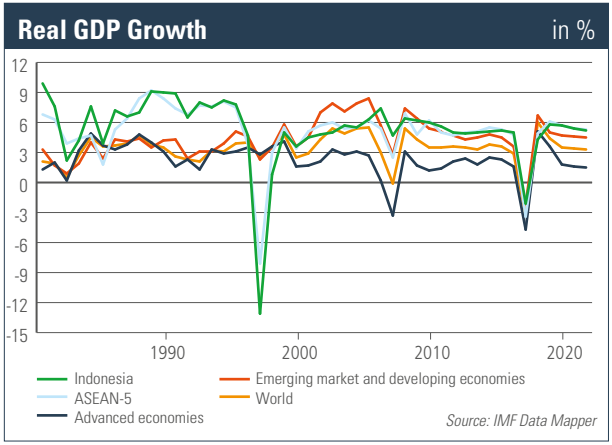
	2018 Mill. t	2019 Mill. t	2020 Mill. t
Hard Coal Production	**470**	**472**	**439**
Hard Coal Exports	**386**	**395**	**367**
Steam Coal	208	183	169
Coking Coal	178	212	198
Imports Germany	**5.2**	**4.7**	**3.9**
Steam Coal (incl. Anthracite)	0.0	0.0	0.0
Coking Coal	5.2	4.7	3.9
Export Ratio	**82 %**	**84 %**	**84 %**

Source: Own calculations/DESTATIS

LB-T5

INDONESIA





LB-B2

General

Indonesia is a member of the South-East Asian association, the Association of Southeast Asian Nations (ASEAN), and is far and away the largest national economy within this group. Other ASEAN member states are Malaysia, the Philippines, Singapore, Thailand, Brunei, Cambodia, Laos, Myanmar and Vietnam. The first four are also grouped together with Indonesia as the ASEAN 5.

At the beginning of July 2020, the World Bank upgraded Indonesia's economic status to an "Upper-Middle Income Country". The upgrade became necessary after Indonesia's per capita gross domestic product (GDP) rose above US$ 4 000 per capita (US$ 4 196 per capita) in 2019. About 20 % of the Indonesian population was now classified as middle class. Major progress has also been achieved in the fight against poverty. The proportion of the population affected by poverty fell to below 10 % in 2020, reduced by more than half compared to 1999. The coronavirus crisis weakened these successes when per capita GDP fell again to US$ 3 922 per capita at the end of 2020 (IMF). For comparison and relative understanding: in 2020, the global average was over US$ 11 000 per capita. Before the onset of the coronavirus crisis, Indonesia was on a steady path of growth. Among other circumstances, it was supported by a twenty-year government development plan scheduled to run from 2005 to 2025. In the period from 2016 to 2019, real GDP growth rates were +5 % or higher, according to the IMF. In 2020, with the onset of the coronavirus pandemic, the rate relapsed to -2.1 %. According to Germany Trade and Invest (GTAI), this was the first "negative growth since 1998". Yet Indonesia, comprising more than 6 000 inhabited islands (out of a total of more than 17 000) and a population of almost 270 million (as of 2020), was affected by the pandemic and the coronavirus countermeasures to varying degrees, both regionally and locally. Regionally differentiated lockdown measures and contact restrictions as well as the considerable contraction in domestic and foreign demand led to production losses, in part drastic in scope in many areas. In the international comparison, however, the implemented measures were rather moderate. The incumbent president of Indonesia, Joko Widodo ("Jokowi"), who has no party affiliation, has focused primarily on the country's economic development despite the highest COVID-19 infection figures in Southeast Asia, according to a report in the FAZ of

20 December 2020. In the middle of the crisis, for example, the so-called "Omnibus Act" was passed, which encompasses a large bundle of various labour and investment laws. This is discussed in more detail below in the comments on developments in the Indonesian coal industry.

Based on current developments, the IMF expects economic growth to recover this year and to return to the previous growth path with GDP growth rates above 5 % from 2022. Indonesia's current and future growth curve dominates that of the ASEAN 5 and the emerging and developing countries, whose curve lies slightly lower (cf. Chart LB-B2).

According to the IMF, the increase in the consumer price index in 2021 will be 2.0 %, significantly below the level of the global average of 3.5 %.

Indonesia was ranked 50th out of 141 countries in the World Economic Forum's (WEF) Global Competitiveness Index in 2019. In view of the coronavirus crisis, the WEF is suspending the Global Competitiveness Index in this year's "Global Competitiveness Report 2020". In the World Bank's Ease of Doing Business Index 2020, Indonesia ranks 73rd out of a total of 190 countries. However, the country's ranking in Transparency International's Corruption Perceptions Index 2020 deteriorated from 85th in 2019 to 102nd in 2020. A number of corruption scandals, particularly in the coal industry, have been reported.

As it is the biggest Muslim-majority country, has the largest population in South-East Asia and the fourth largest in the world spread among more than 300 ethnic groups, Indonesia is a country of superlatives in many respects – including in the coal and energy sectors. According to the 2020 database, Indonesia is the world's third-largest coal-producing country after China and India with a volume of 498 million tonnes and the second-most important coal-exporting country after Australia with exports of 342 million tonnes. Indonesia even ranks first in the export of steam coal. Unlike in other export nations such as Australia or Colombia, hard coal also plays the dominant role in domestic energy supply. In the energy mix covering primary energy consumption (PEC), coal (hard coal and lignite combined) is the most important energy source with a share of 38 % – ahead of oil (31.5 %), natural gas (19 %) and renewable energy sources (11.5 %). According to the state electricity company PLN (Perusahaan Listrik Negara), coal is also the most important energy source for Indonesia's electricity supply. Hard coal and lignite are absolutely dominant in this sector with a share of 65 % (corresponding to 181 GWh). Indonesia currently has 237 coal-fired power plants with an installed capacity of 34.61 GW. In view of this high importance for the energy industry, the low coal export ratio of 72 % is hardly surprising compared to, for example, the largest export nation Australia with 84 % (cf. Table LB-T8).

Some of the consequences of the coronavirus pandemic for the Indonesian electricity industry are even now foreseeable. The current draft of the Electricity Supply Business Plan (RUPTL) for the period 2021-2030 refers specifically to the pandemic. It indicates that the expansion plans for new power plants will be reduced by capacities amounting to 15.5 GW. The plan is now based on a new electricity consumption forecast, according to which electricity consumption is expected to increase by +4.9 % in the planning period. The estimate before the coronavirus crisis was +6.4 %.

In April this year, however, the state-owned power utility PLN reported that coal will remain the dominant energy source in Indonesian power generation for the foreseeable future. Between now and 2030, 14 to 16 GW of newly built coal-fired power plant capacity will go online. In total, an addition of 40.9 GW of power generation capacity is planned. Based on this planning, coal use in power generation is expected to increase from about 105 million tonnes in 2020 to between 140 and 170 million tonnes in 2030.

The Indonesian government has implemented several measures to secure the domestic supply of hard coal. As early as March 2018, Indonesia introduced a price cap of US$ 70/ton FOB (calorific value 6,322 kcal/kg) on coal sales to domestic power utilities in response to the rising price of coal at the time. This regulation was still in place in 2020. Another instrument to secure domestic coal supply is the single market commitment. This "Domestic Market Obligation System" (DMO) obligates the domestic coal mining companies to sell a part of their annual production, currently 25 %, on the domestic market. Companies that do not comply must pay compensation and must also assume they will be affected by ministerial production cuts.

In the opinion of German Trade & Invest (GTAI), Indonesia has attracted too little foreign investment in the past, resulting in an outdated industrial structure and a low number of high added-value jobs. But this now appears to be changing. Indonesia is looking to undergo a transformation from a raw material-only country to a country with a strong raw material-processing industry.

On 2 November, President Joko Widodo ratified and passed a new, extraordinarily comprehensive deregulation law. This so-called "Omnibus Act" for job creation affects and replaces, in whole or in part, a total of 79 previously applicable laws. It also amends significant sections of the regulations of the Mining Act of 2009. Whereas up to this point the regional governments had the right to issue mining licences, now only the central government is authorised to do so. Coal mining companies may be exempted from the payment of royalty fees („royalties") pursuant to their mining licences if they demonstrate their engagement in so-called downstream activities such as the construction or operation of coal-fired power plants, coal preparation plants, coal liquefaction or gasification plants and briquetting plants. The aim of this provision is to attract investors and contribute to the creation of entire downstream recycling industries and ultimately to job creation. The Omnibus Act also annuls the government's obligation to maintain 30 % of a watershed or island area as forest land. This overturns the 1999 Forestry Act, which sought (among other objectives) to prevent the increased occurrence of natural disasters such as floods and landslides because of the disappearance of primordial forests. Disruptions, blockades or other interference with mining activities will in future be punishable by law (imprisonment and fines). In addition, the use of external labour is facilitated by the elimination of previous requirements and prerequisites. Domestic coal sales are no longer tax-exempt and are now subject to VAT of 10 %. Coal export activities are exempt from the tax.

Some large-scale downstream projects are already in planning. For example, a consortium of PT Bukit Asam (PTBA), PT Pertamina Persero and the USA manufacturer of industrial gases, Air Products, wants to cooperate with its Indonesian subsidiary PT Air Products in the construction of a coal gasification plant that is scheduled to begin commercial operation in the south of Sumatra in 2025. The plant will convert low-calorific coal into dimethyl ether (DME). Production capacity is planned at 1.4 million tonnes of DME annually from coal input of 6 million tonnes per year. DME is supposed to replace expensive liquefied gas imports. In Indonesia, cooking is currently done almost exclusively with liquefied gas.

The Indonesian capital Jakarta will sink so far because of heavy groundwater extraction that it will come dangerously close to sea level. This has led to plans to relocate the capital. In August 2019, President Joko Widodo announced that the new capital will be located in the province of East Kalimantan. This region is also home to several large mines, including Adaro and Indika. However, the construction of the new capital has been postponed for the time being because of the coronavirus pandemic. The work was originally scheduled to start this year. The location of the new capital would be close to Indonesia's main coal terminal at Samarinda and the country's oil hub at the port city of Balikpapan. Some companies

expect the government to take heightened action against illegal mining, which would improve the statistical collection of mining data. Finally, the construction of the capital would also increase the demand for energy.

Production

Indonesia has coal reserves totalling almost 40 billion tonnes in 2020. About 22 billion tonnes (54.5 %) of this is classified as medium-grade coal while about 15 billion tonnes (38.6 %) are classified as low quality. Geographically, coal reserves and the related coal production are distributed among Indonesia's mining regions as follows: East Kalimantan 38 %, South Sumatra 35 % and South Kalimantan 14 %.

Indonesia's coal production has always been significantly driven by exports. This is now also true in the opposite direction with lower consumption growth because of the coronavirus. Domestic consumption increased moderately at best. In 2020, domestic coal consumption was about 141 million tonnes, an increase of 2.2 % compared to the previous year. Without the pandemic, significantly higher growth would have been likely. In the previous year, the annual increase was just under 21.1 %. Coal production decreased by 8.6 % to 563 million tonnes in 2020, a result of government-imposed production cuts and other factors, and was slightly above the government production target value of 550 million tonnes. As shown in the briefly described development, the export quota decreased continuously and finally fell to 72.3 % in 2020.

The Indonesian government has set a production target of 625 million tonnes for 2021. This would represent growth of 11 % in comparison with the previous year. The government expects a return to higher demand, especially on the international market. By setting production ceilings, the government wants to prevent "oversupply" and ensure "price stability".

Export

In 2014, a law that gradually prohibits the export of some non-processed ores went into effect in Indonesia; its objective is to encourage processing within the country. Indonesia enacted regulations in 2018 requiring exporters of coal and palm oil to use domestic insurance and shipping companies. The insurance obligation was implemented in 2019 and the shipping obligation went into effect on 1 May 2020.

In 2020, Indonesian coal exports declined for the first time since 2016. Coal exports fell by 8.0 % to 342.3 million tonnes in 2020, matching 2018 levels. Shipments went almost entirely to the Pacific sales market (see Table LB-T6). Exports of lignite also declined significantly by 22.6 % to 65 million tonnes (see Table LB-T8).

Indonesia's Hard Coal Exports by Market

	2018 Mill. t	2019 [1] Mill. t	2020 [1] Mill. t
Pacific	337.8	370.4	341.8
Europe	4.3	1.2	0.5
USA	0.8	0.6	0.0
Total	**342.9**	**372.2**	**342.3**

[1] Estimated

Source: Prepared IHS Markit figures

LB-T6

Shipments to the most important sales markets for Indonesian hard coal totalled around 230 million tonnes and declined across all observed destinations in 2020, although those to India were impacted the most, falling by 19.2 % (Table T7).

Table LB-T7 does not show the substantial increase in exports to China in the fourth quarter of 2020. In December in particular, monthly shipments reached an all-time high. Compared to 2019,

China procured an additional 7.3 million tonnes of Indonesian coal (hard coal and lignite) (i.e. a total of almost 17.6 million tonnes in December 2020), which compensated for the lost imports in Australian coal.

The Largest Buyers of Indonesian Hard Coal

	2018 Mill. t	2019 Mill. t	2020 Mill. t
India	110.4	121.6	98.2
PR China	48.1	65.5	62.5
Japan	28.7	27.4	27.0
South Korea	37.2	29.6	24.8
Taiwan	17.9	18.7	17.6

Source: IHS Markit

LB-T7

Key Figures Indonesia

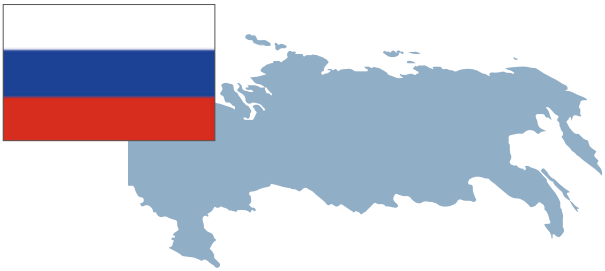
	2018 Mill. t	2019 Mill. t	2020 Mill. t
Coal Production [2]	**557**	**616**	**563**
Hard Coal Production [1]	**471**	**532**	**498**
Exports of Lignite	86	84	65
Exports of Hard Coal	343	372	342
Coal Exports [2]	**429**	**456**	**407**
Domestic Consumption [2]	114	138	141
Imports Germany	0	0	0
Export Ratio [2]	**77.0 %**	**74.0 %**	**72.3 %**

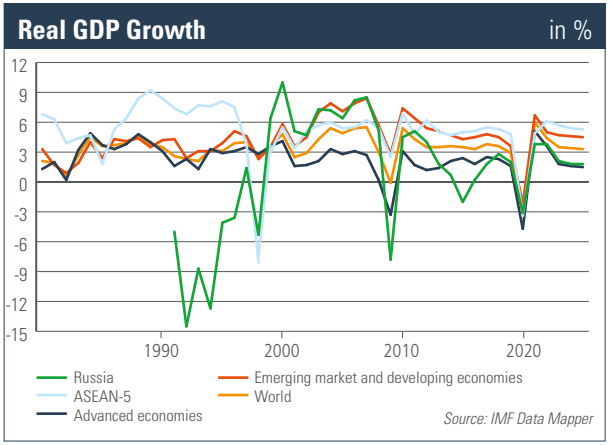
[1] Production including domestic lignite consumption, but excluding lignite exports,
[2] Hard coal and lignite

Source: Indonesian Coal Mining Association (APBI) & ESDM/IHS Markit/DESTATIS/ Own calculations

LB-T8

RUSSIA





LB-B3

General

The Russian Federation is one of the most important mining countries in the world as well as one of the most important export nations in the global oil, natural gas and coal trade. Russia is rich in natural resources. In particular, Russia ranks among the top ten in terms of its fossil fuel reserves. In terms of global natural gas reserves, Russia is in first place with 47.8 trillion m³, in sixth place for oil with 14.6 billion tonnes and in fifth place for hard coal with 71.7 billion tonnes.

However, the abundance of raw materials also has a downside. The country's economy is highly dependent on the commodities sector, where prices are sometimes highly volatile. In 2018, for instance, this economic sector accounted for just under 13 % of Russia's gross domestic product, and the Russian economy is highly vulnerable to falling international commodity prices. The Russian economy has suffered considerably since mid-February 2020 because of the drop in oil prices caused by the coronavirus pandemic. Starting at US$ 57.5/bbl (21 February 2020), crude oil prices (Brent) crashed by 73.2 % within just eight weeks to US$ 15.4/bbl (22 April 2020). By June 2020, they had recovered slightly to a level of around US$ 40/bbl. However, it was not until mid-February 2021 that crude oil prices again reached a level above US$ 60/bbl. Another major factor influencing Russian economic development relates to the economic sanctions that have been imposed on Russia by some Western countries since 2014, initially because of the Crimea crisis and later for various other reasons.

In international comparison, Russia has weathered the coronavirus crisis relatively well economically despite high infection figures, at least until April 2021. Russia has benefited from its economic structure that is characterised by a lower share of services and midsize enterprises than is the case in Western Europe, for example. Russia also relies to only a small extent on the import of intermediate products and is less integrated into international supply chains. Moreover, Russia imposed a strict lockdown at an early stage at the end of March 2020 and lifted it again only six

weeks later. Russia also started early to vaccinate its population using vaccines it had itself developed.

According to the IMF, Russia's economic growth (expressed in terms of the year-on-year rate of change in GDP) declined to -3.1 % in 2020 and was in line with global economic growth, which declined by 3.3 %. For the reasons mentioned above, however, Russia will presumably recover relatively quickly from the economic impact of the coronavirus.

The IMF expects economic growth of 3.8 % in both this and next year. Per capita GDP in 2020 was about US$ 10 000, approximately US$ 1 000 below the world average. The high consumer price index for goods and services (inflation rate), which according to GTAI data rose to 4.9 % in 2020, the highest level in four years, is cause for concern. The IMF deviates from this and predicts an inflation rate of 3.4 % for 2020 and an increase to 4.5 % for 2021. On the 2020 foreign exchange market, the rouble has depreciated sharply – by 20 % against the US$ and 32 % against the euro. Imports have become significantly more expensive and, in conjunction with high food prices, contributed significantly to the high inflation rate.

Of the socio-economic indicators, the unemployment rate seems to be suffering the greatest impact and the longest-lasting effects of the COVID-19 pandemic. Starting from an already high level in 2019 (4.6 %), the unemployment rate rose to 5.8 % in 2020. At the end of 2020, about 4.7 million people of the working-age population were unemployed, the highest level since 2011. A slightly lower unemployment figure of 5.4 % is expected for 2021.

In the Ease of Doing Business Index, Russia scored 78 points and placed 28th out of 190 countries in 2020, moving up from 31st in the previous year and 112th in 2012. Russia performed well in the Global Competitiveness Index 2019, ranking 43rd and in the top 50 out of 141 countries. The World Economic Forum refrained from conducting a similar competitiveness comparison in 2020 because of the coronavirus pandemic. Corruption, however, remains an issue. In Transparency International's country ranking, Russia improved its Corruption Perceptions Index by eight places to 129th place but remains in the bottom half out of a total of 180 countries.

Coal Strategy 2035

In the post-Soviet era from 1991 onwards, the Russian Ministry of Energy has presented a total of four energy strategies (1995, 2003, 2009 and 2015). The Energy Strategy 2035, first issued in 2015 and with a time horizon until 2035, has been modified several times, most recently in April 2020. One element of the strategy is the Coal Strategy 2035, which was issued by the Ministry of Energy in June 2020. It comprises a total investment volume of about € 67 billion; however, it is supposed to be financed mainly by private investments and corporate profits and involve only a comparatively low state participation. Around 57 % of the funding is supposed to be spent on expanding the capacity of extraction and processing plants while just under 43 % is earmarked for energy and transport infrastructure (railways and ports). Based on two scenarios, "conservative" and "optimistic", the development and marketing of hard coal, along with other sectors, are to be further developed in three stages as part of the Coal Strategy 2035. The first stage – 2019 to 2025 – envisages the completion of several infrastructure projects for the expansion of rail connections for coal transport, especially towards the Far East. They include the modernisation and capacity expansion of the Baikal-Amur Mainline (BAM) and the Trans-Siberian Railway (Transsib) by 2024. The second stage – 2026 to 2030 – concerns above all the structural transformation of the Russian coal industry, i.e. developing new

mining areas and building new mines and processing plants using the latest techniques for digitalisation and optimisation. The third stage covers the period from 2031 to 2035 and aims to combine rapid technological progress with the implementation of high global quality standards to improve the efficiency and technical performance of Russian coal producers.

In pursuing its Coal Strategy 2035, Russia is betting against the worldwide trend of decarbonisation and against the success of a global energy transition. Within the country, the use of coal in power generation is to be replaced by natural gas as far as possible so that coal exports, which bring in foreign currency, can be increased further and so that the country's carbon footprint can be improved Currently (data from 2020), coal has a share of 15 % in the Russian electricity mix while natural gas and oil provide 44 %. Hydropower plants and nuclear power plants each contribute 20 %. The contribution of the so-called new renewable energy sources – wind power and photovoltaics – is a mere 0.3 %.

As described, Russia plans to expand massively its coal export industry. How can this be reconciled with the Paris Climate Change Agreement, which Russia has also ratified? Environmental protection is given consideration in a separate chapter in the Coal Strategy 2035, but neither clear specifications nor standards are named here. They will supposedly be prepared by 2025. Some Russian mining companies such as the industry giant SUEK are already implementing extensive environmental protection measures (to improve air quality, reduce dust pollution and filter industrial wastewater) at their mining operations.

