# ANNUAL REPORT 2023

## FACTS AND TRENDS 2022/23

VEREIN DER KOHLENIMPORTEURE

## Import Coal Market at a Glance

| | | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| **World** | | | | | |
| Hard Coal Production | Mill. t | 7 288 | 7 021 | 7 352 | 7 965 |
| World Hard Coal Trade | Mill. t | 1 346 | 1 216 | 1 233 | 1 231 |
| of which Seaborne Hard Coal Trade | Mill. t | 1 235 | 1 111 | 1 134 | 1 123 |
| of which Internal Hard Coal Trade | Mill. t | 111 | 105 | 99 | 108 |
| Hard Coal Coke Production | Mill. t | 682 | 667 | 677 | - |
| Hard Coal Coke World Trade | Mill. t | 26 | 24 | 29 | - |
| **European Union (28, from 2020 EU 27)** | | | | | |
| Hard Coal Production | Mill. t | 65 | 57 | 57 | 55 |
| Hard Coal Imports (incl. Internal Trade) | Mill. t | 133 | 89 | 107 | 127 |
| Hard Coal Coke Imports | Mill. t | 9.5 | 4.5 | 6.2 | - |
| **Germany** | | | | | |
| Hard Coal Use | Mill. TCE | 37.0 | 30.6 | 37.9 | 39.4 |
| Hard Coal Volume | Mill. TCE | 41.3 | 29.7 | 36.6 | 42.0 |
| of which import coal use | Mill. TCE | 41.3 | 29.7 | 36.6 | 42.0 |
| of which domestic hard coal production | Mill. TCE | - | - | - | - |
| Imports of Hard Coal and Hard Coal Coke | Mill. t | 43.2 | 31.3 | 41.0 | 44.6 |
| of which steam coal [1] | Mill. t | 30.1 | 19.9 | 26.9 | 30.8 |
| of which coking coal | Mill. t | 11.2 | 9.8 | 11.8 | 11.5 |
| of which hard coal coke | Mill. t | 1.9 | 1.6 | 2.3 | 2.3 |
| **Prices** | | | | | |
| Steam Coal Marker Price CIF NWE | US$/TCE | 72 | 59 | 132 | 337 |
| Border-crossing Price Steam Coal/Update by VdKi [2] | €/TCE | 80 | 63 | 119 | 326 |
| $CO_2$ emission rights (EEX EUA settlement price) | EUR/EUA | 24.84 | 24.73 | 53.41 | 80.81 |
| Exchange rate (US$1 = €....) | EUR/US$ | 0.90 | 0.88 | 0.85 | 0.95 |

[1] Including anthracite and briquettes [2] Until the end of 2018 BAFA, from 2019 update by VdKi

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Glossary/Institutions/Links: see www.kohlenimporteure.de - Publications - Glossary to the Annual Report

# AN INTRODUCTARY WORD

"Coal in Germany - under new circumstances" was the title of the first international coal conference organised by our VdKi in sunny Nice in May.

The conference was a complete success, especially for our association. More than 180 delegates from all over the world and from all sectors of our industry came to Nice for the event we organised.

Coal representatives from South Africa and the USA, from Colombia and the UK, from Poland and Ukraine took the opportunity to exchange ideas. The VDKi was highly praised for its initiative.

Our concern was also to thank our international partners in the coal world for their support in the difficult times following the outbreak of the Ukraine war. Russia was previously Germany's dominant supplier, especially for thermal coal. The switch to alternative types of coal was an enormous challenge, especially in the second half of 2022 after the EU embargo on Russian coal came into force in mid-August.

The price of our competitive energy, LNG (in the absence of pipeline gas), rose to heights of well over €300/MWh - even in the face of expected shortages of French nuclear power in winter.

The switchover of consumers to alternative coals then went well everywhere in our opinion - high praise also to the engineers involved in the power plants and industrial facilities for this unique achievement under high time pressure. The trade and, finally, the troubled coal logistics also did their utmost to get Germany ready for the winter in terms of energy. Once again, a big thumbs-up to all those involved from this point!

So we went into the winter well stocked - not least with the replacement power plants recalled to the market by the federal government. The temperatures from December to March were unusually mild. And so the output of the power plant park, which was expanded again, was not fully utilised. Everything went according to plan: "We are there when we are needed" we said in interviews - not an empty formula of our industry.

In our opinion, the federal government's strategy on the subject of energy transition overestimates the willingness to invest in new gas-fired power plants as well as the technical possibilities of being able to convert hydrogen into electricity at 100 %. In addition, green hydrogen will not be available in the required quantities in the foreseeable future.

A quote from Professor Hans-Werner Sinn, former head of the Munich IFO Institute: "Green electricity from wind and solar power urgently needs controllable power plants because of the dark doldrums...".

"We need a reorientation of energy policy: immediate lifting of anticipatory fuel bans: first build up green technology, then switch it off. And not the other way round."

With this in mind, we call on the German government not to put itself under artificial pressure with ever shorter runtimes. Let's look at our modern coal-fired power plants. And let's take into account that high $CO_2$ savings are possible with CCU/CCS technology or co-firing (of ammonia, for example).

We stick to our guns: hard coal plays an important role in securing the electricity supply in Germany. Until 2038.

The production of hard coal worldwide has reached a new record level of around 8 billion tonnes. An order of magnitude that even we experts would not have expected. In view of the manageable

# THE VDKI IN CONVERSATION

global LNG production at present and Europe's additional demand for this substitute for Siberian natural gas, demand for hard coal will not collapse.

In Germany, hard coal-fired power plants have been less busy since the end of the first quarter. However, the situation on the energy market is expected to tighten again in the course of the third quarter and the important role that coal-fired power plants play in the context of securing supply will quickly become visible again. Major challenges remain, and we look forward to them.

Glück auf!