Infrastructure

The current capacity expansions in the coal industry are aimed exclusively at exports. While the importance of coal is dwindling in Europe, the Russian Energy Ministry expects high growth in Asia. The Coal Strategy 2035 estimates growth in coal exports for the two scenarios by the end of the planning period in 2035 at 22 % (conservative scenario) or 86 % (optimistic scenario) compared to 2020. Capacity expansion is increasingly focused on the Asian sales markets. For some ongoing projects in western parts of the country with target markets especially in Europe, however, this reorientation comes too late. Russia's plans to modernise and expand the port infrastructure of its Baltic terminals, for example, run the risk of becoming unprofitable over time because of Europe's declining consumption of steam coal. Three major port expansion projects are scheduled for completion by 2022. In Primorsk, a coal terminal with a capacity of 25 million tonnes per year and an investment volume of US$ 1.5 billion is scheduled to begin operation in 2022. A terminal with a capacity of 15 million tonnes per year in Vysotsk is scheduled for completion in 2021. Novotrans has already started construction of a coal transshipment facility in Ust-Luga, which will cost US$ 740 million and is scheduled for completion by 2022. This would add another 30 million tonnes per year of coal transshipment capacity to Ust-Luga. The coal terminal project in Kola Bay near Murmansk, on the other hand, is delayed. Its realisation remains questionable because of the expected decline in demand in Europe.

The development of the coal industry is a top priority in Russia. In early March 2021, President Putin invited several members of his cabinet, governors from affected provinces and the top executives of Russian coal corporations and the transport sector to a video conference on the "development of the coal industry". A transcript

of parts of this virtual event has been made available via "The Kremlin" (cf. The Kremlin, Moscow, "Meeting on Coal Industry Development", 02/03/2021). During the meeting, President Putin defined the priorities for the five Russian provinces with coal mining areas and called on the ministries concerned to draft and coordinate with one another timetables and targets for capacity expansion and transport development. At the same time, they are required to consider the international challenges on the world coal market and to make a distinction between two time periods: the short term of the next three to four years and the longer term up to 2035. Even today, in President Putin's words, the main focus of Russian coal exports is on the Asia-Pacific region. Russia should not miss out on the great opportunities offered by the high growth rates in Asian coal use. The expansion of the BAM (Baikal-Amur Mainline) and the Transsib (Trans-Siberian Railway) was explicitly emphasised in this respect. Regarding the mining regions, the Russian government paid particular attention to the export potential of the Kuzbass region. Coal exports from here are expected to increase by 30 % by 2024 in comparison with 2020. The eastward exports of Yakutia Province are also set for further expansion.

The situation is similar in the Kemerovo region. In addition, President Putin addressed the issue of the coal provinces' excessive economic dependence on coal and urgently called for diversification into other economic sectors.

Some of the targeted projects from the Coal Strategy 2035 with a focus on Asia-Pacific are already being implemented. In September 2019, for example, the third loading unit of the largest coal terminal went into operation in the port of Vostochny on Russia's Pacific coast, doubling the port's loading capacity to between 50 and 55 million tonnes per year. A new coal terminal in Sukhodol Bay (Sea of Japan) with a transshipment capacity of 6 million tonnes per year is scheduled to begin operations in October 2021. Important project partners are the state port operator Rosmorport and the Russian steam and coking coal producer SDS-Ugol. Russia has also negotiated a bilateral trade agreement with India that runs until 2025 and features a trade volume of US$ 30 billion. Indian investors are increasingly interested in investing in the Russian coal industry. For instance, the state-owned coal producer Coal India (CIL) has signed a contract to mine coking coal in Russia's Far East. Furthermore, expansion measures with an investment volume of almost € 1.5 billion are already underway in the Elga coking coal deposit (owner: A-Property) in the Republic of Sakha (Yakutia Province). Elga's is expected to be operating at full capacity as of 2027. The second development stage of the Inaglinskaya/Nerjungri coking coal deposit, also in Sakha, is scheduled to start mining operations in 2022. The Syradasayskoye coal field (open pit) at the northern end of the Taymyr Peninsula in the Arctic Ocean, north of the Krasnoyarsk region, is also earmarked to serve the Asian market. Annual production of 5 million tonnes of high-grade coking coal is in planning for the first stage. Capacity will later be increased to a total of 10 million tonnes per year in the second stage. AEON is involved in this area and has already started the construction of the Taymyr coal loading terminal with an annual handling capacity of 5 million tonnes per year; it is scheduled to begin operation in 2023.

Production

Russia is one of the world's largest hard coal producers. Only China, India, Indonesia, the United States and Australia have higher production. Hard coal mining is the only sector in the Russian energy industry that is completely in private hands.

However, the companies are subject to strong government influence.

The COVID-19 pandemic did not spare the Russian coal industry from extensive production and export declines experienced in other countries. However, a total of 27 mining companies were classified as system-relevant, received state subsidies and were in part exempted from the nationwide lockdown in March and April last year. These companies included Kuzbassrazrezugol, Chernigovets, Workutaugol, Jukutugol, SDS-Ugol and SUEK (for the record, "Ugol" is the Russian word for coal). In total, steam coal production in 2020 fell by 8.2 % to 401 million tonnes. Of this amount, 101 million tonnes (25.2 %) were coking coal and 300 million tonnes (74.8 %) were steam coal, anthracite and lignite (cf. Table LB-T9). In the next few years, Russia will immensely expand its coal production capacities in line with its Coal Strategy 2035 (see comments above). By 2024, they are scheduled to rise to between 448 tonnes and 530 million tonnes per year (depending on the scenario). And by the end of the 2035-time horizon, the Russian Ministry of Energy expects coal productior.

Hard Coal Production Russia

	2018 Mill. t	2019 Mill. t	2020 Mill. t
Coking Coal	110	111	101
Steam Coal [1]	323	326	300
Total	**433**	**437**	**401**

[1] Incl. anthracite and lignite

Source: SUEK

LB-T9

Export

InIn the ranking of the most important export countries in seaborne coal trade in 2020, Russia's 146 million tonnes puts it in third place behind Australia and Indonesia. 117 million tonnes (80 %) of Russian seaborne exports were steam coal and 29 million tonnes (20 %) were coking coal (LB-T10). In addition to the seaborne coal exports mentioned above, almost 38 million tonnes were exported to foreign customers via domestic trade. In total, Russian coal exports in 2020 amounted to just under 190 million tonnes. Compared to the previous year, this is a decrease of almost 18 million tonnes (8.6 %). The three most important import countries are all in Asia. They are the People's Republic of China (29.1 million tonnes; 9.1 % more than the previous year), South Korea (23 million tonnes; 4.3 % less than the previous year) and Japan (21.5 million tonnes; an increase of 7.5 % over the previous year). Exports to India of 7.6 million tonnes were slightly higher than in the previous year (+2.3 %).

According to our statistics, Asia as a whole accounted for imports of just under 105 million tonnes. Compared to the previous year, this is an increase of 8 %. Measured in terms of total Russian coal exports, this represents to a share of 55 %. This share has steadily increased since 2018.

Key Figures Russia	2018 Mill. t	2019 Mill. t	2020 Mill. t
Coal Production	**433**	**437**	**401**
Hard Coal Exports Seaborne	**164**	**168**	**146**
Steam Coal	124	130	117
Coking Coal	40	38	29
Imports Germany	**19.2**	**19.3**	**14.4**
Steam Coal	17.7	17.7	13.4
Coking Coal	1.3	1.4	0.9
Coke	0.1	0.2	0.1
Export Ratio	**38 %**	**38 %**	**36 %**

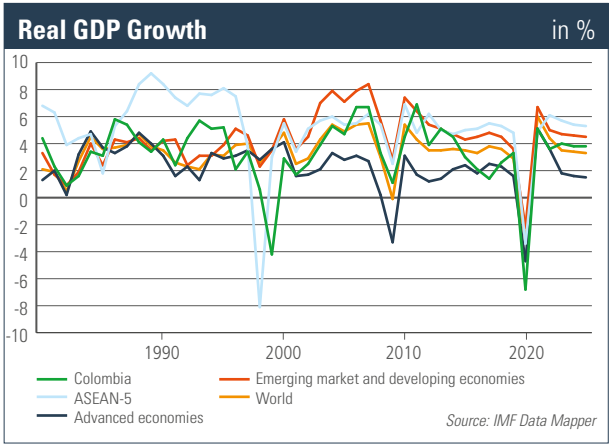
Source: IHS Markit/DESTATIS/Own calculations

LB-T10

Exports to the EU 27 and other European countries, North Africa and the Mediterranean region, on the other hand, were largely in decline. In 2020, 49.3 million tonnes were exported to the EU 27 (i.e. without Great Britain) following the 67.2 million tonnes in the previous year (also without Great Britain), a fall of 26.6 %. The most important importing country within the EU 27 was again Germany, whose imports also fell in comparison with the previous year to about 14.4 million tonnes (-25.1 %). Poland was the second-most important EU consumer country with 9.4 million tonnes (-13.3 % compared to the previous year). Exports to Turkey increased by 51.7 % to 14.3 million tonnes. Ukraine's imports, on the other hand, fell by 58.4 % to 3.3 million tonnes.

As disclosed above, Russia was able to increase its exports to the People's Republic of China by around 9.1 % and benefit significantly from the trade conflict between the People's Republic and Australia. In line with its Coal Strategy 2035 featuring investments of billions of euros in new production, processing, transport, transshipment and port capacities, Russia intends to expand its exports to Asia, especially to India and China, even more significantly in the coming years. In an increasingly competitive environment, Russia is a growing threat to the coal exporting nations of Australia, Indonesia and South Africa, challenging their traditional position on the markets in the Asia-Pacific region.

COLOMBIA



LB-B4

General

Colombia is the fifth-largest coal exporter in the world, and hard coal is the second-largest source of foreign currency for their country after oil. According to the IMF, Colombia's gross domestic product declined by -6.8 % in 2020 because of the COVID-19 pandemic (WEO, April 2020). Growth is expected to return to 5.1 % in 2021 and 3.6 % in 2022 while the world average GDP in these two years will increase by 6 % and 4.4 %, respectively. This would mean per capita GDP of US$ 6 045 in 2022, substantially below the world average of US$ 12 837. This is on par with the average for developing and emerging countries of US$ 6 065. According to the IMF, the increase in the consumer price index in 2021 will be 2.1 % below the global average of 3.5 %.

In response to the coronavirus pandemic sweeping across the country, the Colombian government imposed a nationwide curfew in mid-March 2020, which essentially remained in place initially until 31 August 2020. This had an immense influence on the economic development of the Latin American country. In almost all sectors of the economy, from construction (-23 %) to raw materials (-14.5 %) to manufacturing (-11.1 %), growth rates in added value posted negative figures in double digits as a minimum in the first nine months of 2020. The only exceptions were agriculture and the renewable energy sector. An assessment of Colombia's economic development by Germany Trade & Invest (GTAI) from mid-April 2021, however, casts doubt on the IMF's projection for 2021. It predicts that the recovery of the Colombian economy will be delayed. Owing to a massive increase in COVID-19 infections, strict lockdowns were again imposed in many major cities in spring 2021. The vaccination rate of the Colombian population to prevent COVID-19 illness is also stalling as Colombia has been able to secure only 15 million vaccine doses for 2021. And these supplies are earmarked for medical staff and the elderly population for the time being.

In addition to the expected economic recovery from 2022 at the latest, the government's economic stimulus package "Nuevo Compromiso por el Futuro de Columbia" with a volume of almost US$ 29 billion is expected to provide further economic impetus in the coming years. It will, however, propel the public debt, which rose sharply during the coronavirus crisis last year, even further

upward. A forecast by the UK's Economist Intelligence Unit (EIU) predicts that the mark of 54.5 % in 2019 will now climb to public debt equalling 73 % of GDP in 2021.

In the international comparison, Colombia was able to hold its own even during the coronavirus pandemic despite the economic slumps described above. In the Ease of Doing Business Index 2020, Colombia ranked 67th (previous year 65th) out of 190 countries, which put it at the end of the top one-third. In the Global Competitiveness Index 2019, Colombia was in the top half, ranking 57th. No corresponding data are available from the World Economic Forum (WEF) for 2020 as the latter refrained from a comparison of competitiveness with little meaning as a consequence of the coronavirus pandemic. In the Corruption Perceptions Index 2020, the country moved up a few places to 92nd place from the previous year (96th place), but remains in the lower midfield.

Currently, hydropower (from numerous reservoirs) clearly dominates Colombia's electricity supply, accounting for 67.8 % (11 937 MW) of total installed electricity generation capacity (as of October 2020). A share of 31 % is accounted for by thermal power plants fired with natural gas and/or coal. The new renewable energies wind power, photovoltaics and biomass contribute only 1.2 % (218 MW). Owing to the high share of hydropower in electricity generation, special conditions prevail in Colombia. The Colombian government expects climate change to lead to decreasing rainfall in the future, and it fears a reduced availability of hydropower output. Measures to counter this threat, in addition to the "backing" by thermal power plants, involve more than 50 projects to increase the output capacities of the new renewable energies wind, photovoltaics and biomass by a factor of 13 to 2 800 MW by 2022. Conditions are favourable for both wind (onshore) and photovoltaics, especially in the northern part of the country.

In the fight against climate change, the Colombian government wants to reduce the country's CO_2 emissions by 51 % in the period from 2012 to 2030 and has set considerably more ambitious goals for itself than it did in 2015. At that time, a reduction of 20 % was targeted. According to a report by ArgusMedia from 25 February 2021, the government is planning to impose a CO_2 tax on coal-fired power generation in the electricity and industrial sectors. The initial proposed charge would be US$ 13.00/ton of CO_2 (47 000 pesos/ton CO_2). The government hopes that the charge will raise an additional 320 billion pesos in tax revenue per year. The Colombian electricity producers' association, Asociación Nacional de Empresas Generadoras (ANDEG), calculates that the measure will increase electricity prices by 15 to 20 pesos/kWh. The benefits in the fight against global warming are likely to be rather limited as Colombia's share of global CO_2 emissions is below 0.5 % because of the high share of hydropower in electricity generation.

Production

Steam and coking coal production in Colombia fell by 34.3 % to 54.1 million tonnes in 2020, the lowest value in 16 years, because of COVID-19, low market demand and strikes. For 2021, the government expects production to increase by about 20 %.

Prodeco, a wholly owned subsidiary of Glencore, will return its Colombian mining contracts after a review has found that the recommencement of operations will not be profitable. Prodeco's Calenturitas and La Jagua open pits have been in a maintenance and repair phase since March last year. The company had asked for permission to leave its mines in the maintenance and repair phase, but the request was rejected by the National Mining Authority of Colombia (ANM) in December. Prodeco, which employs around 1 200 people directly in Colombia, has resumed its voluntary redundancy programme. The mines will continue to be maintained

until the formal process to terminate the contracts is completed. The ANM will review the legal admissibility of the return of the mining contracts.

Infrastructure

In view of reduced demand on the Atlantic market and the expectation that this will continue, the Colombian coal industry is hesitant to invest in the expansion of coal export infrastructure; this is the conclusion of a new flagship report by the IEA ("COAL 2020", December 2020). For instance, the expansion of the production capacities of the Cerrejón mine (P40 project) will be postponed until further notice.

Export

Total Colombian steam coal exports fell by 29.1 % to 52.1 million tonnes in 2020. Consideration of low coking coal exports in relation to production as well results in a very high export ratio of 99 % as can be seen in the table on Colombia's key figures at the end of this section (see LB-T13). This is essentially due to the high hydropower affinity in Colombian electricity generation (see above).

There were some shifts in the structure of steam coal exports by company, as can be seen in Table LB-T11. Exports from Cerrejón (La Guajira province) amounted to 12.4 million tonnes in 2020, down 14.4 million tonnes (-53.7 %) from 26.8 million tonnes in 2019 and the lowest level in 18 years. 2020 was one of the most difficult years in Cerrejón's history as it was battered by massive declines in demand, the international fall in steam coal prices, unfavourable court rulings and a 91-day strike. Drummond's exports declined from 31.2 million tonnes in 2019 to 29.3 million tonnes in 2020. making Drummond the largest exporter as well as producer for the fifth consecutive year. Prodeco's contribution in 2020 was very small for the reasons already mentioned above (see section on production).

Steam Coal Exports by Company

Exporter	2018 Mill. t	2019 Mill. t	2020 Mill. t
Cerrejón	30.3	26.8	12.4
Drummond	32.5	31.2	29.3
Prodeco	12.1	13.4	2.4
Colombia Natural Resources (CNR)	3.3	3.0	1.5
Other (incl. central Colombia)	1.8	1.8	6.5
Total	**80.0**	**76.2**	**52.1**

Source: Own analysis; rounding-off differences possible

LB-T11

Shipments from Colombia in 2020 were down for almost all target regions, but to varying degrees (see LB-T12). Asia was the only exception, where imports from Colombia increased by 17.9 % despite the rampant coronavirus pandemic. It can be concluded that Colombia almost certainly benefited from the trade conflict between China and Australia. Asia reached a share of 19 % of total Colombian exports. In Europe, on the other hand, imports from Colombia fell by 37.3 % to 23.9 million tonnes, whereby Mediterranean imports dropped by 27.9 % and Northwest Europe saw a drastic collapse of 50.6 %. While Europe continued to be the most important destination even in the past year (23.9 million tonnes; 45.8 %), there was a powerful downward trend. Turkey alone accounted for 14.8 million tonnes. In Germany, which was once one of the most important European buyers, imports from Colombia of 1.9 million tonnes (2019: 1.8 million tonnes) declined by more than half compared to 2018 and hardly played any role at all. Exports to the Americas accounted for 35 % of the total and fell by 38.4 % to 18.3 million tonnes, with exports to North America dropping by one-third and those to South and Central America plummeting by almost 40 %.

Structure of the Colombian Steam Coal Exports [1]

	2018 Mill. t	2019 Mill. t	2020 Mill. t
America	**28.8**	**29.7**	**18.3**
North America (USA+Canada)	4.7	5.1	3.4
South and Central America	24.1	24.6	14.9
Asia	**7.7**	**8.4**	**9.9**
Europe	**43.5**	**38.1**	**23.9**
Mediterranean Region [2]	25.9	21.9	15.8
North-West Europe	17.6	16.2	8.0
Total	**80.0**	**76.2**	**52.1**

[1] Coking coal and coke not included in the export figures.
[2] Delimitation: France, Greece, Italy, Spain, Turkey

Source: IHS Markit, own calculations

LB-T12

Viewed by country, Turkey (14.8 million tonnes; 28.4 % of total exports), followed by Chile (6.2 million tonnes; 11.5 %), South Korea (4.3 million tonnes; 8.3 %) and Israel (4.2 million tonnes; 8.1 %) were the four largest destination countries. They are followed by India with 3.1 million tonnes (6 %); this country is now the fifth-largest export country for Colombia. The EU has lost much of its importance as an import region in recent years.

Colombia was previously an important coal supplier for Europe. As Europe is placing its focus on renewable energies for electricity production, Diego Mesa Puyo, Minister of Mines and Energy, is basing future plans on coal exports to Asia playing a more important role for Colombia in the foreseeable future. Mesa Puyo expects both production and exports to recover. Moreover, it can be assumed that Asian investors will increasingly be interested in the awarding of mining licences. Owing to the at times very different price levels for steam coal on the Pacific and Atlantic markets, Colombia was able to act as a swing supplier for a while and exploit arbitrage contracts. Now Colombia seems to be focusing more and more on the Asian markets.

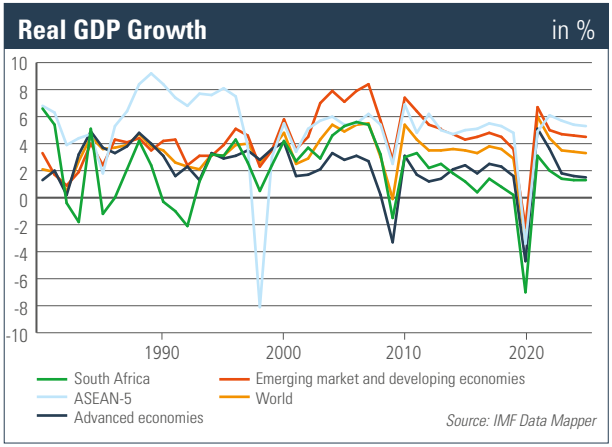
Key Figures Colombia

	2015 Mill. t	2016 Mill. t	2017 Mill. t	2018 Mill. t	2019 Mill. t	2020 Mill. t
Hard Coal Production	**85.5**	**90.5**	**91.1**	**84.3**	**80.3**	**54.1**
Hard Coal Exports	**83.2**	**89.9**	**84.7**	**81.8**	**77.2**	**53.3**
Steam Coal	80.5	88.6	83.2	80.0	76.2	52.1
Coking Coal	2.7	1.3	1.5	1.8	1.0	1.2
Imports Germany	**9.9**	**10.8**	**6.4**	**3.8**	**1.8**	**1.9**
Export Ratio	**97 %**	**99 %**	**93 %**	**97 %**	**96 %**	**99 %**

Source: Various analyses

LB-T13

REPUBLIC OF SOUTH AFRICA



LB-B5

General

South Africa (Republic of South Africa, RSA) is classified as the sole industrialised country on the African continent and is a member of the OECD and the G20. It is also one of the most important mining countries in the world and has large deposits of natural resources (gold, platinum, coal and many more). The hard coal reserves (economically mineable) were estimated by the German Federal Institute for Geosciences and Natural Resources (BGR) in its recently published Energy Data 2020 to amount to about 9.9 billion tonnes (data basis 2019). This puts South Africa in tenth place in the ranking of countries with the highest coal reserves worldwide. Despite favourable initial conditions, the country has been confronted with major structural and economic problems for years, partly caused by long years of bad planning, mismanagement and corruption.

South Africa's economic growth, expressed in rates of change in (real) gross domestic product (GDP), has been subject to substantial fluctuations for more than four decades. As can be seen in Figure LB-B5, it is well below the growth path of developing and emerging countries and is even below the global average. With few exceptions, it is at the level of the advanced economies (lower growth rates) and in some periods has even been significantly lower.

In 2019, the country narrowly escaped recession when the GDP change rate was only +0.2 %. Per capita GDP was just under US$ 6 000, clearly below the global average (a good US$ 11 500) and the mean value for industrialised countries (just under US$ 52 000). The unstable currency (South African rand) of relative weak value has long been susceptible to high fluctuations in the exchange rate, and this has contributed to relatively high inflation of 4.1 % (world average: 3.5 %). And the unemployment rate was already at a record 28.7 %.

Given this initial situation, the economic effects of the coronavirus pandemic hit South Africa particularly hard in the following year, resulting in a deep recession with negative growth of 7 %. Per capita GDP decreased by 15 % compared to the previous year and the unemployment rate peaked at a new record of 29.2 %. The government took tough measures early on (strictest lockdown in

the world) to bring the infection incidence under control. According to a report in the *Wiener Zeitung*, South Africa with its nearly 60 million inhabitants is the African country most scourged by the pandemic. By the end of March, COVID-19 had killed around 53 500 of the nearly 1.6 million people reported to be infected in the country. Most recently (mid-April 2021), the cure rate was 95 %. In addition, the number of new infections fell drastically so that the government was able to lift most of the coronavirus restrictions. This is also reflected in the IMF's largely positive economic expectations. Economic growth of 3.1 % is forecast for 2021, which will weaken again slightly to 2.0 % in 2022. However, the unemployment rate is projected by the IMF to increase further to 29.7 % in 2021 and 30.8 % in 2022.

In international comparison, South Africa, the African leader, posts rather mediocre values for the majority of indicators. In the World Bank's Ease of Doing Business Index 2020, for example, the country on the Cape ranks 84th out of 190 countries, lower than any other hard coal-exporting nation. In the World Economic Forum's (WEF) Global Competitiveness Report 2019, South Africa was ranked 60th, far behind most hard coal-exporting countries in terms of competitiveness. Owing to the Corona pandemic, the WEF did not publish corresponding data for the year 2020. In Transparency International's Corruption Perceptions Index 2020, South Africa ranks 69th in a comparison of over 180 countries (previous year: 70th). In mid-November 2020, the FAZ reported on a commission of enquiry set up two years ago to fight corruption. The focus is on affairs from the Zuma era (May 2009 to February 2018). Jacob Zuma (from the African National Congress – ANC) was the predecessor of the current president, Cyril Ramaphosa (also ANC), who was vice-president under Zuma (May 2014 to February 2018). Fighting corruption was one of the promises he made when he took office as president.

South Africa's energy policy is often described by analysts as slow, cumbersome and bureaucratic. Decision-making processes extend over several years, necessary investment decisions are dragged out, postponed or sometimes later cancelled altogether. For instance, the National Energy Act in 2008 provided for the development of an Integrated Energy Plan (IEP), which (now, at least) has still not been submitted. In 2011, the Integrated Resource Plan (IRP) for the South African electricity industry for the time horizon from 2010 to 2030 was presented to the public (IRP 2010-2030). Seven years later (2018), that IRP was updated and reissued in 2019 for the period from 2019 to 2030.

The IRP 2019 now provides for the closure of old coal-fired power plants with a total capacity of 11.5 GW. In return, new electricity generation capacities based on renewable energy sources are scheduled for construction: 14.6 GW of wind power and 6 GW of photovoltaics. In addition, there is an incentive programme for electricity consumers who are supposed to contribute 3 GW in self-generation via natural gas or diesel-fired generators and a capacity of 2 GW through battery storage. In addition, construction of 1.5 GW of new coal-fired power plant capacity is planned. Moreover, hydropower imports of 2.5 GW from the Inga 3 project in the Congo are included in the calculations (damming of the Congo River at the Inga Falls for energy generation; two hydropower plants – Inga 1 and 2 – already operate there). The 2019 IRP is intended to be South Africa's first step towards achieving the zero emissions target in 2050 set in the "Low Emission Development Strategy" (LEDS), implementing the target horizon of the Paris Climate Agreement.

However, the realisation of the Inga 3 project seems more than questionable. The financing of the Inga 3 hydropower plant is crumbling, and some previous partners are withdrawing. What is more, South Africa would have to build the required and still

planned thousands of kilometres of electricity transmission line at its own expense. And these costs, originally estimated at around US$ 4 billion, are also getting out of hand at the moment.

Two "new" coal-fired power plant projects, which are scheduled to go online in the near future, promise hope for improvement with regard to the power supply bottlenecks. The two mega coal-fired power plants, Medupi (Lephalale, Limpopo Province) and Kusile (Witbank, Mpumalanga Province), each have six units of 800 MW each and each plant is expected to generate 4 800 MW. This would make them among the largest coal-fired power plants in the world. However, both power plant projects have been in the approval process or in the construction phase since 2007. Originally, the power plants were supposed to be completed in 2015. The commercial use of the power plants remains highly uncertain. Over the years, the occurrence of several mishaps and technical problems have further delayed the projects. In mid-March 2021, the commercial operational startup of the Kusile power plant was postponed to 2023. At Medupi, commercial operational startup was originally scheduled for 2020. Both projects continue to suffer delays – now because of the Corona pandemic.

Yet an increase in capacity is urgently needed. As the International Energy Agency (IEA, Paris) states in its latest IEA Electricity Market Report (dated December 2020), South Africa's electricity supply has been suffering from repeated power supply shortages for at least 15 years. They are due to the increasing downtimes of the steadily ageing coal-fired power plant fleet and the lack of investment in new power plant capacities. South Africa's electricity supply is hugely dependent on the availability of coal-fired power plants. In 2020, 86 % of electricity generation was covered by hard coal, 6 % by wind power and photovoltaics, 5 % by nuclear energy and 3 % by gas and oil.

The state-owned electricity utility Eskom is largely responsible for this miserable situation. However, it has little manoeuvring room because it is burdened with an enormous debt of US$ 29 billion (per September 2020). So far, Eskom has dealt with the problem mainly by rationing the scarce electricity supply according to rotating shutdowns, as the *Tagesschau* editorial team wrote in its online edition at the beginning of April this year. This practise is also known as "load shedding" and has been a regular part of everyday life in South Africa for years. The shutdown time periods are announced several times a week and are usually no more than two hours long so that frozen food is not endangered. The problem cannot be solved even in the middle term. According to Eskom, there will be a shortfall of about 4 000 MW of electrical output over the next five years. For the relatively short term, the South African Minister of Energy and Mineral Resources (Gwede Mantashe) holds out the prospect of remedial action by private providers. This type of action could make about 2 000 MW of output available by August 2022. So-called generator ships that are firmly anchored near the harbour and feed electricity generated from liquefied gas into the public grid are under consideration for this purpose.

Production

South African hard coal production in 2020 declined by 4.1 % year-on-year to just under 248 million tonnes. Virtually the total volume comprised steam coal (98.3 %). The remaining tonnages were anthracite coal. Just under one-third of total production (75 million tonnes) was exported (LB-T15). About half of the annual production was used to generate electricity in domestic power plants, about 18 % went into the production of synthetic oil (coal liquefaction) and the rest was supplied to industry.

The South African coal industry is facing a series of structural changes. For example, Anglo American is combining its South

African holdings for the production of steam coal into a new company called "Thungela". The new company's annual production is 16.5 million tonnes and it is valued at US$ 1.3 billion. The objective could be the facilitation of a later coal exit. Anglo American is facing increasing exit pressure from its investors. As the Financial Times reported, other large mining groups have already taken this path. Rio Tinto, for instance, divested its last coal mine in 2018. BHP is also reportedly considering plans to sell its steam coal operations.

Infrastructure

The willingness to invest in the South African coal industry has declined noticeably in recent years. According to statistics prepared by the Minerals Council South Africa, net investment in the coal industry has decreased from 4.5 billion rand in 2010 to 2.5 billion rand in 2018.

Pressure from environmental activists and the exercise of a contractually agreed exit clause threatens the Thabametsi IPP (IPP = independent power producer) project in Waterberg (near Lephalale in Limpopo Province) with failure as well. The largest South African coal mining company Exxaro Resources and the Japanese trading company Marubeni Corp. are involved in the project. In November, the High Court in Pretoria annulled the environmental permit for the Thabametsi coal-fired power plant (1 200 MW).

While the country's Witbank coalfields are the most significant coal basin, 40 % of future coal reserves are in the Waterberg area, which is a considerable distance from any existing rail and port infrastructure. There is also a mismatch between the rail capacity of the state-owned railway company Transnet and the port capacity for coal exports from the Richards Bay Coal Terminal (RBCT).

The monopoly rail provider Transnet had earlier unveiled plans to expand the capacity of the rail network by 25 million tonnes by 2025, including a new 450-kilometre heavy haul line to transport coal from the Waterberg region. However, the success in creating a railway connection of the Waterberg region with the RBCT has been modest.

In future, national financing of coal projects is likely to become more difficult. According to a Reuters report of 22 April 2021, Nedbank, which is one of South Africa's four largest banks, is withdrawing from the financing of new steam coal mining projects with immediate effect (i.e. on 22 April 2021).

Export

In 2020, South Africa exported a total of 75.0 million tonnes, again less than in the previous year. Virtually the total volume comprised steam coal. 65.4 million tonnes were shipped to Asia and 3.2 million tonnes to Europe (including countries bordering the Mediterranean), similar to the previous year.

Structure of South Africa's Exports in 2020

	Total Mill. t	Europe [1] Mill. t	Asia Mill. t	Other Mill. t
Steam Coal	73.6	3.2	64.4	6.0
Anthracite	1.4	0.0	1.0	0.4
Total	**75.0**	**3.2**	**65.4**	**6.4**

[1] Incl. neighbouring Mediterranean countries (Turkey, Israel)

Source: IHS Exports: Coal and coke by country and type

LB-T14

With a share of 51 % and just under 38.1 million tonnes, India remained the most important destination for South African hard coal in 2020. Compared to the previous year, Indian imports from South Africa decreased by 11.9 %. Pakistan follows in second place with a share of 16.1 %. This represented a slight increase of 1.6 % (+193 kilo tonnes) over the previous year. Exports to Vietnam are still in third place, having almost tripled to around 7.5 million tonnes compared to the previous year. Other notable destination countries in descending importance were Sri Lanka with 2.5 million tonnes (+45.9 %), South Korea with 1.4 million tonnes (-62.9 %), Taiwan with 1.0 million tonnes (-8.5 %) and Turkey with 1.9 million tonnes (six times higher than 2019).

The days when South Africa could still act as a swing supplier between the Atlantic and the Pacific are definitely over now that Europe's purchase volumes have decreased so dramatically. From the 26 million tonnes in 2014, the European annual purchase volumes of South African steam coal have decreased in only six years by 85.5 % to 3.2 million tonnes in 2020. South African exporters have become completely dependent on developments in Asia and face increasing competition from Australia and Indonesia – especially on the Indian sales market. This has become even more true since the start of the Chinese import ban on Australian coal supplies.

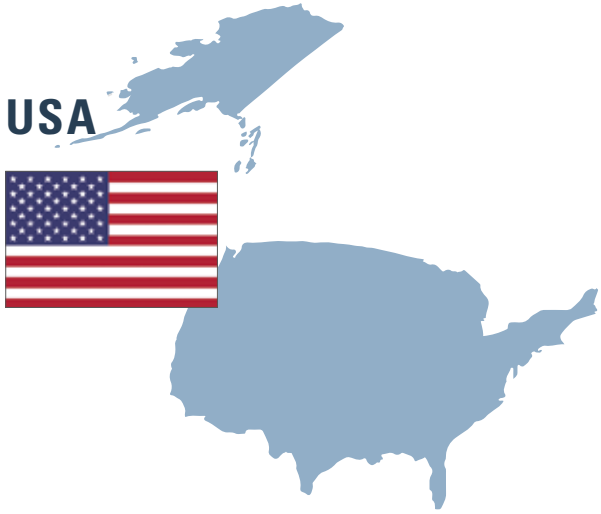
Key Figures South Africa

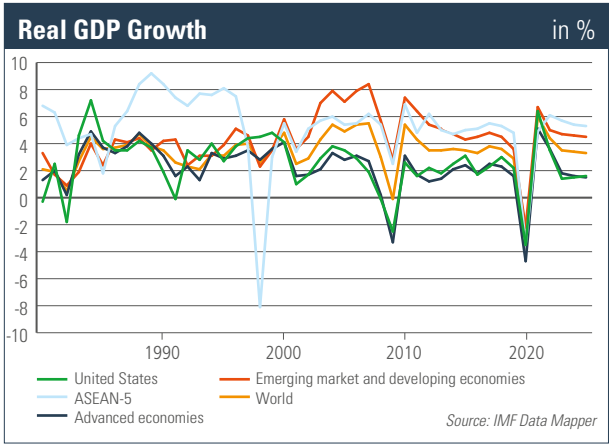
	2018 Mill. t	2019 Mill. t	2020 Mill. t
Hard Coal Production	**253.4**	**258.5**	**247.9**
Steam Coal	250.1	254.7	243.8
Anthracite	3.3	3.8	4.1
Hard Coal Exports [1]	**81.0**	**78.5**	**75.0**
Steam Coal	79.8	76.8	73.6
Anthracite	1.2	1.7	1.4
Imports Germany	**1.0**	**0.8**	**0.4**
Steam Coal	1.0	0.8	0.4
Anthracite	0.0	0.0	0.0
Export Ratio	**32.0 %**	**30.4 %**	**30.3 %**

[1] Seaborne only

Source: IHS Markit/DESTATIS

LB-T15





LB-B6

General

In 2020, the United States (USA) was the fourth-most important coal-producing country in the world. In previous years, the USA was still in third place, but was overtaken by Indonesia when there was an immense drop in production (-24.3 % in 2020 compared to the previous year).

Gross domestic product (GDP) of the USA has developed in step with the average of advanced national economies in recent decades (cf. LB-B6). According to the IMF, GDP decreased by 3.5 % in 2020 (WEO, April 2021). Despite the COVID-19 pandemic, growth of 6.4 % is expected for 2021 and of 3.5 % for 2022. This would mean a greater growth than that of the global economy (+6 %) in 2021. Per capita GDP was approximately US$ 63 400 in 2020, substantially above the world average. By 2022, it would rise to about US$ 71 900. The unemployment rate shot up from 3.7 % in 2019 to a dramatic 8.1 % in 2020. According to the International Monetary Fund (IMF) projection on which these figures are based, the unemployment rate will not return to its pre-Covid-19 crisis level until 2023. Following the flattening of the inflation rate in 2020 (to 1.2 %), it will rise to 2.3 % and 2.4 % in the following two years (according to the IMF forecast) and be below the global average of 3.5 %.

The IMF forecast most likely does not consider the current economic stimulus package initiated by the Biden administration. Yet this is the most extensive economic stimulus and infrastructure package in USA history with a volume of about US$ 1.9 trillion. As sensible and necessary as the Biden stimulus programme is, it is seen by investment analysts as a possible driver of rising inflation in the coming years.

This infrastructure package with an equivalent value of about € 1.7 trillion is a generation-defining project, much like the space programme or the construction of the motorways, said President Joe Biden at the presentation of his plan in Pittsburgh, Pennsylvania. The programme is supposed to be carried out over a period of eight years.

The plan will create “millions of well-paying jobs” and help the USA to compete with China. Congress must pass the package, he demanded. “We have to make this work”, Biden stressed. Biden touts his project as the largest USA jobs programme since World War II. Among other provisions, the plan provides for the modernisation of about 32 000 kilometres of roads and motorways, 10 000 bridges and a number of airports and ports and includes

as well investments in public transport. Other components of the programme are broadband expansion and the upgrade of the water supply system. Furthermore, according to the White House, the programme is intended to spark an "electric car revolution". It envisions the creation of 50 000 charging stations for e-cars, and one-fifth of the ubiquitous yellow school buses are to be converted to e-motors. The USA is one of the wealthiest countries in the world with an infrastructure that largely dates back to the 1950s. According to Biden, the USA urgently needs these investments to compensate for the neglect in this area of recent decades and to create one of the strongest, most resilient and innovative economies in the world.

Data from S&P Global Market Intelligence show that in 2020 USA coal-fired power plant capacities with a volume of about 9.2 GW were shut down. Prior to this, the second-highest capacity reduction in recorded history of 14.2 GW took place in 2019. Closures in the amount of 3.2 GW and 4.9 GW are expected for 2021 and 2022, respectively. Looking back, more than 50 GW of coal-fired power plant capacity were taken offline in the period from 2016 to 2020, according to Market Intelligence's power plant database. These developments have been highly accelerated by the (shale) gas boom with low natural gas prices, the expansion of renewable energies and other factors. They have pushed and continue to push hard coal out of USA power generation. Even Donald Trump's coal-friendly policies could not stop this process.

Total USA energy consumption fell by 7 % in 2020 compared to the previous year, as reported in the Monthly Energy Review of the US Energy Information Administration. This is the sharpest decline, both in percentage and absolute figures, since recording of these data began in 1949. A major part of this reduction is because of the economic losses that began with the COVID-19 pandemic in spring 2020.

Energy consumption decreased in all sectors in 2020, but to very different degrees. The transport sector was the most affected. Consumption in this area was 15 % lower in 2020 than in 2019, almost entirely a consequence of reduced traffic movement pursuant to the imposition of travel restrictions.

In the USA, the share of electricity from renewables has increased from 14 % to 20 % since 2015 because additional wind and solar capacity has come online. Meanwhile, the share of coal in electricity generation has declined and will contribute no more than 19 % to coverage of electricity demand in 2020 compared to 33 % in 2015. Natural gas-based electricity generation has also increased significantly over the years by a total of 283 TWh in the period under review from 2015 to 2020. Natural gas and oil now generate 40 % of America's electricity needs. This means that despite the drop in coal-fired power generation, fossil fuels still covered 60 % of the country's electricity demand in 2020. The growth of renewable energies since 2015 has been driven above all by wind and solar generation. In the five years since 2015, wind and solar power generation has increased by 239 TWh while hydropower generation has increased by only 42 TWh and biomass power generation has actually declined, falling by 8 TWh. The share of wind and solar energy in power generation has risen by 6 percentage points to 12 % and is above the global average of 9.4 %. Despite the 43 % decline in coal-fired power generation, the shift to natural gas-fired power generation has resulted in an overall decline in fossil fuel power generation of only 11 % since 2015. 49 % of the decline in coal-fired power generation was compensated by an increase in natural gas-fired power generation and 41 % by the increase in wind and solar power generation. Power generation using nuclear energy has maintained a relatively stable share of 20 %. Per capita electricity demand remains high and was almost four times the world average last year.

As outlined, coal consumption in the USA continues to decline sharply. In 2020, only 434 million tonnes of coal were used, down from 533 million tonnes the year before. Since 2014 (834 million tonnes), coal consumption has been cut almost in half. This has also had a significant impact on employment trends in the USA coal industry. USA coal mines shed about 7 000 jobs in 2020 as the industry only partially recovered from the disruptions associated with the early stages of the COVID-19 pandemic. Coal mining employment, adjusted for seasonal fluctuation, was 44 100 in December 2020, according to preliminary estimates released by the US Department of Labour. In each of the months of December 2019 and January 2020, the figure had been 51 100.

Following Joe Biden' announcement during the climate summit in April that the USA wants to reduce greenhouse gas emissions by 50 to 52 % over 2005, the future of coal-fired power generation in the US is likely to worsen further. What specific direction this development will take will also depend to a large extent on the development of the relation between coal and natural gas prices as well as the energy policies of the individual states.

The Office of Fossil Energy (FE) of the US Department of Energy (DOE) has awarded US$ 6 million in federal funding for cost-shared research and development (R&D) projects under funding opportunity announcement (FOA) DE-FOA-0002405, "Advanced Coal Waste Processing", the production of coal-enhanced filaments or resins for advanced manufacturing and research and development of coal-derived graphite. In a changing paradigm of power generation, innovations are needed to extract the full economic value from coal waste. NETL's Advanced Coal Waste Processing programme seeks to address this challenge by supporting novel technologies to produce valuable products from coal waste through research and development in laboratories and on a pilot scale. The use of previously unusable tailings and slurry (coal wastes) in additive manufacturing and graphite production is consistent with the Biden/Harris administration's goals to expand and develop both existing and new environmentally sound uses for these products and to deploy these technologies in economically disadvantaged power plant and coal communities. While both coal from existing mines and coal waste are acceptable initial materials for these innovations, the use of coal waste (e.g. tailings, ash, etc.) is preferred. This strategy promotes job creation as the USA transitions to clean energy and will help ensure that the costs of the energy transition are not borne disproportionately by coal regions.

Production

For many years, the USA was the second-largest coal producer in the world. In 2018, India overtook the USA. According to the Energy Information Administration (EIA DOE), USA coal production in 2020 was only 485 million tonnes, 156 million tonnes (-24.3 %) below the previous year. This is calculated in metric tonnes ("t") and not the short ton [st] commonly used in USA statistics, which is equivalent to 0.907185 tonnes. As a result, the USA slipped to fourth place in the ranking of the world's largest hard coal producers. This is the lowest USA coal production since 1965. In its current Short-term Energy Outlook, the EIA expects around 570 million tonnes for 2021, which would correspond to an increase of 17.5 % compared to 2020.

Table LB-T16 shows a breakdown of coal production by region. The 20.6 % decline in the West is slightly below the trend in the USA coal industry but was the highest in absolute terms. In terms of percentage, the rates of change in production were higher in the negative range for the Midwest (-29.3 %) and Appalachia (-28.6 %).

Production in the USA by Region	2018 Mill. t	2019 Mill. t	2020 Mill. t
Appalachians	182	175	125
Middle West	124	116	82
West	380	349	277
Rest	1	0	0
Total	**686**	**641**	**485**

Source: DOE-EIA

LB-T16

Infrastructure

In the United States, coal industry investments are focused mainly on expanding coking coal production capacity. According to the IEA, the capacity expansion up to 2021 is estimated at 5.6 million tonnes per year. This includes Arch Resources' project for the Leer South coking coal mine in West Virginia, which is scheduled to start operations in the third quarter of 2021. The new deep mine (longwall mining) is currently being built next to the existing Leer mine and is expected to have a production capacity of 4 million tonnes per year. Another mine with a similarly high output is supposed to be built near the Leer South mine by 2022. However, this mining project is a joint venture between AMCI, Itochu Corp. and POSCO.