Alexander Bethe
– Chairman –

Jürgen Osterhage
– Managing Director –

Berlin, June 2023

How do the energy markets work? This was the topic of an event organised by the Bavarian Economic Advisory Council in early 2023 in Munich. VdKi Chairman Alexander Bethe gave a presentation. One central question was at the centre: What influence does the Ukraine war have on the development of the coal market? Following the lecture, a lively discussion developed among the more than 130 guests.

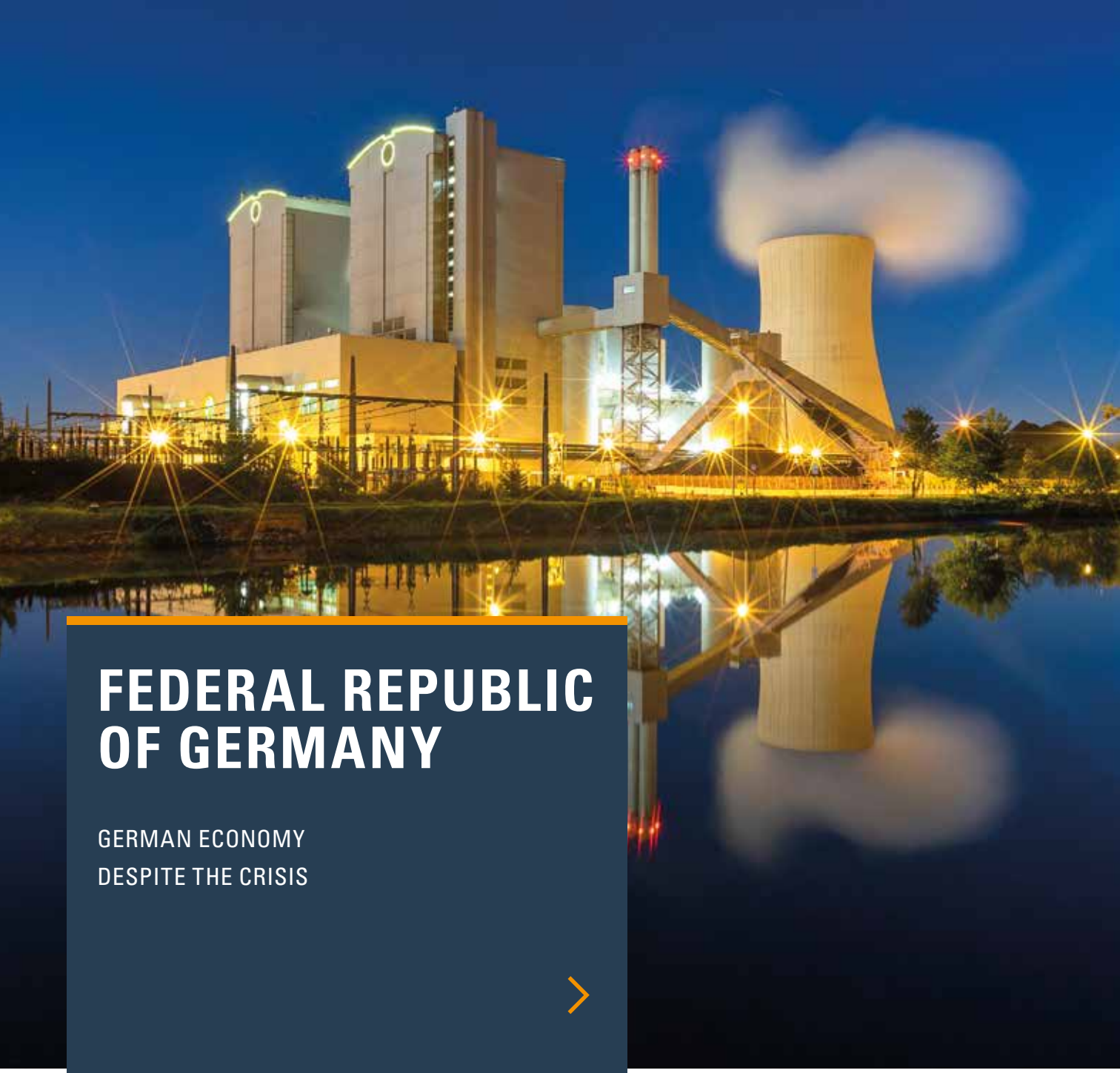
*Alexander Bethe*

*In conversation*

*Alex Bethe (right) with the Econimic Advisory Council-Board*

# IMPRESSIONS OF THE NEW YEAR'S RECEPTION 2023 IN HAMBURG.

# IMPRESSIONS OF VDKI COAL-MARKET-GATHERING NICE 2023 – COAL IN GERMANY: UNDER NEW CIRCUMSTANCES.



# FEDERAL REPUBLIC OF GERMANY

GERMAN ECONOMY
DESPITE THE CRISIS

# FEDERAL REPUBLIC OF GERMANY

Despite inflation, the Ukraine war and ongoing supply problems, the German economy grew last year. Price-adjusted gross domestic product (GDP) rose by 1.8 %, according to the Federal Statistical Office. "The overall economic situation in Germany in 2022 was characterized by the consequences of the war in Ukraine and extreme increases in energy prices," said Ruth Brand, president of the Federal Statistical Office. "Added to this were aggravated material and supply bottlenecks, massively rising prices, for example for food, as well as the shortage of skilled workers and the Corona pandemic. Despite these still difficult conditions, the German economy held up well overall in 2022," Ruth Brand continued.

The most important pillar was private consumption. It grew strongly at a rate of 4.6 %. Consumers spent almost as much as in the period before the Corona crisis. Citizens made up for what was not possible during the pandemia: travel, restaurant visits, culture, celebrations and trade show visits. This enabled the German economy to grow despite the Ukraine war, supply bottlenecks and the energy price crisis.

The robust labor market also contributed to the positive development. In 2022, economic output was generated by an average of 45.6 million people in employment in Germany. A record level. Two key reasons for this development are the strong increase in the labor force participation of women and older people.

## Energy Industry

Primary energy consumption (PEV) in Germany fell to its lowest level since reunification in 2022. The PEV amounted to 11,829 petajoules (PJ), corresponding to 403.6 million metric tons of coal equivalent (mtce). This represents a decrease of 4.9 % compared with 2021. Energy consumption was dampened by the sharp rise in energy prices and mild weather. The global average energy consumption in 2022 - measured in terms of economic output - was twice as high as in Germany. The PEV per capita of the population (84.1 million inhabitants) in Germany was 4.8 tce in 2022. This was a quarter less than in 1990. $CO_2$ emissions are estimated to total 672 million t in 2022. This corresponds to 8.0 t per capita. Since 1990, $CO_2$ emissions are expected to have decreased by 36.3 % and total greenhouse gas emissions by 39.7 %.

## Change in the energy mix

PEV by energy source changed as follows in 2022 compared to 2021:

- Demand for mineral oil increased by 2.9 %.
- Consumption of natural gas decreased by -15.7 %.
- Consumption of hard coal increased by 4.2 %. Demand in the power plant sector for electricity and heat generation increased by more than 16 %. By contrast, the use of coke and coal in the steel industry decreased by 7.5 %.
- The PEV of lignite increased by 4.2 %.
- Renewable energies increased by 3.9 %.
- The PEV of nuclear energy almost halved.
- Germany's export surplus of electricity in exchange with neighboring countries increased.

## Hard Coal

In 2022, hard coal imports increased by 4.7 % compared to the previous year to around 44.6 million tonnes. Imports of steam coal increased by 11.7 % to 30 million tonnes in 2022, while imports of

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

| | Unit | 2021 | 2022[1] | 2023[1] | 2024[1] |
|---|---|---|---|---|---|
| **Gross Domestic Product**[2] | % | 2.6 | 1.8 | 0.2 | 1.3 |
| Expenditures for Consumption | % | 1.4 | 3.4 | -0.5 | 1.2 |
| Expenditures for Private Consumption[3] | % | 0.4 | 4.3 | -0.9 | 1.2 |
| Expenditures for Public Consumption | % | 3.8 | 1.2 | 0.5 | 1.2 |
| Gross Installation Investments | % | 1.2 | 0.4 | -0.9 | 1.7 |
| Equipment Investments[4] | % | 3.5 | 3.3 | 2.2 | 3.7 |
| Construction Investments | % | 0.0 | -1.7 | -3.7 | 0.1 |
| Other Investments | % | 1.0 | 2.1 | 3.0 | 3.4 |
| Domestic Utilisation | % | 1.9 | 3.1 | -0.1 | 1.3 |
| Trade Balance | %-Pts. | 0.8 | -1.2 | 0.2 | 0.0 |
| Exports | % | 9.7 | 2.9 | 0.6 | 3.0 |
| Imports | % | 9.0 | 6.0 | 0.1 | 3.2 |
| **Current Account Balance**[5] | % | 7.4 | 3.8 | 5.4 | 5.6 |
| **Workforce** | Thousands | 44 980 | 45 570 | 45 829 | 45 912 |
| **Employees Subject to Social Security Contributions** | Thousands | 33 897 | 34 509 | 34 817 | 34 986 |
| **Persons Registered as Unemployed** | Thousands | 2 613 | 2 418 | 2 460 | 2 376 |
| **Unemployment**[6] | % | 5.7 | 5.3 | 5.4 | 5.2 |
| **Consumer Prices**[7] | % | 3.1 | 6.9 | 6.6 | 3.0 |
| **Public Fiscal Balance**[8] | % | -3.7 | -2.6 | -1.6 | -0.4 |
| **Per Capita Gross Domestic Product**[9] | % | 2.6 | 1.7 | 0.1 | 1.2 |

[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 2023/2024, March 22nd, 2023 / German Federal Statistical Office*

*HT-D1*

## Primary Energy Consumption in Germany 2020 to 2022

| Energy Source | 2020 | 2021[1] | 2022[1] | Changes 2022/2021[2] | | 2021 | 2022 |
|---|---|---|---|---|---|---|---|
| | Mill. TCE | | | Mill. TCE | % | Shares in % | |
| Oil | 139.4 | 137.8 | 141.8 | 4.0 | 2.9 | 32.5 | 35.3 |
| Natural Gas | 107.0 | 112.7 | 95.0 | -17.7 | -15.7 | 26.6 | 23.7 |
| Hard Coal | 30.6 | 37.9 | 39.4 | 1.5 | 4.2 | 8.9 | 9.8 |
| Lignite | 32.7 | 38.5 | 40.1 | 1.6 | 4.2 | 9.1 | 10.0 |
| Nuclear Energy | 24.0 | 25.7 | 12.9 | -12.8 | -49.5 | 6.1 | 3.2 |
| Renewable Energy Sources | 67.3 | 66.5 | 69.0 | 2.5 | 3.9 | 15.7 | 17.2 |
| Electricity Exchange Balance | -2.3 | -2.3 | -3.4 | -1.1 | … | -0.5 | -0.8 |
| Other | 7.3 | 7.6 | 6.8 | -0.8 | -10.1 | 1.8 | 1.7 |
| **Total [2]** | **406.0** | **424.4** | **401.6** | **-22.8** | **-5.4** | **100.0** | **100.0** |

[1] provisional [2] rounding-off differences possible

*Source: AGEB, "Energy Consumption in Germany in 2022 - Annual Report" for 2021 / 2022, April 2023*

*HT-D2*

coking coal fell by 7.3 % to 11 million tonnes. The reason for the strong growth in steam coal imports is the significant increase in electricity generation from hard coal.

In the case of coking coal, the clouded economic development was the decisive factor for the development recorded.

According to the Federal Statistical Office, Russia's share of total hard coal imports fell from 50 % in 2021 to 31 % in the period from January to November 2022. Despite embargoes, Russia was still Germany's largest hard coal supplier in 2022.