Export/Import

USA steam coal exports decreased significantly in 2020 owing to reduced demand and low international price levels as well as fierce competition from Russian and Colombian coal. Exports from Central Appalachia and Northern Appalachia to Europe as well as shipments from the Illinois Basin were affected.

In 2020, coal exports from the USA fell by 25 % to 62.6 million tonnes. Of this figure, 61 % was coking coal and 39 % steam coal; this ratio is the same as the breakdown in the previous year. Steam coal exports decreased by 29 % and metallurgical coal exports by a comparable 24 %. Compared to 2011, exports fell by 45 % from 113.5 million tonnes.

American coal is exported primarily by sea (58.5 million tonnes); a small part traditionally goes overland to Canada (4.1 million tonnes).

Exports USA 2020	Coking Coal Mill. t	Steam Coal [1] Mill. t	Total Mill. t
Seaborne	34.8	23.7	58.5
Overland (Canada)	3.4	0.7	4.1
Total	**38.2**	**24.4**	**62.6**

[1] Including anthracite coal

Source: IHS Markit

LB-T17

The export balance fell significantly for the second consecutive time and at 53 million tonnes almost returned to the 2015 level. The export quota in 2020 came to 12.8 % following 13.1 % in the previous year (Table T19).

Import/Export Balance USA (Seaborne)	2018 Mill. t	2019 Mill. t	2020 Mill. t
Export	100	79	58
Import (seaborne)	5	6	5
Export Balance	**95**	**73**	**53**

Source: IHS Markit

LB-T18

Key Figures USA	2018 Mill. t	2019 Mill. t	2020 Mill. t
Hard Coal Production	**686**	**641**	**485**
Hard Coal Exports	**105**	**84**	**62**
Steam Coal	49	34	24
Coking Coal	56	50	38
Hard Coal Imports	**5**	**6**	**5**
Imports Germany	**10**	**8**	**6**
Steam Coal	6	5	2
Coking Coal	3	3	4
Export Ratio	**15.3 %**	**13.1 %**	**12.8 %**

Source: Various and own calculations

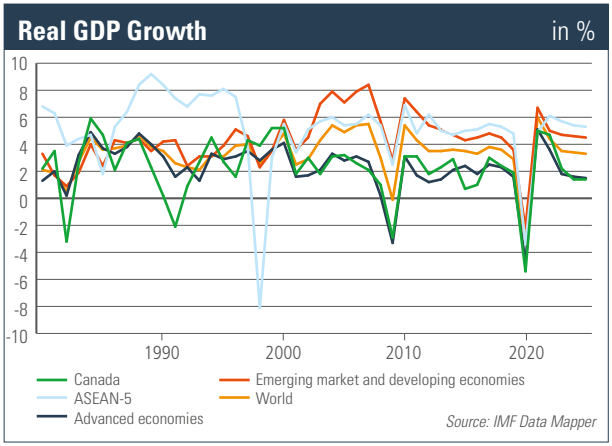
LB-T19

13.3 million tonnes were shipped to the EU 27. This represented about 21 % of total exports and was 9.5 million tonnes (-41.7 %) lower than in the previous year. The largest consumer country within the EU 27 after Germany was Austria with 1.4 million tonnes. This was exclusively coking coal.

Larger quantities also went to the countries bordering the Mediterranean, with Turkey leading the way with 2.5 million tonnes. Larger quantities of 3.3 million tonnes also went to Ukraine.

Tensions in the trade war between China and the USA have eased to some extent. In 2019, USA exports to the People's Republic were less than half. This was partially offset again in 2020 when USA exports to China rose once more by 52.6 % to 1.6 million tonnes.

CANADA



LB-B7

General

Canada is a medium-size mining country and an important coking coal exporter by sea. A major part of production and export mines is located in British Columbia and Alberta. British Columbia is the westernmost province of Canada and is directly on the Pacific coast. Alberta is to the east and borders British Columbia.

Canada's GDP declined by -5.4 % in 2020 (IMF, WEO, April 2021) because of the COVID-19 pandemic and according to the IMF, the first decline since 2009. Growth is expected to return to 5.0 % in 2021 and to 4.7 % in 2022. Per capita GDP was US$ 43 278 in 2020 and, according to the IMF estimate, would rise to as high as US$ 52 502 by 2022. This would place it well above the world average of US$ 12 837 and slightly below the G7 figure of US$ 58 133. According to the IMF, the increase in the consumer price index in 2020 will be 0.7 %, significantly below the world average of 3.2 %.

Mining in Canada, like many other sectors, was severely affected by the COVID-19 pandemic. Mines, smelters and refineries reduced their production or discontinued it altogether. This led to hundreds of dismissals of directly and indirectly employed workers. From 5.7 % in 2019, the unemployment rate shot up to 9.6 % in 2020 (IMF, WEO, April 2021). The Canadian government decided to include large companies in its wage subsidisation, which is part of a broad COVID-19 reform package. Since the mining industry in Canada employs about 626 000 workers and accounts for one out of every 30 jobs in the country, the wage subsidy supports the Canadian economy as a whole as well as plays a significant role in stabilising the mining industry. By 2022, the IMF estimates that the unemployment rate will have almost returned to normal at 6.5 % and would be back at the 2017 level of 6.4 %.

Canada has already decided to end domestic coal-fired power generation by 2030. Coal is currently used to generate electricity in the provinces of Alberta, New Brunswick, Nova Scotia and Saskatchewan. Except for Alberta, the other provinces mentioned would like to continue coal-fired power generation until 2040. However, this is tied to strict government emission regulations for the capture and storage of CO_2, the so-called „Carbon Capture & Storage (CCS).

Coal-fired power generation in Canada fell by only 8 % in 2020 compared to 20 % in the USA and the EU. Since 2015, coal-fired power generation has fallen by 23 %. Decline in the USA, on the other hand, has been 43 % and in the EU 48 %. The expansion of wind and solar generation is slowing down. Canada has added less capacity in the last five years than almost every other country in the G20 except Indonesia, Russia and Saudi Arabia.

Production

The production of steam coal and coking coal in Canada in 2020 amounted to 40.8 million tonnes, falling by 21.2 % and significantly lower than in 2019 – a consequence of the COVID-19 pandemic.

At present, the Coal Valley, Vista and Donkin mines, which produce steam coal, are not producing. It is simply not profitable because the difference between the (high) production costs and (low) world market prices for steam coal is negative. In addition, there are licensing law issues in some cases.

Infrastructure

The mining company Teck (Teck Resources, Ltd., domiciled in Vancouver) has completed the expansion of the Westshore Terminal and has begun shipping more tonnage through this port. The transshipment capacity of the Westshore, Ridley and Neptune ports will be sufficient to handle the coking coal production of the mines Grassy Mountain, Tent Mountain and Chinook in the next one to three years for which licence application have been submitted, especially in view of the future of the mines with steam coal production.

Exports

Canadian hard coal exports declined slightly from 36.2 million tonnes in 2019 to 35.4 million tonnes in 2020. They break down into 4.5 million tonnes of steam coal and 30.9 million tonnes of coking coal. Exports are experiencing a lateral trend in view of sharply declining hard coal production and drastically lower domestic hard coal consumption. Overall, exports decreased by only 0.8 million tonnes (2.2 %) compared to 2019. The dip was slight thanks to higher steam coal exports, which at 4.5 million tonnes almost tripled compared to the previous year and balanced out the decline by 10.4 % in the significantly higher – in absolute terms – coking coal exports to 30.9 million tonnes.

Steam coal imports in 2020 fell to 3.7 million tonnes and coking coal imports fell to 2.3 million tonnes. A total of 6 million tonnes was imported, 2.1 million tonnes (-25.9 %) less than in the previous year. The decline in coking coal of -39.5 % was even more substantial.

The bottom line is an export balance in the amount of 29.4 million tonnes, 4.6 % over the level of the previous year (LB-T20).

Export / Import Balance Canada

	2018 Mill. t	2019 Mill. t	2020 Mill. t
Exports Steam Coal	0.7	1.7	4.5
Exports Coking Coal	30.2	34.5	30.9
Total	**30.9**	**36.2**	**35.4**
Imports Steam Coal	3.4	4.3	3.7
Imports Coking Coal	4.2	3.8	2.3
Total	**7.6**	**8.1**	**6.0**
Export/Import Balance	**23.3**	**28.1**	**29.4**

Source: IHS Markit

LB-T20

The largest buyers of coking coal were Japan (9.5 million tonnes; +12.4 %), South Korea (7.4 million tonnes; -20 %), the People's Republic of China (5.7 million tonnes; +18.3 %), India (4.5 million tonnes; -9.3 %) and Taiwan (2.4 million tonnes). Canadian coking coal exporters are benefiting from the trade conflict between China and Australia and see themselves on a growth market for Canadian coking coal. Exports to China were significantly increased as early as the fourth quarter of 2020 because of the blockade of Australian seagoing vessels. In addition, China is increasing its investment in Canada; for instance, the China Investment Corporation has now acquired a large stake in the Canadian Teck and has already appointed a Chinese government official to the company's board.

Exports of steam coal are not very high in absolute terms but were up significantly in 2020 (4.5 million tonnes) compared to 2019 (2.6 million tonnes). Shipments to South Korea doubled to 1.3 million tonnes. Exports to Japan and China – both from a very low level – increased significantly compared to the previous year to 1.5 million tonnes. As in 2019, 1.3 million tonnes were shipped to Germany. These shipments comprise almost entirely coking coal.

Key Figures Canada

	2018 Mill. t	2019 Mill. t	2020 Mill. t
Hard Coal Production [1]	**54.6**	**51.8**	**40.8**
Hard Coal Exports	**30.9**	**36.2**	**35.4**
Steam Coal	0.7	1.7	4.5
Coking Coal	30.2	34.5	30.9
Imports Germany	**1.6**	**1.3**	**1.3**
Coking Coal	1.6	1.3	1.3
Export Ratio	**57 %**	**70 %**	**87 %**

[1] Incl. hard lignite

Source: IHS Markit/DESTATIS/Own calculations

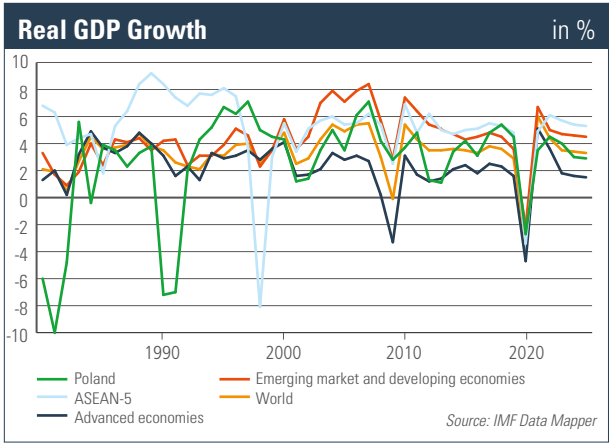
LB-T21

Canadian coking coal suppliers were able to fill the gap left by the lost Australian coal exports to China mainly in Q4 2020. These sales were made at a higher price level compared to markets outside China. The estimated total sales for the fourth quarter remain within the existing forecast for 2020. However, Teck has already announced that it will not generally divert further exports to China but will remain committed to the current supply structure.

The trade conflict between China and Australia is expected to have made Chinese steel producers aware of the need to diversify to other procurement sources.

As mentioned above, China is increasingly acquiring holdings the Canadian coal industry (e.g. China Investment Corporation's stake in Teck, see above). But Andy Caruso, Atrum Coal's chief executive officer (CEO), does not expect the People's Republic of China to plan to turn away permanently from Australian mines and shift its demand to Canadian coal mines. According to a report in News Corp's The Australian, he assumes that importing countries (including China) or steelmakers in that country will try to secure reliable sources of high-grade supplies in the medium to long term.

POLAND



LB-B8

General

Only a few countries in the EU are still actively mining coal, and the downward trend continues. After the end of coal mining in Germany at the end of 2018, Poland is the only remaining large coal-producing country in the EU. Based on 2020 data, Poland accounts for 96.3 % of total EU 27 coal production. The remaining quantities come from the Czech Republic (3.7 %). Great Britain, no longer part of the EU after "Brexit", still produces small quantities of anthracite coal. In terms of coal reserves, Poland is among the top ten in the world rankings. According to the German Federal Institute for Geosciences and Natural Resources (BGR, data status as of 2019), Poland's hard coal reserves of 22.5 billion tonnes put it in ninth place, behind Indonesia, but ahead of the Republic of South Africa.

As can be easily seen in Figure LB-B8, Poland benefited greatly from its accession to the EU in 2004, at least as measured by the rates of change of gross domestic product (GDP). Before Poland joined the Union, GDP growth rates were still subject to high fluctuations; after the country becoming a member, they became more stable and have since that point varied between the growth curves of the developing/threshold countries and the industrialised countries.

In 2020, the coronavirus pandemic pushed Poland into its first recession since 1991. In the spring of 2020, it still seemed that Poland had come through the pandemic relatively unscathed as infection figures remained comparatively low. However, the second wave caused case numbers to rise dramatically in the autumn and the initial recovery in Polish economic performance came to a halt for the time being. According to the IMF, the change rate of GDP for 2020 as a whole decreased to -2.7 % from +4.5 % in the previous year. According to the IMF forecast, economic growth will recover somewhat in 2021 to +3.5 %, but not return to its pre-pandemic growth path of +4.5 % until 2022. Per capita GDP in 2020 was just under US$ 15 700, roughly the same as in previous years and above the world average. However, it was also far below the level of the industrialised countries (around US$ 47 000).

Poland's inflation rate of 3.4 % was the highest of all EU countries in 2020. The unemployment rate of 3.2 % in 2020 was the lowest in Poland since the beginning of the present time series (since 1990).

Gross Power Generation

Polish gross power generation in 2020 declined by 3.7 % year-on-year to just under 157.8 TWh. The most important energy source was hard coal, which contributed 70.4 TWh (44.6 %). Lignite follows in second place with a share of 24.3 % (38.3 TWh). Taken together with natural gas (11.4 TWh), fossil energy sources accounted for more than three-quarters of gross power generation. In fact, the share of fossil energies was probably even higher as no distinction was made between the energy sources used by industry in power generation in its own plants (a total of 16.4 TWh). While the use of hard coal (-8.5 %) and lignite (-8.3 %) declined, the use of natural gas (+14.3 %), hydropower (+10.3 %), other renewables (+11.8 %) and the contribution of industrial power plants (+1 %) increased. In addition, electricity imports were drastically increased on balance (by almost 25 %) to cover the electricity consumption of 171 TWh, a drop of 2 % compared to the previous year.

Energy and Coal Policy

Political pressure from abroad on the Polish government to abandon its pro-coal policy has continued to grow in recent years. On 5 October 2016, the EU (i.e. all its member states) ratified the Paris Climate Agreement. And on 11 December 2019, the EU Commission presented the "European Green Deal", which aims to reduce the EU's greenhouse gas emissions to zero by 2050. As recently as the opening of the 24th UN Climate Change Conference in Katowice, Poland, at the beginning of December 2018, Polish President Duda categorically rejected a coal exit for his country.

As both political and economic environments have become increasingly unfavourable, characterised by high prices in EU emission trading, low national and European coal demand, increasing cost pressure, more intense competition from cheaper imported coal and, most recently, by the effects of the COVID-19 pandemic, the Polish government has in the meantime displayed a significantly greater willingness to compromise. It set up a cross-sectoral inter-ministerial expert commission to draft a new plan for the Polish coal sector and subsequently entered into negotiations for a coal exit.

At the end of September 2020, the Polish government reached an agreement with the trade unions for an exit from coal mining by 2049. This agreement initially applied solely to the mines in Silesia, however, which account for about four-fifths of Poland's annual coal production. A direct result was an end to the strikes in the Silesian mining company PGG (Polska Grupa Gornicza). The miners agreed to the closure of the Silesian mines over the next two decades, whereby the Jankowice and Chwalowice mines will be the last to close in 2049. In return, the government committed to continue subsidising coal mining and to guarantee the miners' employment until their retirement. According to local media, mines belonging to the coal producer JSW (Jastrzebska Spótka Weglowa) were not initially involved in this agreement. The company Lubelski Wegiel Bogdanka was also not involved at that time. Its Bogdanka mine in Lublin is set to continue until 2051. In mid-March 2021, the coal compromise was renegotiated again in Katowice, particularly with regard to the concrete form of the social plans.

On 29 April 2021, the agreement on the Polish coal exit by 2049 was signed in Katowice by representatives of the Polish government and trade unions. The plan must still be submitted to the EU Commission

for approval. The final adoption is expected to take place in May 2021. In addition to the points already mentioned, provisions on personnel issues (retraining and qualification measures, severance payments, early retirement), assurances regarding compliance with the coal exit by 2049 (and not earlier!) as well as commitments for investments in clean coal technologies (promotion of projects on coal gasification, synthetic gas production, methanol production, CCS [Carbon Capture and Storage], among others) were also included in the agreement.

Even before the agreement on the coal exit by 2049 was signed, the government approved the new Polish energy strategy *Polityka Energetyczna Polski 2040* (PEP 2040), which envisages a reduction in the share of coal in electricity generation from 70 % in 2020 to 56 % in 2030 as well as the further expansion of renewable energy sources (wind power offshore and onshore as well as photovoltaics), at the beginning of February 2021. Based on a high-price scenario for CO_2 emission certificates, a reduction of the coal share to 37 % in 2030 was also calculated. In the event of a continued high price for EU emission allowances, a coal share in power generation in 2040 of 28 % and as low as 11 % was forecast. The plan is to expand onshore wind capacity from 6 GW in 2020 to between 8 and 10 GW in 2030 and photovoltaic capacity from 3.6 GW to between 5 and 7 GW in 2030.

In addition, 8 to 11 GW of new offshore wind power capacity is to be built in the Baltic Sea. Moreover, the construction of six nuclear power plants is planned by 2043. The first nuclear power plant (NPP) with planned operational startup in 2033 is to be built in Gdansk in Western Pomerania. A new nuclear power plant is to begin operation every two to three years. Belchatów is a likely location for the second plant. The world's largest lignite-fired power plant is currently located there (in operation since 1981, current capacity: 5 420 MW). According to information from the Energy Information Service (EID), Poland does not yet have a nuclear power plant. The investment volume for the new nuclear energy programme is estimated at around US$ 40 billion. One-third of the funding is to come from the EU. Currently, the United States and France are seeking to obtain contracts for this major project. This renewed attempt by Poland to enter the nuclear energy sector (the Zarnowiec nuclear power plant built in the 1970s was never completed) is not solely due to foreign political pressure. Poland is also slowly running out of lignite. The remaining available lignite reserves in central Poland will have been consumed by 2035. In view of political tensions, Poland does not want to be dependent on Russian natural gas in the future and does not want to extend the related procurement contracts, which will expire at the end of 2022.

The ambitious expansion plans, especially in renewable energy sources, pose major problems, especially financial in nature, for the Polish power supply companies. The boycott calls from international (major) banks regarding the financing of coal projects or companies with CO_2-intensive production are increasingly depriving Polish companies of urgently needed financial resources. This is the setting in which the Polish government's plan for comprehensive restructuring of the coal industry must be considered. It foresees the purchase of 70 hard coal- and lignite-fired power plant units from the energy companies PGE, Enea and Tauron (in which the government holds the majority interest) by the end of 2022 and their bundling into a new state-owned "National Agency for Energy Security". Apart from operationally necessary maintenance and modernisation investments, no further expansion or new construction are supposed to be possible after this point. The power plants are supposed to be shut down one by one with the aim of accelerating the desired Polish energy transition.

Production

The production restrictions caused by the COVID-19 pandemic did not hit the Polish coal industry in 2020 quite as hard as initially feared. According to Węglokoks, hard coal production in 2020 declined by 12 % year-on-year to 54.4 million tonnes. The decline was exclusively in steam coal (-14.9 % to 42.1 million tonnes), while the production of coking coal actually increased slightly (+1.7 % to 12.3 million tonnes).

The Polish company JSW reported a 40 % drop in production at the beginning of April 2020 after JSW had to reduce the number of shifts. Despite the drop in production, the company initially declared that it was able to meet all contractual obligations thanks to high stock levels. Shortly afterwards, however, JSW had to declare "force majeure". The state-owned company PGG was also initially forced to close temporarily two of its coal mines because of the increasing spread of the COVID-19 virus among miners. PGG announced on 28 April that most of the miners had been quarantined at home. The two mines initially remained closed until 3 May. In mid-June, the infection levels in the second coronavirus wave peaked again, necessitating renewed temporary production stops. Ten PGG operations and two of JSW were shut down for three weeks.

Export

According to IHS, Poland's hard coal exports of 4.3 million tonnes in 2020 were almost at the previous year's level. Steam coal comprised just under 1.7 million tonnes of this volume. The most important recipient country was the Czech Republic, which alone procured 1.1 million tonnes, 68 % of the total steam coal exports and an increase over the previous year of 30 %. The rates of change in shipments to all other destination countries (Austria, Slovakia, Germany, Ukraine) were negative in the double-digit percentage range (cf. Table LB-T22).

Coking coal exports in 2020 were also dominated by the Czech Republic, which accounted for 1.45 million tonnes (about 57 %) of Poland's total coking coal exports (approximately 2.6 million tonnes). These figures were slightly below the level of the previous year. Solely the Czech Republic increased its purchase volumes (+4.3 %) while those of the other consumer countries (Austria, Slovakia, Hungary, Ukraine) declined. The growth in coking coal exports to the Czech Republic was a consequence of the closure of the Czech coal mines over a longer period.