## Utilisation of Hard Coal in Germany

| Utilisation | 2019[2] | 2020[1] | 2021[1] | 2022[1] | Change 2022/2021 |
|---|---|---|---|---|---|
| | Mill. TCE | | | | % |
| Power Plants [2] | 17.1 | 15.6 | 17.5 | 19.6 | 16.2 |
| Steel Industry | 18.1 | 13.1 | 18.6 | 18.2 | -2.2 |
| Heating Market | 1.8 | 1.9 | 1.8 | 1.6 | -10.5 |
| **Total** | **37.0** | **30.6** | **37.9** | **39.4** | **4.0** |

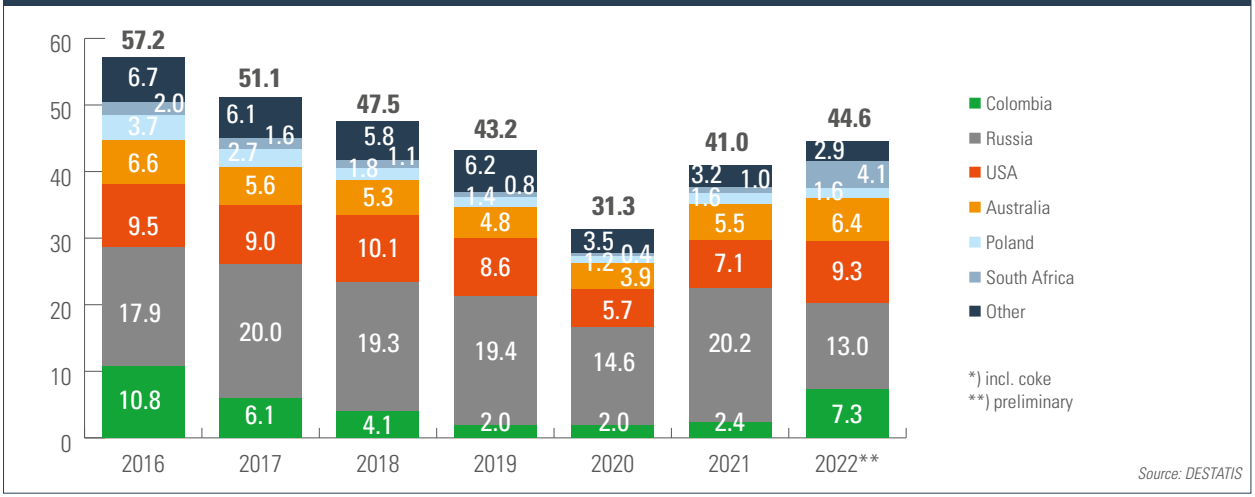
[1] Provisional information, in part estimated [2] incl. statistical differences

*Source: AGEB, "Energieverbrauch in Deutschland 2022"; April 2023*

*HT-D6*

## Imports of Hard Coal in Germany Including Coke by Provenance

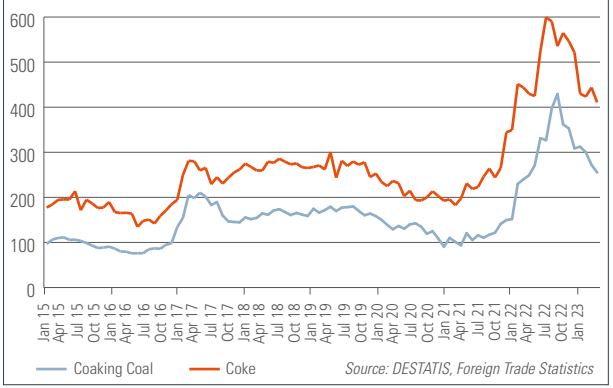
in Mill. t




*HT-B3*

## Cross-border Prices of Coking Coal and Hard Coal Coke in Germany

€/t




*HT-B6*

## Crude Steel and Pig Iron Production

| | 2020 | 2021 | 2022[1)] | Change 2022/2021 |
|---|---|---|---|---|
| | | Mill. t | | % |
| Crude Steel | 35.7 | 40.1 | 36.8 | -8.2 % |
| Pig Iron | 22.5 | 25.7 | 23.7 | -7.6 % |

[1)] Provisional

*Source: Steel Federation, press release from January 23rd, 2023*

*HT-D12*

The U.S share of total imports has increased from 17 % in 2021 to 21 % in 2022. The strongest growth was recorded by imports from Columbia and South Africa, which accounted for 16 % and 8 % of the total in the first eleven months of 2022.

Imports from Australia remained largely constant.
Total German PEV of hard coal increased by 4.5 % in 2022 compared to the previous year to 39.6 million tce.

- The use of hard coal in power and heating plants increased by 16 %.
- Consumption by the domestic steel industry decreased by 7,5 %.
- Consumption in the heating market amounted to 1.9 million tce in 2022.

## Electricity market

Gross electricity consumption in Germany decreased from 564.2 TWh in 2021 to 3.1 % to 546.5 TWh in 2022. In 2022, electricity generation from renewable energies corresponded to 47.1 % of gross electricity consumption.