Poland's Steam Coal Exports

	2018 Mill. t	2019 Mill. t	2020 Mill. t	Change over PY
Total	**2.06**	**1.79**	**1.67**	**-6.7 %**
of which:				
Czech Republic	0.76	0.87	1.13	29.9 %
Germany	0.23	0.19	0.15	-21.1 %
Austria	0.33	0.26	0.18	-30.8 %
Slovakia	0.33	0.30	0.18	-40.0 %
Ukraine	0.06	0.09	0.03	-66.7 %

Source: IHS, DESTATIS

LB-T22

Poland's Coking Coal Exports	2018 Mill. t	2019 Mill. t	2020 Mill. t	Change over PY
Total	**2.94**	**2.58**	**2.56**	**-0.8 %**
of which:				
Czech Republic	1.62	1.39	1.45	4.3 %
Ukraine	0.26	0.15	0.09	-40.0 %
Austria	0.68	0.72	0.71	-1.4 %
Slovakia	0.34	0.24	0.19	-20.8 %
Hungary	0.04	0.08	0.12	50.0 %

Source: IHS, DESTATIS

LB-T23

Import

Poland has been a net importer of hard coal since 2017. According to calculations by IHS, Poland's imports fell by 26.7 % in 2020 compared to the previous year to 12.6 million tonnes. In contrast, more recent figures from Węglokoks show somewhat higher imports, namely 12.8 million tonnes. According to these data, imports from all origins were all slightly lower. The most important country of origin was Russia with a share of 73 % (corresponding to 9.4 million tonnes) of total Polish imports. Other provenances were Australia (1.1 million tonnes), Colombia (0.9 million tonnes), Kazakhstan (0.8 million tonnes), the United States (0.3 million tonnes), Mozambique (0.2 million tonnes) and the Czech Republic (0.1 million tonnes).

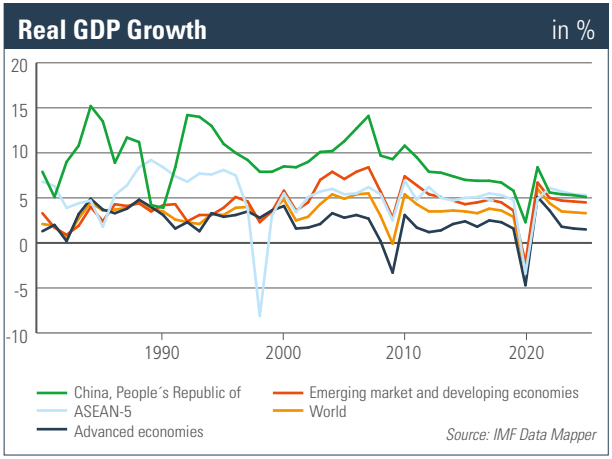
Key Figures Poland	2018 Mill. t	2019 [1)] Mill. t	2020 [1)] Mill. t
Hard Coal Production	**63.4**	**61.7**	**54.4**
Hard Coal Exports	**5.0**	**4.4**	**4.3**
Steam Coal [1)]	2.1	1.8	1.7
Coking Coal	2.9	2.6	2.6
Coke Exports	**5.8**	**6.1**	**6.3**
Hard Coal Imports	**19.7**	**17.2**	**12.6**
Imports Germany	**1.6**	**1.4**	**1.2**
Steam Coal	0.2	0.2	0.2
Coking Coal	0.0	0.0	0.0
Coke	1.4	1.2	1.0
Export Ratio (coke converted into coal)	**17 %**	**17 %**	**19 %**

[1)] Including anthracite coal

Source: Various analyses

LB-T24

PEOPLE'S REPUBLIC OF CHINA



LB-B9

General

According to the World Economic Outlook of the IMF of April 2021, the gross domestic product of the People's Republic of China rose by 2.3 % in 2020. Growth of 8.4 % is again expected for 2021 and of 5.6 % for 2021. China is the only country among the G20 countries that has so far escaped the most serious consequences of the COVID-19 virus. According to IMF data, China will rapidly resume its growth path at pre-coronavirus levels. According to the IMF, this would mean per capita GDP of US$ 12 763 in 2022, corresponding almost exactly to the world average of US$ 12 837.

The IMF expects an increase in the consumer price index in 2021 of 1.2 %, significantly below the world average of 3.5 %.

In the World Bank's Ease of Doing Business Report 2020, China is among the countries that have made the most progress in three or more of the areas analysed, ranking 31st out of 190. WEF's Global Competitiveness Index 2019 ranks the country 28th out of 141 countries. No corresponding data are available from the World Economic Forum (WEF) for 2020 as the latter refrained from a comparison of competitiveness that would mean little because of the coronavirus pandemic. Transparency International's Corruption Perceptions Index 2019 ranks it 78th (previous year 80th out) of 180 countries.

China was able in 2020 – as one of the few countries worldwide – to increase crude steel production, raising it by 5.2 % to 1 053 million tonnes. Pig iron production, which is decisive for coke use, increased even more strongly, by 10.5 %.

Electricity/Crude Steel/Pig Iron Production PR China

		2018	2019	2020
Electric Power Generation	TWh	6,791	7,142	7,612
Crude Steel Production	Mill. t	929	995	1,065
Pig Iron Production	Mill. t	780	851	888

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

LB-T25

Renewable energy generation experienced exceptional growth in China over the period 2015-2020, driven primarily by wind and solar power. China's electricity generation from renewable energy sources increased by 821 TWh – from 1 392 TWh in 2015 to 2 213 TWh in 2020. Of this production, more than 60 % (+503 TWh) comes from wind and solar energy, which reached record levels in 2020 owing to the construction of additional wind energy (+72 GW) and solar energy (+48 GW) facilities. This increase in wind and solar power generation is roughly equivalent to South Korea's total power generation in 2020. In the same period, there was also large growth in electricity generation from hydropower (243 TWh) and bioenergy (76 TWh). China's electricity generation from fossil sources has grown significantly alongside renewable energies, whereby coal generation alone accounted for almost 70 % of the growth. This growth increased China's share of global coal-fired power generation to 53 % from 44 % in 2015.

Power generation in China became relatively, but not absolutely, more environmentally friendly. China's share of wind and solar energy generation rose from 3.92 % in 2015 to 9.54 % in 2020. In the same period, the share of coal-fired power generation fell by 7 %, indicating that renewables are increasingly replacing coal in the power generation mix. In absolute terms, however, total electricity generation has grown since 2015, with wind and solar power generation growing much faster in percentage terms (45 % per year) than coal (4 % per year). China's expansion of both renewable and non-renewable power generation has been driven primarily by rapidly increasing electricity demand. China's electricity demand has grown by 7 % per year on average since 2015, and even under COVID-19, electricity demand grew by 4 % last year and reached 7 612 TWh. Since 2015, there has been an increase of 1 884 TWh (compared to 5 728 TWh in 2015). This increase is greater than India's total electricity requirements in 2020. The growth in power generation from renewable energies (821 TWh), while impressive, could not by itself meet the rapidly growing demand for electricity. More electricity was also generated from non-renewable sources (including coal) to ensure continued availability of power. In China, renewable energy generation increased by 169 TWh in 2020: 98 TWh (+16 %) for wind and solar and 71 TWh (+5 %) for other renewables. However, this growth did not lead to a decline in non-renewable generation. On the contrary, non-renewable generation from coal, natural gas and nuclear energy also increased by 77 TWh (+2 %), 33 TWh (+9 %) and 18 TWh (+5 %), respectively. This expansion in both renewable and non-renewable generation can be attributed to the country's rapidly growing electricity demand, which rose by almost 300 TWh (+4 %) last year, a figure greater than the total electricity generation of many countries, including Australia (251 TWh), South Africa (223 TWh) and Turkey (292 TWh). The COVID-19 outbreak seems to have merely slowed down the growth of electricity demand rather than reducing it, probably owing to a quick economic recovery from the pandemic.

According to a new international study, China had 38.4 GW of new coal-fired power capacity starting operation in 2020, more than three times as much as anywhere else in the world. Including shutdowns, China's coal-fired plant capacity increased by a net 29.8 GW in 2020 while the rest of the world cut 17.2 GW. This can be seen in a study by Global Energy Monitor (GEM) published on 3 February 2021.

China is the most populous country in the world as well as the largest coal consumer and carbon dioxide emitter. Although the government repeatedly reaffirms its goals in the fight against climate change, observers criticise the further expansion of coal energy at the local level and an increase in coal production. The country relies on coal for about 60 % of its energy supply.

At the climate summit in April 2021, China's head of state and party leader Xi Jinping held out the prospect of reducing coal consumption in his country from 2025 onwards – but he did not describe any specific measures. Xi Jinping said his country wanted to "control" coal-fired power plants "rigorously", the increase in coal consumption harmful to the climate should be "strictly limited" and "reduced step by step" by 2030. He reiterated his commitment to China's efforts to peak its emissions before 2030 and to achieve carbon neutrality before 2060. However, he pointed out, "This will require extraordinarily hard work."

Emission trading plays a key role in these efforts. The first to be integrated are the coal-fired power plants. After an eight-year trial period, China will begin nationwide trading of emission certificates at the end of June, according to the Minister of Ecology and Environment, Huang Runqiu. This instrument has a decisive advantage over bans: the system leaves it up to the stakeholders to decide how and with what technologies they want to achieve their goals. Market-based approaches of this type encourage innovation. Companies that emitted at least 26 000 tonnes of carbon dioxide annually between 2013 and 2019 are obligated to participate. This includes all coal-fired power plants. In total, there are 2 225 energy producers who will be part of the new system from the end of June. Measured in terms of CO_2 emissions, it will become the world's largest market for emission rights.

Production

Coal production also increased by 2.5 % to 3 840 million tonnes in 2020 from 3 746 million tonnes in 2019, according to the National Bureau of Statistics of China (LB-T28).

With all major Chinese mining regions except for Inner Mongolia increasing their production in 2020, Shanxi with 1 020 million tonnes (+5 % compared to 2019) has overtaken Inner Mongolia as the largest mining region with 920 million tonnes (-11 %). Shaanxi (700 million tonnes; +10 %) and Xinjiang (266 million tonnes; +12 %) follow. Xinjiang Province's production has once again increased the most in percentage terms. In the other major mining provinces of Guizhou, Shandong, Anhui and Henan, production remained approximately at the level of 2018 in 2020 (LB-T26). Shanxi, Inner Mongolia and Shaanxi produced around 70 % of China's total coal production in 2020. If the other coal mining regions of Xinjiang, Guizhou, Shandong, Anhui and Henan are added, the share reaches 88 %.

Coal Production in the Largest Mining Provinces in PR China

	2018 Mill. t	2019 Mill. t	2020 Mill. t
Inner Mongolia	926	1,035	920
Shanxi	893	971	1,020
Shaanxi	623	634	700
Xinjiang	190	237	266
Guizhou	139	130	135
Shandong	122	119	120
Anhui	115	110	112
Henan	114	109	110

Source: National Bureau of Statistics of China / 2020 estimated

LB-T26

China's coal production is not expected to exceed 4.1 billion tonnes before the end of the 14th Five-Year Plan period (2021-2025) after rising 1.4 % year-on-year to 3.9 billion tonnes in 2020, according to a report released by the China National Coal Association on 3 March 2021. The number of coal mines will shrink from about 4 700 (at the end of 2020) to about 4 000 by the end of 2025, and of these, more than 1 000 will be equipped with modern

mining technology, the report stated. Annual coal consumption is supposed to be maintained at around 4.2 billion tonnes per year until the end of 2025. Mergers and acquisitions will be promoted over the next five years to drive technically obsolete and inefficient coal production capacities off the market. In addition, ten very large coal companies, each with production of 100 million tonnes per year, will be newly established. The coal industry has been struggling with overcapacity for the last five years. As of the end of last year, about 5 500 coal mines had been closed and about 1 billion tonnes per year of production capacity had been closed. On the other hand, China added about 1 200 large and modern coal mines, each with a production capacity of over 1.2 million tonnes per year, accounting for about 80 % of the country's total coal production.

Consolidation efforts are in full swing. In July 2020, the Shandong government announced the merger of Shandong Energy Group and Yankuang Group to create one of the largest coal producers, which would bring nearly 8 % of China's total production (more than 290 million tonnes) under one roof. In October 2020, Shanxi Province established the Jinneng Holging Group, which now represents most state-owned mines with a total capacity of around 580 million tonnes.

China's coal consumption is expected to continue to increase in 2021 despite the COVID-19 pandemic. The central government has announced that it will support the necessary economic recovery through a proactive fiscal policy and a prudent monetary policy. The China National Coal Association predicts that this will lead to new, more efficient coal capacities beginning operations in important coal mining regions such as Shanxi, Shaanxi, Inner Mongolia and Xinjiang.

Infrastructure

The 1 800-kilometre-long Haoji railway line established a link between Erdos in Inner Mongolia and the southern provinces of Henan, Hubei, Hunan and Jiangxi in autumn 2019. This railway line crosses the mining regions of Shanxi and Shaanxi. The project with a value of US$ 30 billion will increase transport capacity by 60 million tonnes in 2020. If all technical bottlenecks can be eliminated, a capacity increase of as much 200 million tonnes per year would be conceivable. In May 2020, a further increase in capacity was achieved following an upgrade of the Haizetan transit station. This will increase coal shipments from the northern provinces to the southern provinces because transports will be diverted via the Daquin railway to the port of Qinhuangdao and by ship to the southern regions of China.

Furthermore, a cross-border rail concept will improve China's coal supply. A railway line from Tavan-Tolgoi in Mongolia to the border town of Zuubayarn will presumably be completed this year. As much as 30 million tonnes per year will be transported from Tavan Tolgoi to China via the 415-kilometre-long route.

Import/Export

China, the world's largest hard coal-producing country, simply must be included in the country reports. The People's Republic was formerly a major exporting country, but it has now become the second-largest importing country in global seaborne trade, with imports amounting to 176 million tonnes. In 2020, China's gross export quota amounted to only 0.17 % (cf. LB-T28). Coal exports amounted to no more than 3.2 million tonnes. Coke exports fell from 6.5 million tonnes to 3.5 million tonnes (LB-T27).

The most important shipments of steam coal in 2020 went to Japan (0.7 million tonnes) and South Korea (0.65 million tonnes). Of the coking coal exports, 0.6 million tonnes went to North Korea and 0.2 million tonnes went to Japan.

Chinese imports of hard coal rose by 7.6 million tonnes (4 %) over the previous year in 2020 and amounted to 204.9 million tonnes. Imports of steam coal rose by 9.7 million tonnes (+ 7.9 %), while in contrast imports of cocking coal fell by 2.1 million tonnes.

Import/Export Development PR China

	2018 Mill. t	2019 Mill. t	2020 Mill. t	Difference 2020/2019 Mill. t
Imports Steam Coal [1]	121.7	122.6	132.3	9.7
Imports Coking Coal	64.7	74.7	72.6	-2.1
Total Imports	**186.4**	**197.3**	**204.9**	**7.6**
Exports Steam Coal [1]	3.8	4.6	2.3	-2.3
Exports Coking Coal	1.1	1.4	0.9	-0.5
Export Coke	9.9	6.5	3.5	-3.0
Total Exports	**14.8**	**12.5**	**6.7**	**-5.8**

[1] Incl. anthracite, excl. lignite

Source: IHS Markit

LB-T27

Almost 39 % of all exports mean that China is by far Australia's largest and most important trading partner. For over two years, the two countries have been accusing each other of interfering in "internal affairs".

The latest chapter in the history of the conflict is Australia's demand that the world must find the origin of the COVID-19 pandemic – in China, is the implied message. China's complaints range from disappointment over the exclusion of the Chinese telecommunication corporation Huawei from the construction of an Australian 5G network to the rejection of Chinese investment projects by Australian government authorities.

For months, China has been erecting import barriers for Australian products, essentially more or less a ban on the import of Australian coal. Indeed, China almost completely stopped the import of Australian imported coal in the second half of 2020. This resulted in imports from Australia falling to virtually zero in the first two months of this year after reaching 9.5 million tonnes in June 2020, the highest value for the year.

The highest import quantities for steam coal in 2020 came from Indonesia (62.5 million tonnes). In addition, this country was the source of 64.8 million (metric) tonnes of lignite. Australian steam coal was in second place at 37.9 million tonnes. Russia supplied 23 million tonnes. Coking coal was imported largely from Australia (42.3 million tonnes) and Outer Mongolia (23.8 million tonnes).

Mongolian coal producers (Outer Mongolia), who could have been the biggest beneficiaries of the China-Australia trade dispute, were unable to capitalise on their position in 2020. Stricter border controls because of the COVID-19 pandemic significantly reduced cross-border lorry deliveries. It was not until January and February of this year that Mongolia became the most important coking coal exporter for the People's Republic, covering 61.7 % of imports compared to only 17.7 % in the same period last year.

The coronavirus generated considerable confusion in the government's approach to regulating coal imports. Mongolia itself, for example, closed its border crossings with China from 1 February 2020. The Mongolian-Chinese border crossings of Ganshuunsukhait/Ganqimaodu and Ceke were expected to reopen by 2 March 2020. Mongolia transports coal to China primarily by lorries, with about 200 to 600 vehicles with loads of about 90 tonnes each being processed per day in "normal" times. The risk of infection was classified as high.

Outside of China, international shippers faced delays at ports as strict quarantine regulations – in some cases lasting as long as two weeks – were implemented to contain the spread of the virus. Australia and Indonesia also took precautionary measures. In Australia, ships that left China after 1 February 2020 were not allowed to enter ports until two weeks after departure at the earliest. If there was a risk or suspicion that one of the crew members was ill, the prohibition was extended for another fortnight. However, the impact on coal loading is likely to have been minor as waiting periods of around two weeks were to be expected anyway because of the queues for clearance in the ports.

Key Figures PR China [1)]

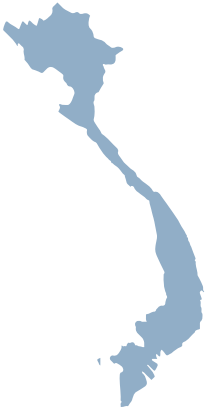
	2018 Mill. t	2019 Mill. t	2020 Mill. t
Hard Coal Production	**3,546**	**3,746**	**3,840**
Hard Coal Exports	**4.9**	**6.0**	**3.2**
Steam Coal	3.8	4.6	2.3
of which anthracite	1.7	2.0	1.3
Coking Coal	1.1	1.4	0.9
Coke Exports	**9.9**	**6.5**	**3.5**
Hard Coal Imports	**186.4**	**197.3**	**205.0**
Steam Coal	112.8	115.4	124.6
Coking Coal	64.7	74.7	72.6
Anthracite	8.9	7.2	7.8
Imports Germany	**0.15**	**0.07**	**0.06**
Steam Coal (incl. Anthracite)	0.01	0.01	0.00
Coke	0.14	0.06	0.06
Export Ratio (coke converted into coal)	**0.42 %**	**0.33 %**	**0.17 %**

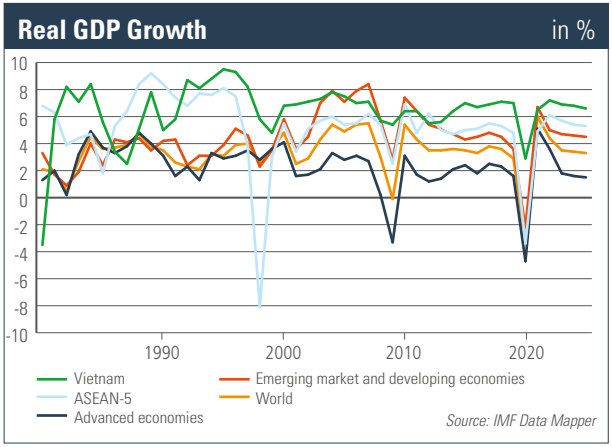
[1)] Excluding lignite

Source: Various analyses, IHS Markit

LB-T28

VIETNAM





LB-B10

General

Like China, Vietnam is included in the country reports because the country was once a major exporter of hard coal. In the middle term, we expect Vietnam to be a noteworthy coal importing country, especially for steam coal. According to the German Federal Institute for Geosciences and Natural Resources (BGR), Vietnam's coal reserves are estimated at 3.116 billion tonnes in 2019.

Vietnam is a prime example of how a market economy can thrive and flourish even under a communist regime. According to the country information portal of GIZ, Vietnam is comparable with Germany in terms of land area. According to estimates by Germany Trade & Invest (GTAI), the population in 2020 is 97.3 million, slightly higher than in Germany. After the long Vietnam War (1955 to 1975) and a war against China (1979), but starting during a war with Cambodia (1979 to 1989), Vietnam has experienced a rapid economic and technical upswing since 1986 when market economy reforms ("đổi mới") were introduced.

The socialist market economy of communist Vietnam has undergone extraordinarily strong development, and the single-party state has succeeded in transforming itself from one of the world's poorest countries into an internationally recognised, aspiring emerging economy. Vietnam is a member of the group of South-East Asian countries, the Association of Southeast Asian Nations (ASEAN), but is not one of the ASEAN 5 countries.

In 2020, Vietnam was one of the few countries in the world that did not fall into recession during the coronavirus crisis. To be sure, economic growth flattened from +7.0 % in 2019 to +2.9 % in 2020, but the IMF expects a rapid return to pre-crisis growth paths (2021: +6.5 %; 2022: +7.2 %). A per capita GDP of almost US$ 3 500 (2020) places the South-east Asian state in the so-called "Lower Middle-Income Countries" according to the World Bank classification and is below the average of emerging and developing countries (just under US$ 5 200 per capita). There is a major gap between urban and rural areas. Vietnam's inflation

rate in 2020 was 3.2 %, exactly at the level of the global average. The IMF expects an inflation rate of 3.9 % in 2021 and 2022. The unemployment rate in 2020 of 3.3 % was its highest level since 2006. The IMF foresees a slight decline in this figure this year (to 2.7 %) and next year (to 2.4 %).