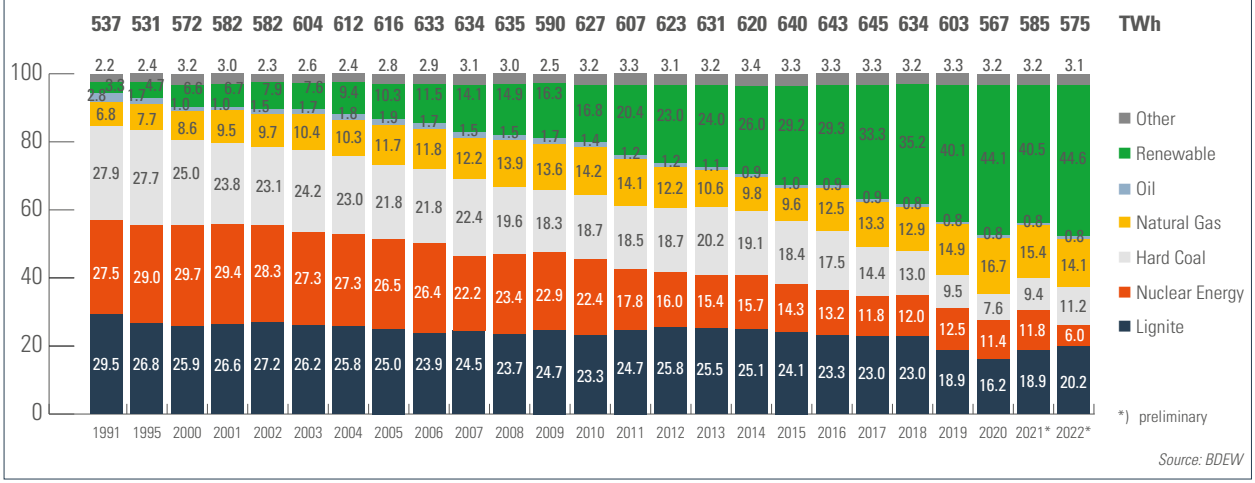
Total gross electricity generation in Germany in 2022 was 1.9 % lower than in the previous year at 575.0 TWh. Generation at German sites was supplemented by imports of electricity, which amounted to around 51.0 TWh in 2022.

Exports of electricity amounted to 78.5 TWh in 2022. Compared to the previous year, electricity imports decreased by 2.6 % in 2022, while electricity exports increased by 7.3 %. The balance of exports and imports was 27.5 TWH in 2022 compared to 20.8 TWh in 2021.

In 2022, the structure of gross electricity generation was as follows:

- Renewable Energies 45,0 %
- Lignite 20,0 %
- Natural Gas 14,0 %
- Hard Coal 11,0 %
- Nuclear Energy 6,0 %
- Mineral Oil 1,0 %
- Other -3,7 %

**German Gross Electricity Generation in TWh** - Shares in percent




*HT-B2*

## Gross Electric Power Generation in Germany per Energy Source

| Energy Source | 2020 | 2021[1)] | 2022[1)] | 2022 Shares | Change 2022/2021 |
|---|---|---|---|---|---|
| | TWh | | | % | % |
| Lignite | 91.7 | 110.4 | 116.3 | 20 % | 5.3 % |
| Nuclear Energy | 64.4 | 69.1 | 34.7 | 6 % | -49.7 % |
| Hard Coal | 42.8 | 54.9 | 64.2 | 11 % | 16.8 % |
| Natural Gas | 94.6 | 90.0 | 80.9 | 14 % | -10.1 % |
| Oil | 4.7 | 4.9 | 4.4 | 1 % | -9.4 % |
| Renewable Energies | 249.7 | 237.1 | 256.8 | 45 % | 8.3 % |
| Other | 18.8 | 18.6 | 17.8 | 3 % | -3.7 % |
| **Total** | **566.7** | **585.0** | **575.2** | **100 %** | **-1.7 %** |

[1)] Provisional

*Source: BDEW, Annual Report 2022, December 19th, 2022 / BDEW, Konjunktur und Energieverbrauch, issue 03/2023, April 28th, 2023*

*HT-D3*

## Gross Power Generation from Renewable Energy Sources

| Energy Source | 2020 | 2021[1)] | 2022[1)] | 2022 Shares | Change 2022/2021 |
|---|---|---|---|---|---|
| | TWh | | | % | % |
| Hydroelectric Power | 18.7 | 19.4 | 17.3 | 7 % | -10.5 |
| Wind Onshore | 104.6 | 90.6 | 102.5 | 40 % | 13.1 |
| Wind Offshore | 27.3 | 24.4 | 25.1 | 10 % | 2.8 |
| Biomass | 44.3 | 45.4 | 44.2 | 17 % | -2.8 |
| Municipal Wastes (50 %)[2)] | 5.8 | 5.7 | 5.6 | 2 % | -2.7 |
| Photovoltaics | 48.8 | 51.4 | 61.9 | 24 % | 20.5 |
| Geothermal Energy | 0.2 | 0.2 | 0.2 | 0 % | 14.6 |
| **Total** | **249.7** | **237.1** | **256.8** | **100 %** | **8.3** |
| Share of Renewable Energies in Gross Electric Power Generation | 44 % | 41 % | 45 % | | |

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

*Source: BDEW, Annual Report 2022, December 19th, 2022 / BDEW, Konjunktur und Energieverbrauch, issue 03/2023, April 28th, 2023*

*HT-D4*

# EUROPEAN UNION

## COMEBACK OF COAL IN EUROPE

# EUROPEAN UNION

## EU-economic growth

The EU economy is therefore likely to develop more robustly this year than initially expected. According to the expectations of the EU Commission, there will be no recession in either the EU or the euro zone.

The Brussels-based authority is forecasting growth of 0.8 % for the EU and 0.9 % for the euro countries.

If the forecast proves true, the EU plans to return to the old debt rules based on the Maastricht criteria at the end of the year. These were suspended at the beginning of the Corona crisis.

The reasons given for the development are well-filled gas storage facilities, lower consumption, and more suppliers for gas. In addition, the labour market continues to perform well.

The figures have also improved with regard to inflation. Overall inflation in the euro zone is expected to fall from 8.4 % in 2022 to 5.6 % this year.

"Favourable developments since the fall forecast have improved the growth outlook for this year," the commission said. The technical recession initially feared for the turn of the year, an economic contraction of two quarters, is thus likely to be averted in the euro zone.

One reason, according to the Commission, is the energy crisis that has been well mastered in Germany and Europe. Among other things, it points to the "diversification of supply sources" for natural gas and the "sharp reduction in consumption." As a result, gas storage facilities are well filled and the wholesale price has fallen to the level before the Russian attack on Ukraine.

"The risks of recession and gas shortages have eased, and unemployment continues to be at a record low," said EU Economic Affairs Commissioner Paolo Gentiloni.

## Hard Coal Market
## EU-Stop of Russian Coal

Europe's most remarkable response to Russia's war against Ukraine has not been to provide military equipment and billions of euros in aid. Rather, it was the unprecedented speed of an energy transition that, within a year, virtually eliminated dependence on Russian fossil fuels to cut off the main source of funding for President Vladimir Putin's war machine.

The transition has been far from the kind of climate-related transition that Europe envisioned for its long-term future. Governments are paying whatever it takes to secure liquefied natural gas sources delivered by ships, burning more coal, and tearing up some environmental plans in the process. And it's been painful, as Europe was saddled with an energy bill of about $1 trillion last year, cushioned by hundreds of billions of euros in government subsidies.

But even the most optimistic forecasts of analysts and EU leaders at the beginning of the war could not predict how quickly Europe would move forward. A year ago, Europe was spending about $1 billion a day to pay for gas, oil and coal imported from Russia. Today, it pays only a fraction of that amount.

"Russia has blackmailed us by threatening to cut off energy supplies," said the president of the European Commission, Ursula von der Leyen. "We have completely freed ourselves from our dependence on Russian fossil fuels. This happened much faster than we had expected."

Some Russian gas was replaced by increased pipeline flows from Algeria and Norway Most came by ship in the form of LNG (liquefied natural gas). "When the war started, I was very pessimistic and didn't know how the market would have managed without Russian gas," said Arun Toora, an analyst at Bloomberg. "We managed by sucking up every last drop of LNG spot."

Securing all this gas meant we had to buy much more gas from the US and Qatar, almost doubling the EU's LNG imports compared to 2021. Climate change contributed to a milder than average winter, which reduced heating demand. Thanks to the warm temperatures, more gas was available in storage for the next winter.

Part of the demand for gas was reduced by burning more coal in power plants. Coal consumption in the European Union increased by 7 % last year as imports from Russia declined during the year and came to an almost complete standstill in October after the sanctions came into force.

The biggest help, however, was the drop in demand from both industry and households. As the price of gas skyrocketed, some industries, such as fertilizer manufacturers, became uneconomical to operate, while others were able to meet their energy needs through alternatives. This led to an 18 % drop in consumption in 2021, comparable to the 14 % drop in 2020 compared to the previous year. The situation is similar for heating in private households, which also fell by 15 %, according to data compiled by Bloomberg on the largest European gas-consuming countries.

**Hard Coal Volume in the EU [1)]**

| | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| | Mill. t (t=t) | | | |
| Hard Coal Production | 65.0 | 56.5 | 57.2 | 54.6 |
| Hard Coal Imports | 133.1 | 88.8 | 107.2 | 126.8 |
| **Total - Hard Coal Volume** | **198.1** | **145.3** | **164.4** | **181.4** |

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

*Source: EURACOAL, April 2023*

*HT-EU3*

**Hard Coal Production in the EU 27**

| | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| | Mill. t (t=t) | | | | |
| Germany | 2.8 | - | - | - | - |
| Spain | 2.5 | - | - | - | - |
| Poland | 63.4 | 61.6 | 54.4 | 55.0 | 52.8 |
| Czech Republic | 4.5 | 3.4 | 2.1 | 2.2 | 1.8 |
| **Total** | **73.2** | **65.0** | **56.5** | **57.2** | **54.6** |

*Source: EURACOAL, Market Report 2023 no.1, April 2023*

*HT-EU2*

## Comeback of Coal in Europe

Once displaced by cheaper and less polluting Russian gas, coal is making a comeback in Europe.

According to the International Energy Agency (IEA), demand for coal in Europe increased for the second year in a row in 2022, due to "strong growth" in electricity generation. Here, coal has partially replaced gas as a source of reserve power.

With gas prices likely to remain volatile for some time, the signs are good for European coal-fired power production, an IEA official explained.

"According to our forecast, coal will still remain more competitive than gas until 2025, despite the recent decline in gas prices," said Carlos Fernández Alvarez, head of the IEA's Gas, Coal and Power Markets Department.

According to the IEA's 2022 Coal Report, published in December, the increase in demand for coal is mainly due to the war in Ukraine and the need to reduce gas consumption. Previously, Russia had decided to cut supplies to Europe.

Alvarez said demand for coal in Europe has also been driven up by declines in nuclear power generation in France, Germany and Belgium.

"There is a gap [in power generation capacity] that needs to be filled," the IAE analyst said. In view of high gas prices, this gap is currently being filled by coal.

As a result, coal demand in Europe increased for the second consecutive year in 2022, according to the report.

The IEA expects the European Union to resume its coal phase-out from 2024, which will lead to a significant drop in production, especially in the lignite mining sector. The production of hard coal in Poland and the Czech Republic will only ease the volume slightly. However, uncertainty remains with regard to the gas market. This could affect the outlook for coal demand.

# WORLD ECONOMY AND WORLD TRADE

POSITIVE SURPRISES

# WORLD ECONOMY AND TRADE

The International Monetary Fund's economic outlook for 2023 brings a sigh of relief. The experts have raised their forecast for the global economy. Inflation is also expected to fall in the coming years.