In the World Bank's Ease of Doing Business Ranking 2020, Vietnam is ranked 70th out of 190 countries and its DB score of 69.8 is at almost the same level as Colombia (67th with a DB score of 70.1). In terms of international competitiveness, Vietnam moved up ten places to 67th in the WEF's Global Competitiveness Index 2019. This index for 2020 in the latest Global Competitiveness Report 2020 was dropped because of the coronavirus. In the current international benchmark for corruption development (Transparency International's Corruption Perceptions Index 2020), however, Vietnam dropped eight rankings to 104th place.

Energy Industry Framework Data

Vietnam has not been a coal exporting country for a long time. Exports have fallen over the years to almost zero (to 0.63 million tonnes in 2020) while imports exceeded the country's own production for the first time in 2020. The economic growth of recent decades has drastically increased the country's hunger for energy as data from the BP Statistical Review of World Energy 2020 impressively show. Since the beginning of the market economy reforms in 1986, Vietnam's primary energy consumption has risen from 7.4 million TCE to 140.6 million TCE in 2019, an average growth rate of +9.0 % per year. Over the same period (33 years), Vietnam's gross electricity generation increased by 11.9 % annually, rising to 227.4 TWh in 2019. As in previous decades, Vietnam's electricity generation was dominated by fossil fuels in 2019 (share of gross electricity generation in 2019: 69 %). Coal alone accounted for a share of 49.5 % (112.5 TWh). Hydropower contributed a share of 28.8 % (65.6 TWh). Natural gas was in third place at 19 % (43.1 TWh), followed by renewables at 2.1 % (4.7 TWh) and oil 0.6 % (1.4 TWh).

Electricity Industry Development Plan

On 22 February 2021, the Vietnamese Ministry of Industry and Trade (MoIT) released the third version of a draft of the 8th Power Development Plan (PDP8; the final version will probably be released in June 2021). It models the period from 2021 to 2030 and the outlook to the year 2045. The PDP8 is leading Vietnam as well into an energy transition. However, Vietnam's electricity supply will have a considerably broader base than that found in other countries with a new orientation in energy policy such as Germany. In addition to the massively expanded renewable energy sources, thermal power plants will also have their place in Vietnam's future electricity mix. The PDP8 gives the following framework data. Annual electricity generation will increase to 491 TWh in 2030 and 877 TWh in 2045. The annual electricity generation capacities will be further expanded and reach around 137.2 GW in 2030. These capacities will comprise 27 % from coal-fired power plants, 21 % from natural gas-fired power plants, 18 % from hydropower and 29 % from wind power, solar energy and other renewable energy sources. In the second expansion stage through 2045, total annual capacities will increase to around 276.7 GW. The goal is to cover these capacities to 44 % by renewable energies, to 24 % by natural gas, to 18 % by coal and to 9 % by hydropower.

The investment volume for the fulfilment of PDP8 is estimated by the MoIT at a total of around US$ 320.6 billion. Of this figure, US$ 128.3 billion will be invested between 2021 and 2030

(US$ 95.4 billion for power generation and US$ 32.9 for grid expansion). In the second planning phase from 2031 to 2045, US$ 192.3 billion has been budgeted for spending, of which US$ 140.2 billion is earmarked for generation capacity and US$ 52.1 billion for further grid expansion.

When it comes to investment decisions in the sector of thermal power plants, natural gas-fired power plants will be given clear priority in the future. They will replace coal-fired power plants wherever possible. In addition, the plan proposes that no new coal-fired power plants, other than those under construction and planned projects with completion by 2025 at the latest, should be constructed. Currently, there are plans to add 17 GW of coal-fired power plant capacity, 22 GW of natural gas-fired power plant capacity and 19 GW of wind power and solar capacities. Moreover, the electricity transmission grid (500 kilovolts and 220 kilovolts) will be expanded more rapidly.

From today's perspective (May 2021), the current PDP8 draft appears unrealistic, at least in parts. The capacity expansion programme to date is not keeping pace with the rapid growth rates in electricity consumption (see above). Only 60 % of the 2016 to 2020 expansion plan for new power plant capacities had been met by mid-2020. The completion of ten coal-fired power plants with a total capacity of 7 000 MW was scheduled for 2020, but is running behind, and there is a threat of imbalances between electricity demand and supply.

In Vietnam as well as other countries, some planned coal-fired power plant projects are increasingly being called into question. Investors are withdrawing. For example, at the beginning of March 2021, the Japanese Mitsubishi Corporation declared its withdrawal from the 2 GW Vinh Tan 3 coal-fired power plant project (Binh Thuan Province) and the construction of three supercritical power plant units with a capacity of 660 MW each. Operational startup is scheduled for 2024. Hong Kong's China Light & Power (CLP) withdrew from the Vung Ang 2 coal-fired power plant project (Ha Tinh Province) in autumn 2020 because of a change in business policy ("coal exit policy"). The state-owned (South) Korean Korea Electric Power Corporation (KEPCO) took over the 40 % share. The other project partners are Mitsubishi Corporation (40 %) and the Japanese Chugoku Electric Power Corporation (20 %).

Production

Together with the People's Republic of China (+2.5 %) and India (+1 %), Vietnam was one of the few hard coal-producing countries to increase its production over the previous year in the coronavirus year 2020. At 3 %, year-on-year growth in Vietnamese coal production in 2020 was considerably flatter than in the previous two years (2018: +10.3 %/ 2019: +9.8 %). Ranked 11th, Vietnam is not among the top ten coal-producing countries in the world. Virtually all of the production went into domestic consumption.

Key Figures Vietnam

	2018 Mill. t	2019 Mill. t	2020 Mill. t
Hard Coal Production	**41.9**	**46.0**	**47.4**
Hard Coal Exports	**2.0**	**1.0**	**0.6**
of which PR China	0.2	0.1	0.0
Export Ratio	**4.67 %**	**2.09 %**	**1.33 %**
Imports	**22.4**	**41.1**	**53.5**

Source: IHS Markit

LB-T29

Import

Hard coal exports have almost ceased to play any role for Vietnam today as can easily be seen from the table of Vietnam's key figures. As mentioned above, Vietnam imported more hard coal than it produced for the first time in its history in 2020. Hard coal imports had almost doubled in 2019 compared to the previous year (+83.5 %), and in 2020, imports increased again, this time by 30.2 % to 53.5 million tonnes. If it had not been for the coronavirus, they could have been considerably higher. However, owing to the coronavirus crisis and weather conditions, Vietnam's electricity consumption was reduced. Instead of the usual growth rate of around 9 %, electricity generation in 2020 increased by only 3 % over the previous year to 233.2 TWh. As in previous years, most Vietnamese hard coal imports in 2020 came from Australia (38.7 %) and Indonesia (33.6 %). Other provenances were South Africa (14 %) and Russia (13.1 %). Except for small quantities from unnamed supplier countries, imports from all named provenances developed positively compared to the previous year.

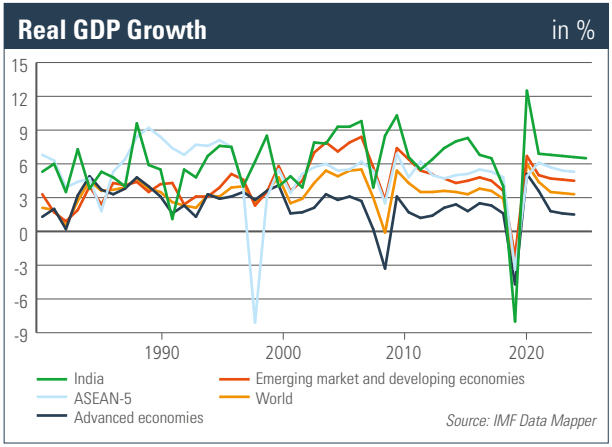
Vietnam Hard Coal Imports by Origins

	2018 Mill. t	2019 Mill. t	2020 Mill. t
Australia	6.9	16.1	20.7
Indonesia	11.7	15.3	18.0
South Africa	0.1	2.6	7.5
Russia	2.4	5.8	7.0
Others	1.3	1.3	0.3
Total Imports	**22.4**	**41.1**	**53.5**

Source: IHS Markit

LB-T30

INDIA



LB-B11

General

India is the largest importer of hard coal and the second-most important hard coal producing country in the world after China. According to data from the (German) Federal Institute for Geosciences and Natural Resources, India also has the third-highest coal reserves in the world (after the United States and China) of around 106 billion tonnes. This is now considered by giving the country a separate country report.

India is one of the most populous countries on earth. Almost 1.4 billion people live here, equivalent to 18 % of the world's population. Population growth has declined in recent years and was recently below +1 % per year. Estimates by the United Nations and the World Bank forecast that India's population will reach around 1.6 billion by 2040. Compared to its own population growth and the economic development of other countries and groups of countries, India's economic growth is overproportional. In the period from 2003 to 2018, India's rates of change in gross domestic product (GDP, real) were hardly ever below +6 % and often significantly higher. One exception was the year 2008. As a result of the orientation of official reporting to the fiscal year (1 April to 31 March), the global financial crisis of 2009 was reflected in the Indian data of the previous year, as can also be seen from the (green) curve in the following chart (cf. LB-B11).

In 2019, economic growth weakened to +4 %, a very low level by Indian standards. India suffered a historic economic collapse in 2020 because of the rampant coronavirus pandemic. According to calculations by the International Monetary Fund (IMF), India's economy shrank by around 8 %. India is one of the countries most strongly affected by the coronavirus crisis. According to data from Johns Hopkins University (Baltimore, Maryland, USA), the first wave of infection in India began in mid-February 2020 and reached its peak at the end of September/beginning of October 2020, with around one hundred thousand new cases every day.

The government under fundamentalist Hindu Prime Minister Narendra Modi (of the Bharatiya Janata Party), in power since May 2014, imposed a harsh nationwide lockdown in spring 2020 to contain the pandemic, almost completely paralysing public and economic life and activity in April and May of that year.

The measures were gradually relaxed over the following months for economic and other reasons as India has almost no social safety nets. This had an immense economic and social impact. The second coronavirus wave followed at the end of February 2021 when new infections swelled to more than 400 000 cases a day (in May 2021). This time, however, there was no renewal of the national lockdown. The separate states were each given the authority to decide how to deal with the crisis.

According to the IMF, the real GDP change rate will nevertheless increase to 12.5 % in 2021 and to 6.9 % in the following year. Contrary to what these figures suggest, India is currently (in June 2021) still far from normalisation. India's per capita GDP fell by 6.4 % in the crisis year 2020 to just under US$ 2 000 and was still far below the average value of the developing and emerging countries of around US$ 5 167. Inflation was already at a high level before the crisis (4.8 % in 2019) and increased further to 6.2 % in 2020, in particular due to higher global commodity prices and increased national food prices. Data on the unemployment rate in India are relatively meaningless as more than 80 % of the Indian workforce belongs to the so-called informal sector for which records are almost completely inadequate. The informal sector includes self-employed workers and workers in small and micro enterprises. According to the World Bank, the official unemployment rate in 2020 averaged 7.1 % according to the ILO definition (ILO: International Labour Organization). Owing to the coronavirus crisis, the unemployment rate was temporarily much higher during the lockdown months. In April 2020, for example, the unemployment rate shot up to 23.5 %.

In the World Bank's Ease of Doing Business Ranking 2020, India ranked 63rd, ahead of the hard coal-exporting countries Vietnam (70) and Indonesia (73). India was ranked 68th in the World Economic Forum's Global Competitiveness Index 2019. In the current international benchmark for corruption development (Transparency International's Corruption Perceptions Index 2020), India dropped six places over the previous year to 86th.

Energy Industry Framework Data

The Indian energy industry has so far been dominated using coal (mainly hard coal with smaller shares of lignite). It is particularly noteworthy that coal clearly outstrips oil in covering India's primary energy consumption. For instance, coal's contribution of 55 % (635.3 million TCE) in 2019 displaced oil, the dominant energy source almost everywhere else in the world, from first place. Oil's share of 30 % (349.4 million TCE) was far below the coal level. Next in line, also far behind, were natural gas at 6 % (73.4 million TCE), hydropower at 4 % (49.1 million TCE), renewables at 4 % (41.3 million TCE) and nuclear energy at 1 % (13.6 million TCE).

In the time between 2009 and 2018, India achieved tremendous progress in nationwide electrification. The World Bank estimates that, from a share of 68 % in 2009, the share of India's population with access to electricity had increased to around 95 % in 2018. During the same period, India's power generation increased by an average of 6.1 % annually. However, the provided electricity is not available at all times. For example, electricity was available to the average household in the states of Bihar, Jharkhand, Madhy Pradesh, Odisha, Uttar Pradesh and West Bengal for only about 15 to 18 hours a day in 2018.

As Table LB-T31 shows, India's electricity generation increased by 0.5 % year-on-year to just under 1 600 TWh in calendar year 2019, corresponding to just under 6 % of the world's electricity generation. The use of all fossil energy sources (coal, natural gas, oil) declined while the other energy sources gained. Coal remains by far the most important energy source in Indian power generation, representing almost three-quarters of the power. The share of renewable energy sources in power generation, including hydropower, is now 19 %. India's total CO_2 emissions increased slightly by 1.1 % to around 2 480 million tonnes of CO_2, corresponding to a share of 7.3 % of total global CO_2 emissions.

Power Generation in India by energy sources	2018 TWh	2019 TWh	Change vs. PJ %	2019 Shares in %
Coal	1,167.3	1,137.4	-2.6	73.0
Natural gas	73.9	71.0	-3.9	4.6
Oil	8.5	8.2	-3.5	0.5
Fossil fuels in total	*1,249.7*	*1,216.6*	*-2.6*	*78.1*
Nuclear energy	39.1	45.2	15.6	2.9
Hydro electric	139.6	161.8	15.9	10.4
Renewables	122.8	134.9	9.9	8.7
Other	0.2	0.2	0.0	0.0
Total	**1,551.4**	**1,558.7**	**0.5**	**100.0**

Source: BP Statistical Review of World Energy 2020

LB-T31

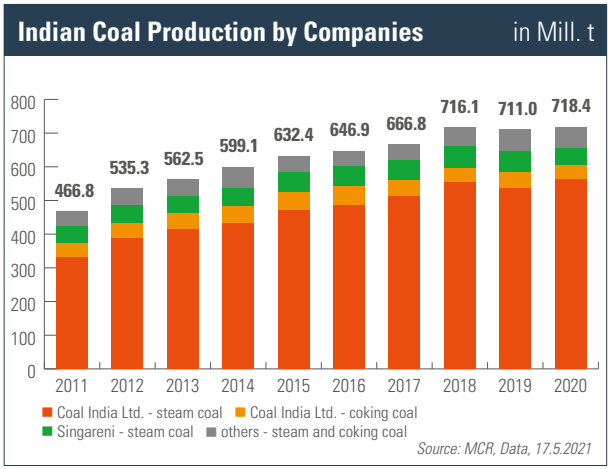
According to a Reuters report (01/04/2021), India's electricity consumption in fiscal year 2020/21 declined for the first time in 35 years. Electricity demand fell by 1 % compared to the previous year because of months-long lockdowns, first nationwide (until the end of May 2020), later in separate federal states. According to initial estimates, coal-based electricity generation also fell in 2020 by just under 5 % (-51 TWh). This is attributed, on the one hand, to the overall decline in electricity consumption and, on the other hand, to a considerably higher amount of electricity generated by photovoltaic systems. In August 2020, the government informed the Indian parliament that around 24 GW of the originally planned 60 GW of new coal-fired power plant capacity would no longer be realised for financial, political and technological reasons.

Energy Policies

In April 2021, the Indian Ministry of Power (MoP) published the draft of a new National Electricity Policy (NEP2021), which was drawn up by an expert commission with the participation of the federal states, the Indian Ministry of Renewable Energy (MNRE) and the Central Electricity Authority (CEA). It provided that the share of fossil energy sources in electricity generation is to be reduced from 78 % to 52 % and the contribution of renewable energy sources is to be increased from 18 % to 44 % in the period between now and fiscal year 2029/30. The power generation capacities of renewable energy sources are scheduled to increase to around 500 GW by 2030.

Hard Coal Production

India is the second-largest producer of hard coal in the world; only China produces more. In the long term, India wants to further expand production despite the strong capacity expansion in renewable energy sources. The primary purpose of increasing production is to reduce dependence on imports. The development of India's hard coal production in the period from 2011 to 2020, broken down by company, is shown in Figure LB-B12.



LB-B12

In 2020, India produced about 718 million tonnes of hard coal. This represents growth of 1 % in comparison with the previous year. Around 84.4 % (606 million tonnes) of this was accounted for by the state-owned coal mining company Coal India Ltd. (CIL), the largest coal producer in the world. CIL produced 563.7 million tonnes of steam coal and 42.9 million tonnes of coking coal. CIL operated a total of 364 mines in 2019, of which 166 were deep mines, 180 were opencast mines and 18 were mixed mines. Since 2017, 82 smaller mines have been closed and 18 600 jobs have been lost, yet production has been increased through efficiency measures.

Key Figures India

	2018 Mill. t	2019 Mill. t	2020 Mill. t
Hard Coal Production	**716.1**	**711.0**	**718.0**
Hard Coal Imports	**221.0**	**239.9**	**207.0**
Steam Coal	160.9	179.3	151.0
Coking Coal	58.4	58.8	54.1
Anthracite	1.7	1.8	1.9

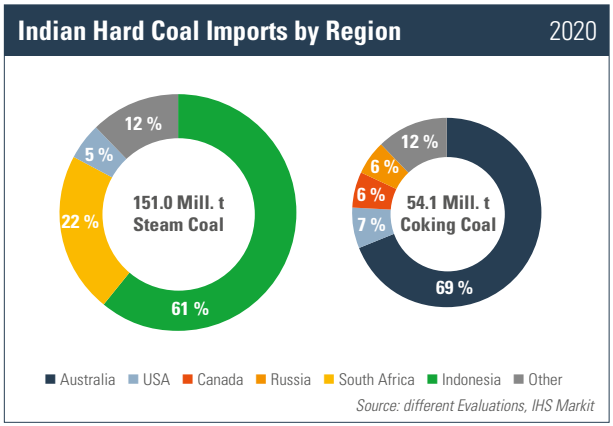
Source: various analyses, IHS Markit

LB-T32

Export and Import

India is a net importer of hard coal. In the past fiscal year, only smaller quantities (approximately 139 000 tonnes) were exported to the neighbouring countries Nepal and Bhutan. As mentioned at the beginning, India is the most important coal-importing country in the world despite its own high production. This is also true of 2020, although Indian imports in that year fell by 13.7 % compared to the previous year to 207 million tonnes. Of this amount, 73 % is steam coal, 26 % is coking coal and just under 1 % is anthracite coal (cf. LB-T32).

India's domestic coal is of low-grade quality, with low calorific values and high ash content. The Indian power plants are set up for this. It is also why India procures in particular steam coal within this grade range on the world hard coal market. These grades are supplied in particular by Indonesia, from which more than 60 % of India's hard coal imports originate. More than 20 % comes from South Africa and 5 % from the United States. The other steam coal imports are distributed among the export countries Colombia, Russia and Mozambique. There are also some quantities that cannot be classified (cf. LB-B13).



LB-B13

Australia leads the way in meeting India's coking coal demand through imports with deliveries of more than 37 million tonnes corresponding to a share of about 69 %. Imports from the United States (7 %) and Canada and Russia (6 % each) follow far behind.

REPORT IN FIGURES

2020 provisional

World Energy Consumption by Energy Source and Region in Mill. TCE

Energy Source	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Oil	5,754	5,836	5,913	5,970	6,074	6,188	6,510	6,581	6,532	6,586
Natural Gas	4,083	4,167	4,266	4,361	4,402	4,479	4,390	4,488	4,731	4,826
Nuclear Energy	900	859	800	805	822	833	845	853	824	850
Hydroelectric Power	1,100	1,136	1,191	1,231	1,263	1,276	1,305	1,314	1,274	1,285
Hard Coal and Lignite	5,080	5,189	5,320	5,524	5,587	5,485	5,294	5,312	5,418	5,386
Miscellaneous and Renewable Energies	162	286	342	404	452	521	596	700	881	989
Total	**17,079**	**17,473**	**17,832**	**18,295**	**18,600**	**18,782**	**18,940**	**19,249**	**19,662**	**19,923**
Primary Energy Consumption									Share in %	
Consumption Regions	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
North America	23.1	22.7	21.8	21.8	21.8	21.3	20.8	20.4	20.4	20.0
Asia/Australia	38.1	39.1	40.3	40.7	41.3	41.6	42.1	42.7	43.3	44.1
European Union	14.5	13.9	13.0	13.1	12.5	12.4	12.6	12.6	12.1	11.8
CIS	8.3	8.3	8.5	7.9	7.7	7.4	7.3	6.6	6.7	6.6
Rest of World	16.0	16.0	16.4	16.5	16.7	17.3	17.2	17.7	17.4	17.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
									Mill. TCE	
Coal Consumption (Hard Coal and Lignite)	**5,080**	**5,189**	**5,320**	**5,524**	**5,587**	**5,485**	**5,294**	**5,312**	**5,418**	**5,386**
									Share in %	
Consumption Regions	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
North America	15.6	14.5	12.6	12.6	12.6	11.2	10.0	9.8	9.1	7.9
Asia/Australia	67.1	67.9	69.7	70.6	71.5	72.6	74.0	74.5	75.3	77.4
European Union	7.9	8.3	7.9	7.5	7.0	6.9	6.9	6.3	5.9	4.9
CIS	4.8	4.7	4.9	4.6	4.2	4.2	4.2	3.4	3.5	3.5
Rest of World	4.6	4.6	4.9	4.7	4.7	5.1	4.9	6.0	6.1	6.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Includes commercially traded energy sources only

Source: BP Statistical Review of World Energy 2020

Table 1

World Hard Coal Production/Foreign Trade [1]

	2015			2016			2017		
	Production	Export	Import	Production	Export	Import	Production	Export	Import
Germany	8	0	56	4	0	54	4	0	49
France	0	0	14	0	0	13	0	0	15
UK	9	0	22	4	0	7	3	0	7
Spain [2]	3	0	19	2	0	14	3	0	19
Poland	72	9	8	70	9	8	66	7	13
Czech Republic	8	4	3	7	4	3	5	3	3
Romania/Bulgaria	2	0	2	2	0	2	0	0	2
Rest of EU 28 [4]	0	0	60	0	0	55	0	0	54
EU 28 [4]	**100**	**13**	**184**	**89**	**13**	**157**	**81**	**10**	**163**
Russia	372	152	24	384	166	22	408	193	25
Kazakhstan	107	30	0	102	26	0	106	29	0
Ukraine	40	1	15	41	1	16	35	1	20
Designated Countries	**519**	**183**	**39**	**527**	**193**	**38**	**549**	**223**	**45**
Canada	62	30	8	61	30	6	61	30	7
USA	813	67	10	661	55	9	703	88	7
Colombia	86	82	0	91	90	0	91	85	0
Venezuela	2	2	0	0	1	0	0	0	0
Designated Countries	**963**	**181**	**18**	**813**	**176**	**16**	**855**	**203**	**14**
South Africa	**252**	**77**	**0**	**250**	**76**	**0**	**252**	**83**	**0**
Australia	**442**	**388**	**0**	**433**	**391**	**0**	**449**	**373**	**0**
India	626	0	220	639	0	198	667	0	198
PR China	3,545	5	156	3,364	9	183	3,445	8	189
Japan	0	0	191	0	0	190	0	0	192
Indonesia [3]	413	327	0	402	311	0	415	318	0
Designated Countries	**4,584**	**332**	**567**	**4,405**	**320**	**571**	**4,527**	**326**	**578**
Rest of Asia			285			298			323
Remaining countries/ Statistical difference	158	50	132	211	57	147	139	49	143
World	**7,018**	**1,224**	**1,224**	**6,728**	**1,226**	**1,226**	**6,852**	**1,267**	**1,267**

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

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

Table 2

Mill. t

2018			2019			2020			
Production	Export	Import	Production	Export	Import	Production	Export	Import	
3	0	44	0	0	40	0	0	32	Germany
0	0	13	0	0	10	0	0	7	France
3	0	9	2	0	5	see remaining countries			UK
3	0	16	0	0	8	0	0	4	Spain [2]
63	5	20	62	4	17	54	4	13	Poland
5	3	2	3	3	2	2	2	3	Czech Republic
0	0	5	0	0	2	0	0	1	Romania/Bulgaria
0	0	59	0	0	52	0	0	27	Rest of EU 28 [4]
76	**8**	**168**	**67**	**7**	**136**	**56**	**6**	**87**	**EU 28** [4]
433	203	25	437	208	25	401	190	25	Russia
107	29	1	106	28	1	106	29	1	Kazakhstan
26	0	19	26	0	21	22	0	17	Ukraine
566	**232**	**45**	**569**	**236**	**47**	**529**	**219**	**43**	**Designated Countries**
55	31	8	52	33	8	41	35	6	Canada
686	105	5	641	84	5	485	63	5	USA
84	82	0	80	77	0	54	53	0	Colombia
0	0	4	0	0	1	0	0	0	Venezuela
825	**218**	**17**	**773**	**194**	**14**	**580**	**151**	**11**	**Designated Countries**
253	**81**	**0**	**259**	**79**	**0**	**248**	**75**	**0**	**South Africa**
470	**386**	**0**	**472**	**395**	**0**	**439**	**367**	**0**	**Australia**
716	0	221	711	0	240	718	0	207	India
3,546	5	186	3,746	6	197	3,840	3	205	PR China
0	0	189	0	0	186	0	0	174	Japan
471	343	0	532	372	0	498	342	0	Indonesia [3]
4,733	**348**	**597**	**4,989**	**378**	**623**	**5,056**	**345**	**586**	**Designated Countries**
		351			361			351	Rest of Asia
137	51	146	144	52	160	149	28	113	Remaining countries/ Statistical difference
7,060	**1,324**	**1,324**	**7,273**	**1,341**	**1,341**	**7,057**	**1,191**	**1,191**	**World**

Seaborne Hard Coal Trade [1]

Exporting Countries	2015			2016			2017		
	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total
Australia	186	202	388	189	201	391	173	200	373
USA	38	24	62	34	16	50	46	37	83
South Africa	0	77	77	0	75	75	0	83	83
Canada	27	2	29	27	2	29	28	2	30
PR China	1	4	5	1	7	9	2	6	8
Colombia	1	81	82	1	89	90	2	83	85
Indonesia	0	327	327	0	311	311	0	318	318
Poland	0	5	5	0	4	4	0	2	2
Russia	17	120	137	30	115	144	35	125	160
Other (incl. Venezuela)	2	11	12	2	11	13	3	13	16
Total	**272**	**853**	**1,124**	**285**	**832**	**1,117**	**288**	**869**	**1,157**
	2015			**2016**			**2017**		
Importing Countries/Regions	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total
Europe [2], of which	43	179	222	40	154	194	43	157	200
EU 28 [4]	37	133	170	35	108	143	37	109	146
Asia, of which	172	665	837	178	665	843	184	684	868
Japan	41	150	191	43	146	190	42	150	192
South Korea	25	110	135	25	110	134	24	123	147
Taiwan	11	56	67	11	54	66	11	58	69
PR China	45	96	141	46	111	157	56	100	155
Hong Kong	0	11	11	0	11	11	0	11	11
India	48	172	220	49	148	197	48	151	199
Latin America	15	25	40	15	27	42	15	21	36
Other/Statistical Difference	4	21	25	-2	39	37	-5	57	52
PCI coal included in steam coal [3]	38	-38	0	54	-54	0	51	-51	0
Total	**272**	**852**	**1,124**	**285**	**831**	**1,116**	**288**	**869**	**1,157**

Figures excl. overland traffic

[1] Rounding-off differences possible, coking coal exports from Australia and Russia, including PCI coal
[2] incl. neighbouring Mediterranean countries
[3] coking coal exports from Australia and Russia, including PCI coal
[4] from 2020 EU-27 without UK

Assessment of various sources

Table 3

Mill. t

2018			2019			2020			Exporting Countries
Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	
178	208	386	183	212	395	168	198	367	Australia
52	48	100	46	33	79	35	23	58	USA
0	81	81	0	79	79	0	75	75	South Africa
30	1	31	34	2	36	30	5	35	Canada
1	4	5	1	5	6	1	2	3	PR China
2	80	82	1	76	77	1	52	53	Colombia
0	343	343	0	372	372	0	342	342	Indonesia
0	0	0	0	0	0	0	0	0	Poland
40	124	164	38	130	168	29	117	146	Russia
0	14	15	0	20	20	0	5	4	Other (incl. Venezuela)
304	**902**	**1,208**	**304**	**928**	**1,232**	**264**	**819**	**1,083**	**Total**
2018			**2019**			**2020**			
Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	Coking Coal	Steam Coal	Total	**Importing Countries/Regions**
45	158	202	39	136	175	27	110	137	**Europe** [2], of which
37	111	148	32	87	119	21	58	79	EU 28 [4]
186	726	912	191	757	948	190	719	909	**Asia,** of which
43	146	189	43	143	186	40	134	174	Japan
25	123	148	23	119	142	21	103	124	South Korea
12	57	69	13	54	67	12	51	63	Taiwan
45	105	150	49	112	161	54	122	176	PR China
0	11	11	0	10	10	0	6	6	Hong Kong
55	166	221	56	184	240	54	153	207	India
15	20	35	13	20	33	7	18	25	**Latin America**
5	53	58	6	70	76	5	7	12	Other/Statistical Difference
55	-55	0	55	-55	0	35	-35	0	PCI coal included in steam coal [3]
306	**902**	**1,208**	**304**	**928**	**1,232**	**264**	**819**	**1,083**	**Total**

Hard Coal Exports from Australia

1,000 t

Importing Countries	2013	2014	2015	2016	2017	2018	2019	2020
Germany	4,739	5,673	5,737	6,608	5,634	5,196	4,771	3,906
Belgium	405	39	1,275	231	914	20	1,288	669
France	3,317	3,219	3,707	3,860	2,779	2,907	2,224	1,626
United Kingdom	2,455	1,803	1,729	1,218	935	980	609	see below
Italy	821	657	840	778	329	556	334	388
The Netherlands	2,658	2,778	2,504	3,684	1,813	3,007	2,342	1,701
Poland	421	1,278	1,346	1,460	1,160	1,486	1,746	967
Spain	1,057	1,438	1,340	1,197	870	1,372	302	219
Sweden	1,050	1,079	1,311	1,363	790	1,024	1,252	1,129
Other EU 28	273	82	380	579	631	255	388	179
EU 28 [1]	**17,199**	**18,045**	**20,169**	**20,979**	**15,855**	**16,802**	**15,253**	**10,784**
UK								560
Israel	496	174	172	0	0	0	0	0
Turkey	311	633	1,987	1,505	570	424	857	596
Rest of Europe [2]	0	624	989	391	245	237	176	0
Europe [2]	**18,005**	**19,477**	**23,318**	**22,875**	**16,670**	**17,463**	**16,286**	**11,940**
Brazil	3,045	4,745	6,615	6,435	5,745	5,048	3,546	3,460
Chile	914	901	2,151	3,640	2,201	978	1,206	2,369
Mexico	1,072	2,437	3,638	2,710	0	0	133	0
PR China	87,581	93,351	71,416	74,898	83,300	89,491	92,685	80,200
India	34,674	46,826	48,115	48,468	44,269	50,072	49,646	48,911
Indonesia	458	1,478	2,275	2,702	3,104	4,086	4,231	4,851
Japan	123,433	119,553	125,619	121,648	117,433	116,734	110,047	101,277
Malaysia	3,974	6,003	6,173	6,925	6,295	6,549	6,912	7,766
Korea	49,806	55,052	59,586	51,122	48,831	47,903	50,323	44,867
Taiwan	27,205	29,869	30,001	36,133	31,703	32,586	34,412	31,843
Thailand	3,531	3,948	3,777	3,585	3,914	3,444	4,094	3,723
Vietnam	429	544	1,302	4,097	4,025	6,953	16,068	20,765
Other Countries	3,443	3,276	4,986	6,278	5,474	4,884	4,181	4,981
Statistical differences	0	-182	-674	-929	-390	340	1,314	0
Total Exports	**357,571**	**387,280**	**388,298**	**390,586**	**372,574**	**386,530**	**395,085**	**366,954**

[1] from 2020 EU 27 without UK [2] Incl. countries bordering the Mediterranean

Source: IHS Markit/DESTATIS

Table 7

Hard Coal Exports from Indonesia								1,000 t
Importing Countries	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Germany	0	0	53	180	31	0	0	0
Italy	3,017	3,516	3,106	1,686	891	718	0	67
Spain	4,078	4,071	4,826	4,944	3,232	2,464	685	0
Other EU 28 [1]	668	453	323	450	802	1,132	404	451
EU 28 [1]	**7,762**	**8,041**	**8,308**	**7,260**	**4,956**	**4,313**	**1,088**	**518**
Rest of Europe [2]	147	0	253	238	87	0	131	0
Europe [2]	**7,909**	**8,041**	**8,561**	**7,498**	**5,043**	**4,313**	**1,219**	**518**
Bangladesh	0	159	2,847	1,537	2,268	2,613	5,934	7,167
PR China	89,721	49,782	36,684	50,843	47,294	48,136	65,476	62,492
Hong Kong	12,876	12,513	9,267	9,424	8,450	9,028	7,877	3,864
India	116,824	134,452	123,365	94,609	98,553	110,378	121,591	98,243
Japan	37,712	35,579	32,406	33,038	31,421	28,654	27,437	26,965
Cambodia	322	641	1,558	1,453	2,382	2,211	2,655	2,854
Malaysia	17,121	14,453	16,505	17,272	21,130	21,983	25,275	26,707
Pakistan	998	1,100	1,167	1,473	1,509	3,739	3,417	3,527
Philippines	14,509	15,021	15,804	17,503	18,978	22,595	27,156	28,094
South Korea	35,991	35,549	32,704	35,019	38,075	37,151	29,550	24,832
Taiwan	27,947	26,988	24,008	20,290	17,454	17,860	18,676	17,603
Thailand	14,258	16,196	17,730	16,384	16,375	19,964	17,600	16,625
Vietnam	1,820	1,529	1,988	2,852	6,340	11,668	15,262	18,033
Other Countries	3,162	4,244	2,620	2,209	3,064	2,589	3,414	4,802
Statistical differences	0	0	-53	-180	-31	0	-367	0
Total Exports	**381,169**	**356,247**	**327,160**	**311,225**	**318,305**	**342,883**	**372,175**	**342,325**

[1] from 2020 EU 27 without UK [2] Incl. countries bordering the Mediterranean

Source: IHS Markit/DESTATIS

Table 8

Hard Coal Exports from Russia

1,000 t

Importing Countries	2013	2014	2015	2016	2017	2018	2019	2020
Germany	12,841	13,494	16,528	17,854	19,681	19,056	19,202	14,387
Belgium	2,243	2,256	2,239	1,299	838	710	1,520	874
Denmark	821	1,258	860	1,307	1,073	1,541	1,508	942
Finland	3,159	3,561	2,498	1,926	1,976	2,377	2,574	1,178
France	1,572	1,151	1,323	2,847	3,056	2,432	2,214	2,137
UK	23,443	24,028	17,180	11,185	12,169	8,942	1,750	see below
Italy	847	1,442	2,221	1,860	2,298	2,344	2,129	2,935
Poland	6,054	6,439	4,656	5,268	7,641	13,261	10,883	9,435
Romania	287	259	591	464	1,169	3,466	1,323	969
Slovakia	891	949	1,230	1,281	1,293	1,352	1,415	785
Slovenia	0	5	21	638	192	666	796	193
Spain	1,740	1,547	3,475	2,463	4,072	2,716	2,041	1,440
Other EU 28 [1]	13,336	13,973	16,637	15,435	18,135	19,299	21,604	14,038
EU 28 [1]	**67,233**	**70,362**	**69,458**	**63,826**	**73,593**	**78,162**	**68,959**	**49,312**
UK	0	0	0	0	0	0	0	1 249
Israel	2,033	2,478	2,202	2,491	3,004	2,350	3,170	2,737
Morocco	127	1,400	1,596	2,639	3,215	3,166	4,427	7,067
Turkey	8,967	8,615	9,787	11,496	13,715	11,845	9,398	14,256
Ukraine	10,599	9,812	9,007	9,926	9,275	14,029	7,839	3,261
Belarus	496	550	817	470	357	1,051	3,537	1,327
Rest of Europe [2]	537	489	1,134	991	972	1,414	2,201	2,406
Europe [2]	**89,992**	**93,705**	**94,001**	**91,839**	**104,132**	**112,017**	**99,531**	**81,615**
Mexico	0	0	0	141	1	0	1 323	131
Brazil	207	239	334	1,152	1,190	1,374	1,333	2,509
PR China	25,077	25,776	16,370	15,991	22,626	22,547	26,695	29,129
Hong Kong	116	414	753	944	1,189	1,093	1,124	921
India	623	1,635	3,039	3,191	3,460	4,306	7,448	7,619
Japan	12,513	14,657	15,965	18,544	17,426	18,131	19,968	21,457
Malaysia	365	1,500	2,504	3,151	3,064	3,133	3,305	3,524
South Korea	14,545	16,154	19,329	24,757	23,342	25,648	24,039	23,009
Taiwan	3,122	5,502	6,539	7,631	8,768	9,304	8,480	11,173
Vietnam	131	186	995	4,015	2,156	2,413	5,825	7,032
Other Countries	402	1,964	2,697	4,113	4,000	4,044	5,446	6,068
Statistical differences	-8,558	-8,822	-10,061	-9,550	1,256	-941	3,216	-5,172
Total Exports	**138,536**	**152,911**	**152,466**	**165,919**	**192,609**	**203,069**	**207,736**	**189,015**

[1] from 2020 EU 27 without UK [2] Incl. countries bordering the Mediterranean

Source: IHS Markit/DESTATIS

Table 9

Hard Coal Exports from USA

1,000 t

Importing Countries	2013	2014	2015	2016	2017	2018	2019	2020
Germany	12,044	11,099	10,913	9,547	9,142	9,954	8,584	5,844
France	3,727	1,990	1,208	1,215	1,974	1,547	1,161	882
UK	12,257	8,897	3,811	965	2,476	3,805	1,258	see below
Italy	5,981	5,330	3,112	1 733	2,850	3,091	2,425	1,081
Croatia	978	1,455	1,411	1,173	1,748	2,107	1,628	1,196
The Netherlands	4,452	4,594	4,441	2,847	3,807	4,497	2,165	36
Austria	558	355	379	382	519	951	1,986	1,430
Poland	591	652	513	219	1,231	1,656	1,329	919
Spain	1,430	1,357	1,151	1,263	1,590	1,657	556	354
Other EU-28 [1]	4,427	3,450	2,843	2,113	4,098	3,135	2,911	1,517
EU-28 [1]	**46,447**	**39,180**	**29,781**	**21,458**	**29,435**	**32,402**	**24,005**	**13,261**
Egypt	305	375	148	1	1,769	3,475	4,242	1,098
Morocco	2,803	2,218	193	941	2,656	3,888	3,149	760
Turkey	4,520	4,045	1,863	1,349	2,326	2,778	1,637	2,473
Ukraine	2,626	2,573	2,549	1,868	4,049	4,370	4,462	3,277
UK	0	0	0	0	0	0	0	1,030
Rest of Europe [2]	1,419	1,706	136	142	74	127	46	49
Europe [2]	**58,119**	**50,098**	**34,670**	**25,759**	**40,308**	**47,040**	**37,542**	**21,948**
Canada	6,479	6,089	5,403	4,545	4,794	5,188	4,633	4,148
Mexico	5,106	4,268	3,412	2,807	3,387	4,911	2,276	557
Brazil	7,764	7,245	5,750	6,294	6,859	7,796	6,817	7,156
PR China	7,465	1,477	208	902	2,936	2,368	1,062	1,621
India	3,556	4,199	5,794	5,015	10,399	15,591	11,643	11,655
Japan	4,783	4,504	4,224	4,133	6,957	9,426	9,968	5,531
South Korea	7,648	7,283	5,563	4,056	8,573	8,456	6,165	5,923
Other Countries	5,710	3,117	2,046	1,148	3,603	4,093	3,427	4,106
Statistical differences	10	0	0	0	119	0	0	0
Total Exports	**106,640**	**88,280**	**67,071**	**54,658**	**87,934**	**104,870**	**83,532**	**62,645**

[1] from 2020 EU 27 without UK [2] Incl. countries bordering the Mediterranean

Source: IHS Markit / DESTATIS

Table 10

Hard Coal Exports from Colombia (only steam coal)

1,000 t

Importing Countries	2013	2014	2015	2016	2017	2018	2019	2020
Germany	9,794	7,265	9,850	10,711	6,469	3,857	1,870	1,866
Denmark	1,927	1,248	574	548	158	449	168	0
France	1,765	695	756	1,077	1,832	1,010	33	245
UK	6,195	6,867	4,100	598	329	745	108	see below
Ireland	1,773	1,792	2,131	1,146	1,514	563	439	47
Italy	1,264	1,205	2,661	3,561	2,609	2,325	1,591	197
The Netherlands	10,305	8,503	8,463	6,824	3,301	2,373	4,951	799
Polands	0	88	154	172	357	554	1,008	650
Portugal	3,246	4,196	5,357	4,960	4,793	4,236	2,005	259
Spain	2,981	6,067	5,869	4,653	5,707	4,517	1,727	514
Other EU-28	840	479	372	911	639	241	71	0
EU-28 [1]	**40,090**	**38,405**	**40,285**	**35,162**	**27,708**	**20,869**	**13,970**	**4,578**
Israel	4,901	5,257	5,845	4,547	3,921	4,284	5,024	4,170
Turkey	7,660	9,300	11,414	16,115	17,031	18,058	18,643	14,834
UK								76
Rest of Europe [2]	0	0	32	188	187	93	438	184
Europe [2]	**52,652**	**52,962**	**57,576**	**56,012**	**48,847**	**43,304**	**38,076**	**23,842**
Canada	1,593	1,516	1,711	1,445	1,733	2,138	2,075	962
USA	4,511	5,565	6,341	5,649	3,944	2,544	3,060	2,475
Dominican Republlic	268	688	794	1,002	958	826	1,059	1,009
Guatemala	750	1,305	1,769	2,060	1,247	2,001	2,566	1,661
Mexico	593	353	242	2,038	6,832	6,015	5,379	32
Panama	371	413	349	325	110	333	925	816
Puerto Rico	1,369	1,413	1,390	1,564	1,096	1,170	1,594	1,494
Brazil	2,076	4,448	5,042	4,570	4,503	4,965	4,504	3,034
Chile	7,053	5,646	4,380	4,989	6,786	7,687	8,125	6,161
PR China	223	0	0	325	80	330	1,649	1,552
India	494	0	0	2,644	495	346	667	3,107
Japan	278	0	20	240	1,949	948	607	328
South Korea	0	0	0	3,771	2,938	5,382	4,773	4,310
Other Countries	1,415	727	887	1,934	1,650	2,012	1,381	1,318
Statistical differences	0	0	0	0	0	0	0	0
Total Exports	**73,647**	**75,036**	**80,500**	**88,569**	**83,168**	**80,002**	**76,441**	**52,101**