**Growth rates in real gross domestic product in selected countries and regions**

| | 2019 | 2020 | 2021[1] | 2022[2] | 2023[2] | 2024[2] |
|---|---|---|---|---|---|---|
| | Change from Previous Year in % | | | | | |
| Indien | 3.9 | -5.8 | 9.1 | 6.8 | 5.9 | 6.3 |
| PR China | 6.0 | 2.2 | 8.4 | 3.0 | 5.2 | 4.5 |
| World | 2.8 | -2.8 | 6.3 | 3.4 | 2.8 | 3.0 |
| USA | 2.3 | -2.8 | 5.9 | 2.1 | 1.6 | 1.1 |
| Russia | 2.2 | -2.7 | 5.6 | -2.1 | 0.7 | 1.3 |
| Brazil | 1.2 | -3.3 | 5.0 | 2.9 | 0.9 | 1.5 |
| South Korea | 2.2 | -0.7 | 4.1 | 2.6 | 1.5 | 2.4 |
| OECD Countries | 1.7 | -4.2 | 5.4 | 2.7 | 1.3 | 1.4 |
| Great Britain | 1.6 | -11.0 | 7.6 | 4.0 | -0.3 | 1.0 |
| Germany | 1.1 | -3.7 | 2.6 | 1.8 | -0.1 | 1.1 |
| Japan | -0.4 | -4.3 | 2.1 | 1.1 | 1.3 | 1.0 |

[1] Provisional [2] Forecast

*Source: IMF - World Economic Outlook 2023, April 2023*

*HT-P1*

"The global economy is on the road to recovery," says the chief economist of the International Monetary Fund (IMF), Pierre-Oliver Gourinchas. Compared to 2022 (3.4 %), growth will slow to 2.9 % this year. But the outlook is "less sombre" than it was last fall.

This was due to "positive surprises" and "unexpectedly high resilience" in many economies, the IMF said.

One driver of the global economy could be China's departure from its zero-covid strategy. The IMF does not expect the global economy to slide into recession this year - an option that economists had not ruled out in the fall of 2022.

According to Gourinchas, the current forecast could be a "turning point" and growth could bottom out while inflation declines. Should China make faster progress with vaccinations against the coronavirus, this would ensure a recovery.

The world's largest economy, the United States, may avoid a recession this year and achieve a "soft landing" for its economy, according to the IMF. "There are some arguments for hope that the U.S. will not fall into a recession," Georgieva, Managing Director of IMF, said. "Even if it is technically a recession, I believe it will be a very mild recession."

The U.S. labour markets are stable and consumer demand is strong despite interest rate hikes to fight inflation. There has been a healthy shift away from excess purchases of goods, which have put downward pressure on prices, and back toward demand for services.

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

| | 2019 | 2020 | 2021 | Change 2021/2020 | Share of PEC 2021 |
|---|---|---|---|---|---|
| Coal* | 5.379 | 5.155 | 5.463 | 1.6 % | 26.9 % |
| Natural Gas | 4.795 | 4.724 | 4.959 | 3.4 % | 24.4 % |
| Oil | 6.547 | 5.943 | 6.285 | -4.0 % | 31.0 % |
| Nuclear Energy | 0.851 | 0.834 | 0.864 | 1.5 % | 4.3 % |
| Hydroelec-tric Power | 1.286 | 1.402 | 1.374 | 6.8 % | 6.8 % |
| Renewable Energies and Others | 0.983 | 1.187 | 1.362 | 38.5 % | 6.7 % |
| **Total** | **19.842** | **19.245** | **20.307** | **2.3 %** | **100.0 %** |

*Hard coal and lignite

*Source: BP, Statistical Review of World Energy 2022*

*HT-W2*

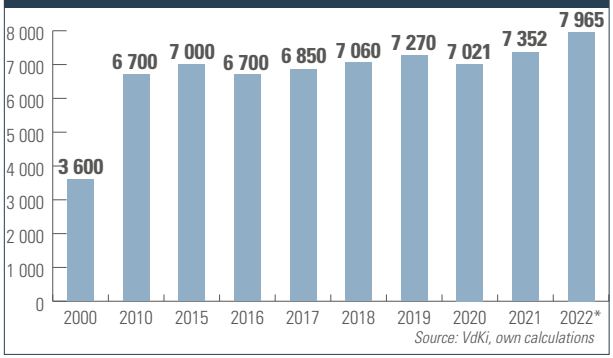
## 2022 – A year of records for coal as an energy source

What the IAE had predicted for 2022 has come true: Never has more coal been used to generate electricity globally than in 2022, and never has so much money been paid for coal on individual days.

Almost 8 billion tons of coal were produced last year. A record figure. This is the highest global coal production ever recorded. And according to IAE estimates, it is likely to remain at this level in the coming years. The reason for this development is the high Asian demand.

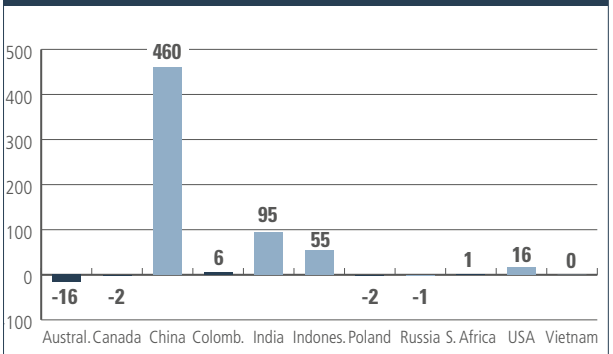
The People's Republic of China continued to lead the way in global production last year, with an increase of 460 million tons to almost 4.5 billion tons. China alone thus accounted for 57 % of global production. In 2021, China temporarily had to contend with supply bottlenecks on local domestic coal markets. The central government responded by launching extensive programs to increase production, which already bore fruit in 2022. India also significantly increased its coal production (+95 million tons) and ranked second in the global rankings with production of 861 million tons. Other notable producing countries were Indonesia (577 million t), the United States (482 million t), Russia (436 million t) and Australia (408 million t).

**World Hard Coal Production 2000 to 2022** Mill. t




*HT-B12*

**Change in Hard Coal Production in 2022 in individual Countries** Mill. t




*Source: VdKi, own calculations*

*HT-B13*

Around 14 % of global production was traded by sea, with the majority being consumed in the producing countries. A smaller share was also accounted for by inland trade with neighbouring countries and includes cross-border transport via inland waterway vessels and/or rail. Seaborne trade increased by 1.8 % year-on-year to around 1.1 billion tons. Of this, 891 million tons (80 %) was steam coal and 227 million tons (20 %) coking coal. The most important export countries in seaborne trade were Indonesia with 362 million tons, Australia with 329 million tons and Russia with 165 million tons. Together, these countries accounted for around 76.5 % of total global seaborne coal trade. The highest increases in seaborne trade in 2022 compared with the previous year were accounted for Indonesia (+18 million t) and South Africa (+7 million t). By contrast, Australia (-37 million t) and Russia (-11 million t) suffered the biggest declines in exports.