[1] from 2020 EU 27 without UK [2] Incl. countries bordering the Mediterranean

Source: IHS Markit / DESTATIS

Table 11

Hard Coal Exports from South Africa								1,000 t
Importing Countries	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Germany	2,533	5,082	3,400	2,003	1,630	1,058	803	392
France	1,209	838	386	650	612	571	114	115
Italy	2,297	1,516	3,883	2,799	833	151	0	0
Spain	1,698	3,211	2,400	1,092	2,785	1,295	678	0
Other EU-28 [1]	6,355	7,058	635	2,246	1,018	3,370	695	229
EU-28 [1]	**14,091**	**17,705**	**10,704**	**8,791**	**6,877**	**6,445**	**2,290**	**736**
Israel	3,306	2,503	2,559	1,003	1,166	683	338	502
Morocco	300	1,338	4,325	2,243	757	353	447	62
Turkey	2,836	3,668	4,548	1,570	1,867	1,697	290	1,866
Rest of Europe [2]	0	742	1,586	1,856	1,134	1,571	269	72
Europe [2]	**20,533**	**25,957**	**23,722**	**15,463**	**11,801**	**10,749**	**3,636**	**3,238**
USA	511	574	504	250	405	475	432	490
Brazil	631	1,014	944	879	998	474	461	342
Bangladesh	0	79	804	617	541	750	1,051	904
PR Chinba	13,535	3,260	0	60	0	6	0	659
India	20,894	30,574	35,299	37,567	36,511	36,344	43,249	38,115
Japan	549	145	150	0	311	135	310	85
Malaysia	1,893	1,610	1,069	1,062	774	571	649	492
Pakistan	2,308	3,367	3,720	4,922	8,617	9,982	11,912	12,105
Sri Lanka	182	0	1,188	2,043	2,270	2,014	1,723	2,513
South Korea	150	305	318	2,739	8,328	6,827	3,857	1,430
Taiwan	5,804	1,344	1,289	765	3,203	2,774	1,137	1,040
Vietnam	0	0	44	511	55	127	2,614	7,479
Other Countries	6,363	8,159	8,210	8,569	9,126	9,768	7,517	6,121
Statistical differences	0	0	0	0	197	0	0	0
Total Exports	**73,354**	**76,388**	**77,260**	**75,446**	**83,138**	**80,997**	**78,547**	**75,013**

[1] from 2020 EU 27 without UK [2] Incl. countries bordering the Mediterranean

Source: IHS Markit / DESTATIS

Table 12

Hard Coal Exports from Canada

1,000 t

Importing Countries	2013	2014	2015	2016	2017	2018	2019	2020
Germany	1,214	1,462	1,317	1,487	1,481	1,551	1,263	1,266
Finland	428	537	526	587	412	605	460	110
France	0	31	0	92	119	69	74	38
Italy	817	403	288	283	318	234	256	107
Croatia	0	0	0	0	0	0	0	0
Poland	120	122	294	367	690	760	602	402
Other EU-28 [1]	642	887	699	-222	761	842	277	302
EU-28 [1]	**3,221**	**3,442**	**3,124**	**2,594**	**3,782**	**4,061**	**2,931**	**2,226**
Turkey	334	491	834	1 039	659	512	668	1 155
Ukraine	326	281	1,106	878	800	452	0	0
Rest of Europe [2]	232	59	195	180	119	122	30	0
Europe [2]	**4,114**	**4,274**	**5,259**	**4,690**	**5,360**	**5,147**	**3,629**	**3,380**
USA	911	834	980	893	735	695	661	300
Brazil	1,677	2,263	1,113	901	926	863	756	415
Chile	327	274	366	638	266	199	179	1,448
PR China	11,025	7,709	5,361	5,126	4,749	3,129	4,823	5,707
India	1,360	1,711	1,700	2,697	3,085	4,140	4,943	4,482
Japan	10,108	8,850	8,306	7,914	7,240	7,447	8,488	9,537
South Korea	7,594	6,675	5,777	5,702	5,681	5,720	9,221	7,381
Taiwan	1,151	1,509	1,252	1,417	1,622	1,462	2,312	2,420
Vietnam	0	0	90	172	521	1,205	1,317	296
Other Countries	278	159	185	95	256	937	0	91
Statistical differences	0	0	-268	-75	0	0	-181	0
Total Exports	**38,546**	**34,260**	**30,120**	**30,170**	**30,441**	**30,944**	**36,149**	**35,458**

[1] from 2020 EU 27 without UK [2] Incl. countries bordering the Mediterranean

Source: IHS Markit / DESTATIS

Table 13

Hard Coal Exports from China								1,000 t
Importing Countries	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Germany	8	23	2	12	12	10	9	2
UK	0	0	0	0	77	0	0	see below
The Netherlands	0	0	11	1	0	0	9	0
Other EU-28 [1]	0	0	0	1	0	0	0	0
EU-28 [1]	**8**	**23**	**13**	**13**	**89**	**10**	**18**	**2**
Rest of Europe [2]	4	0	0	0	0	95	0	0
Europe [2]	**12**	**23**	**13**	**13**	**89**	**105**	**18**	**2**
India	0	0	2	1	172	0	164	0
Indonesia	1	0	10	42	218	324	537	580
Japan	3,020	2,070	1,503	2,667	3,132	1,869	2,170	922
Malaysia	0	4	15	17	8	91	264	50
North Korea	129	80	71	132	44	438	763	619
South Korea	3,303	2,835	2,014	3,543	3,421	1,821	1,463	649
Taiwan	835	467	414	976	765	193	531	278
Vietnam	0	0	1,051	1,151	28	23	0	0
Other Countries	21	140	96	113	192	29	79	59
Statistical differences	-8	-23	-2	-12	35	-10	-9	-2
Total Exports	**7,313**	**5,597**	**5,189**	**8,644**	**8,102**	**4,883**	**5,980**	**3,157**

[1] from 2020 EU 27 without UK [2] Incl. countries bordering the Mediterranean

Source: IHS Markit / DESTATIS

Table 14

Hard Coal Exports from Poland								1,000 t
Importing Countries	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Germany	3,007	2,931	3,098	2,422	1,254	248	218	171
Denmark	553	365	150	141	5	5	0	0
UK	665	230	123	51	26	22	18	see below
Ireland	170	148	101	93	23	22	4	10
The Netherlands	147	54	381	159	0	0	0	0
Austria	807	887	850	846	881	1,008	974	888
Slovakia	767	500	619	650	784	675	543	390
Sweden	184	117	100	85	32	6	0	0
Czech Republic	1,623	2,604	2,633	2,827	3,108	2,395	2,274	2,593
Hungary	93	58	164	169	186	170	149	197
Other EU-28 [1]	1,399	250	457	326	106	73	21	3
EU-28 [1]	**9,415**	**8,144**	**8,676**	**7,767**	**6,405**	**4,623**	**4,202**	**4,252**
UK								3
Ukraine	131	125	296	538	651	313	236	117
Rest of Europe [2]	927	791	539	1,272	41	18	14	14
Europe [2]	**10,472**	**9,060**	**9,510**	**9,578**	**7,098**	**4,954**	**4,451**	**4,386**
Other Countries	0	2	116	140	0	3	3	3
Statistical differences	363	-218	-407	-513	14	99	-24	48
Total Exports	**10,836**	**8,844**	**9,219**	**9,205**	**7,111**	**5,056**	**4,431**	**4,437**

[1] from 2020 EU 27 without UK [2] Incl. countries bordering the Mediterranean

Source: IHS Markit / DESTATIS

Table 15

Hard Coal Imports of EU Countries — Imports Incl. Internal Trade of Member States								1,000 t
	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Germany	50,100	53,600	55,500	55,200	49,200	44,500	40,300	29,700
Belgium	5,200	4,400	4,200	3,700	3,600	4,100	3,900	3,000
Bulgaria	1,700	1,600	1,100	700	900	800	600	500
Denmark	5,000	4,500	2,800	2,900	3,100	2,800	2,400	1,100
Finland	5,100	5,400	3,500	3,900	4,200	4,000	3,100	2,400
France	18,300	14,300	14,300	13,500	14,100	13,400	10,400	7,900
Greece	200	200	300	300	400	400	400	300
Great Britain	44,800	38,300	25,500	8,500	8,500	9,900	6,200	
Ireland	1,200	1,800	2,400	1,800	2,000	1,300	300	300
Italy	20,800	20,000	19,600	17,900	15,400	14,100	10,800	7,200
Croatia	1,200	1,000	1,000	1,200	600	500	700	600
The Netherlands	12,400	12,400	12,400	14,500	16,200	13,000	10,300	6,000
Austria	3,500	3,200	3,200	3,600	3,600	3,500	3,600	2,600
Poland	10,800	10,300	8,200	8,300	13,400	19,700	16,700	12,800
Portugal	4,200	4,400	5,100	5,300	5,700	4,700	2,800	200
Romania	900	700	1,200	1,000	900	900	1,000	700
Sweden	2,500	2,500	2,700	3,100	2,700	2,700	2,300	2,100
Slovenia	500	400	400	400	400	400	400	300
Slovakia	7,100	6,700	4,100	4,000	3,800	4,400	3,400	2,400
Spain	13,500	14,700	19,000	14,700	19,200	15,700	8,500	4,000
Czech Republic	2,100	2,900	2,900	3,100	3,700	3,300	3,400	3,300
Hungary	1,300	1,300	1,300	1,500	1,700	1,500	1,400	1,200
Other	300	200	200	200	100		200	200
EU 28/ from 2020 EU 27	**212,700**	**204,800**	**190,900**	**169,300**	**173,400**	**165,600**	**133,100**	**88,800**
European Cross-Border Coke Trade (Excluding Ukraine)	6,000	6,000	7,600	8,000	9,100	9,000	9,500	5,800

Source: EURACOAL / DESTATIS

Table 16

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

Source: German Federal Statistical Office

Table 18a

Coal Transshipments in German Inland Ports 2020

t

	Shipping Region			
Destination Port	**Province Zuid-Holland [1]**	**Province Noord-Holland [2]**	**Province Antwerp**	**Total**
Duisburg	5,997,940	884,731	5,518	6,888,189
Mannheim	315,149	781,934	331,350	1,428,433
Bottrop	964,541	2,793	35,725	1,003,059
Datteln	757,316	109,777		867,093
Karlsruhe	33,532	461,717	320,662	815,911
Rheinberg	382,554	98,844	101,521	582,919
Hamm	167,190	267,991	25,611	460,792
Marl	39,399	381,016		420,415
Saarlouis	250,886	33,480	27,502	311,868
Lünen	202,037	49,443	1,968	253,448
Stuttgart		73,197	20,585	93,782
Herne	47,262	13,963	17,533	78,758
Bergkamen	67,242			67,242
Düsseldorf	65,534			65,534
Offenbach am Main		62,394		62,394
Völklingen	40,450	11,112		51,562
other	162,161	188,368	22,073	372,602
Total Transshipment	**9,493,193**	**3,420,760**	**910,048**	**13,824,001**

[1] Largest city: Rotterdam [2] Largest city: Amsterdam

Source: German Federal Statistical Office

Table 18b

Import of Hard Coal and Hard Coal Coke to Germany

Countries	2017						2018					
	Steam Coal	Coking Coal	Anthracite	Coke	Briquettes	Total	Steam Coal	Coking Coal	Anthracite	Coke	Briquettes	Total
Poland	1,211	1	41	1,425	0	2,679	231		17	1,391	0	1,639
Czech Republic	159		1	281	0	441	23		1	256		280
Other	2,466	34	198	191	83	2,889	2,588	38	171	163	22	2,982
EU 28	**3,837**	**35**	**240**	**1,897**	**84**	**6,093**	**2,842**	**38**	**189**	**1,810**	**22**	**4,901**
Russian Federation	17,605	1,783	294	98	30	19,810	17,266	1,344	447	111	86	19,254
Norway	171					171	73					73
USA	5,773	3,362	7			9,142	6,459	3,492	3	4		9,958
Canada		1,481		42		1,524	13	1,539		34		1,585
Colombia	6,423		46	42		6,511	3,826		31	29		3,886
South Africa	1,429	201				1,630	884	173	1			1,058
Australia	142	5,493				5,634	8	5,187				5,196
PR China			12	172		184	0		10	135		146
Indonesia	0					0						
Other Third Countries	124	544	39	10		716	265	611	32			908
Third Countries	**31,667**	**12,864**	**396**	**364**	**30**	**45,321**	**28,794**	**12,346**	**524**	**313**	**86**	**42,063**
Total	**35,504**	**12,899**	**636**	**2,261**	**114**	**51,414**	**31,636**	**12,383**	**714**	**2 124**	**108**	**46,965**

Sources: Federal Statistical Office, own calculations

Table 22

1,000 t

2019						2020						Countries
Steam Coal	Coking Coal	Anthracite	Coke	Briquettes	Total	Steam Coal	Coking Coal	Anthracite	Coke	Briquettes	Total	
190		27	1,184	0	1,402	150		21	1,025	1	1,197	Poland
45		0	238		282	2		1	190		193	Czech Republic
2,218	32	178	164	10	2,603							Other
2,453	**32**	**206**	**1,586**	**10**	**4,287**	**152**		**22**	**1,215**	**1**	**1,390**	**EU 28**
17,135	1,369	609	185	62	19,361	12,936	878	514	70	59	14,457	Russian Fed.
51					51	19		7			26	Norway
4,578	3,511	22			8,111	1,988	3,850				5,838	USA
43	1,194		15		1,252		1,266				1,266	Canada
1,759		26	43		1,828	1,856		9	56		1,921	Colombia
759		0			759	392					392	South Africa
27	4,744				4,771		3,906				3,906	Australia
0		9	58		68			2	56		58	PR China
												Indonesia
1,375	345	30			1,750	2,003	212	167	172	7	2,561	Other
25,728	**11,163**	**696**	**301**	**62**	**37,950**	**19,194**	**10,112**	**699**	**354**	**66**	**30,425**	**Third Countries**
28,181	**11,195**	**902**	**1,886**	**73**	**42,237**	**19,346**	**10,112**	**721**	**1,569**	**67**	**31,815**	**Total**

Primary Energy Consumption in Germany										Mill. TCE
Energy Source	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Hard Coal	55.3	58.3	61.0	58.1	58.6	56.7	50.0	48.7	37.0	30.8
of which import coal	(43.4)	(46.8)	(52.4)	(52.1)	(51.3)	(53.6)	(48.2)	44.5	37.0	30.8
Lignite	53.3	56.1	55.6	53.6	53.5	51.8	51.5	50.0	39.7	32.6
Oil	154.8	154.9	158.3	154.1	153.2	155.3	159.5	151.6	153.9	135.6
Natural Gas	99.3	99.6	104.4	91.4	94.2	103.8	106.5	105.4	109.7	107.0
Nuclear Energy	40.2	37.0	36.2	36.2	34.2	31.5	28.4	28.3	27.9	24.0
Renewables	49.9	47.3	51.1	51.8	56.1	57.9	61.1	61.5	65.0	66.9
Foreign Trade Balance Electric Power	-0.8	-2.8	-4.2	-4.4	-6.4	-6.6	-6.8	-6.0	-4.0	-2.5
Other Energy Sources	8.7	7.9	7.1	7.7	7.6	8.0	8.4	7.6	7.8	7.5
Total [1]	**460.7**	**458.3**	**469.5**	**448.5**	**451.0**	**458.4**	**458.6**	**447.0**	**437.0**	**402.0**

Energy Source	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Hard Coal	12.0	12.7	13.0	13.0	13.0	12.4	10.9	10.9	8.5	7.7
of which import coal	(9.4)	(10.2)	(11.2)	(11.6)	(11.4)	(11.7)	(10.5)	(10.3)	(8.8)	(8.8)
Lignite	11.6	12.2	11.8	12.0	11.9	11.3	11.2	11.2	9.1	8.1
Oil	33.6	33.8	33.7	34.4	34.0	33.9	34.8	33.9	35.2	33.7
Natural Gas	21.6	21.7	22.2	20.4	20.9	22.6	23.2	23.6	25.1	26.6
Nuclear Energy	8.7	8.1	7.7	8.1	7.6	6.9	6.2	6.3	6.4	6.0
Hydroelectric and Wind Power	10.8	10.3	10.9	11.5	12.4	12.6	13.3	13.8	14.9	16.6
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
Other Energy Sources	1.9	1.7	1.5	1.7	1.7	1.7	1.8	1.7	1.7	1.8
Total [1]	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

[1] Rounding-off differences possible

Sources: Arbeitsgemeinschaft Energiebilanzen, German Federal Statistical Office, own calculations

Table 17

The Hard Coal Market in Germany

Volumes and Prices 1957-2020

Quantities								Prices							
Imports of Hard Coal and Coke t=t *)				Domestic Production of Hard Coal Tonnes Usable Production				Steam Coal From Third Countries 1)				Domestic Coal 2)			
Year	Mill. t	Year	Mill. t	Year	Mill. t	Year	Mill. t	Year	€/TCE	Year	€/TCE	Year	€/TCE	Year	€/TCE
1957	18.9	1989	7.3	1957	149.4	1989	71.0	1957	40	1989	49	1957	29	1989	137
1958	13.9	1990	11.7	1958	148.8	1990	69.8	1958	37	1990	49	1958	29	1990	138
1959	7.5	1991	16.8	1959	141.7	1991	66.1	1959	34	1991	46	1959	29	1991	139
1960	7.3	1992	17.3	1960	142.3	1992	65.5	1960	33	1992	42	1960	29	1992	147
1961	7.3	1993	15.2	1961	142.7	1993	57.9	1961	31	1993	37	1961	29	1993	148
1962	8.0	1994	18.1	1962	141.1	1994	52.0	1962	30	1994	36	1962	30	1994	149
1963	8.7	1995	17.7	1963	142.1	1995	53.1	1963	30	1995	39	1963	30	1995	149
1964	7.7	1996	20.3	1964	142.2	1996	47.9	1964	30	1996	38	1964	31	1996	149
1965	8.0	1997	24.3	1965	135.1	1997	45.8	1965	29	1997	42	1965	32	1997	149
1966	7.5	1998	30.2	1966	126.0	1998	40.7	1966	29	1998	37	1966	32	1998	149
1967	7.4	1999	30.3	1967	112.0	1999	39.2	1967	29	1999	34	1967	32	1999	149
1968	6.2	2000	33.9	1968	112.0	2000	33.3	1968	28	2000	42	1968	30	2000	149
1969	7.5	2001	39.5	1969	111.6	2001	27.1	1969	27	2001	53	1969	31	2001	149
1970	9.7	2002	39.2	1970	111.3	2002	26.1	1970	31	2002	45	1970	37	2002	160
1971	7.8	2003	41.3	1971	110.8	2003	25.7	1971	32	2003	40	1971	41	2003	160
1972	7.9	2004	44.3	1972	102.5	2004	25.7	1972	31	2004	55	1972	43	2004	160
1973	8.4	2005	39.9	1973	97.3	2005	24.7	1973	31	2005	65	1973	46	2005	160
1974	7.1	2006	46.5	1974	94.9	2006	20.7	1974	42	2006	62	1974	56	2006	170
1975	7.5	2007	47.5	1975	92.4	2007	21.3	1975	42	2007	68	1975	67	2007	170
1976	7.2	2008	48.0	1976	89.3	2008	17.1	1976	46	2008	112	1976	76	2008	170
1977	7.3	2009	39.5	1977	84.5	2009	13.8	1977	43	2009	79	1977	76	2009	170
1978	7.5	2010	45.2	1978	83.5	2010	12.9	1978	43	2010	85	1978	84	2010	170
1979	8.9	2011	48.4	1979	85.8	2011	12.1	1979	46	2011	107	1979	87	2011	170
1980	10.2	2012	47.9	1980	86.6	2012	10.8	1980	56	2012	93	1980	100	2012	180
1981	11.3	2013	52.9	1981	87.9	2013	7.6	1981	84	2013	79	1981	113	2013	180
1982	11.5	2014	56.2	1982	88.4	2014	7.6	1982	86	2014	73	1982	121	2014	180
1983	9.8	2015	57.5	1983	81.7	2015	6.2	1983	75	2015	68	1983	125	2015	180
1984	9.6	2016	57.2	1984	78.9	2016	3.8	1984	72	2016	67	1984	130	2016	180
1985	10.7	2017	51.4	1985	81.8	2017	3.7	1985	81	2017	92	1985	130	2017	180
1986	10.9	2018	47.0	1986	80.3	2018	2.6	1986	60	2018	95	1986	130	2018	180
1987	8.8	2019	42.2	1987	75.8	2019	-	1987	46	2019	80	1987	132	2019	-
1988	8.1	2020	31.8	1988	72.9	2020	-	1988	42	2020	64	1988	134	2020	-

Figures: From 1991, incl. new German states; euro values rounded off
*) Including anthracite and briquettes 1) Price free German border 2) Estimated breakeven price

Sources: German Federal Statistical Office, statistics from Kohlenwirtschaft, BAFA, own calculations

Table 23

Members of the VDKi

Members	Website
Alfred H Knight Energy Services Ltd., Unit 1, Palmermount Ind. Estate, Bypass Road, Dundonald, Kilmarnock, Ayrshire KA2 9 BL, UK	www.ahkgroup.com
BMA B.V. Bulk Maritime Agencies, Debussystraat 2, 3161 WD Rhoon, Niederlande	www.bma-agencies.nl
Bulk Trading S.A., Piazza Molino Nuovo 17, 6900 Lugano, Schweiz	www.bulktrading.ch
CMC Coal Marketing Company Ltd., Fumbally Square New Street, Dublin DO8 XYA5, Irland	www.cmc-coal.ie
Currenta GmbH & Co. OHG, CHEMPARK, Geb. G11 222, 51368 Leverkusen, Deutschland	www.currenta.de
DB Cargo AG, Rheinstraße 2, 55116 Mainz, Deutschland	www.dbcargo.com
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