**TOP-10 Hard Coal Production Countries**
(according to values of 2022)

| Ranking | Country | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t | Growth 2022/2021[1)] % | 2021 Shares in % | 2022 Shares in % |
|---|---|---|---|---|---|---|---|
| 1 | China | 3 812 | 4 026 | 4 486 | 11.4 | 54.8 | 56.3 |
| 2 | India | 719 | 766 | 861 | 12.4 | 10.4 | 10.8 |
| 3 | Indonesia | 498 | 522 | 577 | 10.5 | 7.1 | 7.2 |
| 4 | USA | 441 | 481 | 496 | 3.3 | 6.5 | 6.2 |
| 5 | Russia | 401 | 437 | 436 | -0.2 | 5.9 | 5.5 |
| 6 | Australia | 440 | 425 | 408 | -4.2 | 5.5 | 4.9 |
| 7 | RSA | 248 | 229 | 230 | 0.4 | 3.1 | 2.9 |
| 8 | Kasachstan | 113 | 112 | 114 | 1.8 | 1.5 | 1.4 |
| 9 | Colombia | 49 | 59 | 65 | 10.2 | 0.8 | 0.8 |
| 10 | Poland | 54 | 55 | 53 | -3.6 | 0.7 | 0.7 |
| | Vietnam | 47 | 50 | 50 | 0.0 | 0.7 | 0.6 |
| | Canada | 41 | 42 | 39 | -7.1 | 0.6 | 0.5 |
| | Ukraine | 29 | 23 | 20 | -13.0 | 0.3 | 0.3 |
| | Czech Rep. | 2 | 2 | 2 | 0.0 | 0.0 | 0.0 |
| | UK | 1 | 1 | 1 | 0.0 | 0.0 | 0.0 |
| | Other | 126 | 122 | 127 | 2.8 | 1.9 | 1.8 |
| | **World** | 7 021 | 7 352 | 7 965 | 8.3 | 100.0 | 100.0 |

*Source: S&P Global-IHS Markit, coal production by country, from April 20th, 2023*

*HT-W3*

## World Production/World Trade

| Hard Coal | 2020 | 2021 | 2022 | Change 2022/2021 | |
|---|---|---|---|---|---|
| | Mill. t | | | Mill. t | % |
| World Production | 7 021 | 7 352 | 7 965 | 613 | 8.3 % |
| World Trade | 1 216 | 1 233 | 1 231 | -2 | -0.2 % |
| **Share World Trade in Production** | **17.2 %** | **16.8 %** | **15.5 %** | | |

*Source: VdKi own analyses*

*HT-W6*

## Major Hard Coal Importing Countries/Regions 2022 in Million Tonns [1)]

| | Total | Steam Coal | Coking Coal |
|---|---|---|---|
| Asia, of which | 871 | 693 | 178 |
| Japan | 183 | 141 | 42 |
| PR China [2)] | 163 | 94 | 69 |
| India | 203 | 147 | 56 |
| South Korea | 125 | 103 | 22 |
| EU 27, of which | 144 | 119 | 25 |
| Germany | 44 | 33 | 11 |

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

*Source: Own calculations; seaborne traffic only*

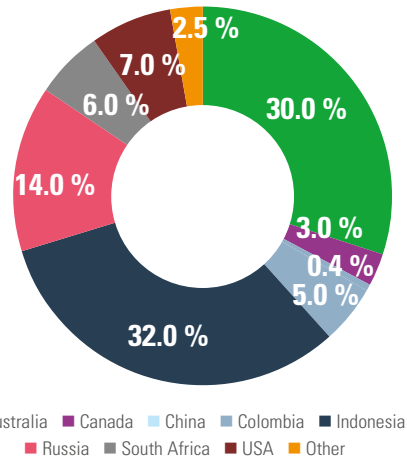
*HT-W7*

In the course of 2022, prices for steam coal, coking coal and hard coal coke reached unprecedented record levels. Starting from an already relatively high level of just under US$ 121/t free Northwest European ports (cif ARA), the weekly price quotation for steam coal rose to an all-time high of well over US$ 400/t cif ARA at the end of July.

In addition, as early as mid-March, the weekly price for Australian coking coal export of shipment (fob) reached an all-time high above US$650/t fob. As the year progressed, the price for thermal coal continued to decline and was quoted below US$190/t at the end of the year.

## Shares of Seaborne Hard Coal Exports 2022

in %




*Source: VdKi, own calculations*

*HT-B15*

## Seaborne Hard Coal World Trade

| | 2020 | 2021 | 2022 | Change 2022/2021 | |
|---|---|---|---|---|---|
| | Mill. t | | | Mill. t | % |
| Steam Coal | 830 | 849 | 851 | 2 | 0.2 % |
| Coking Coal | 281 | 285 | 272 | -13 | -4.6 % |
| **Total** | **1 111** | **1 134** | **1 123** | **-11** | **-1.0 %** |

*Source: VdKi own analyses*

*HT-W5*

## The Largest Hard Coal Exporting Countries in 2022 in Million Tonnes [1]

| | Total | Steam Coal | Coking Coal |
|---|---|---|---|
| Australia | 339 | 179 | 160 |
| Indonesia | 361 | 361 | 0 |
| Russia [2] | 196 | 148 | 48 |
| USA | 77 | 35 | 42 |
| Colombia | 55 | 54 | 1 |
| South Africa | 71 | 70 | 1 |
| Canada | 36 | 8 | 28 |

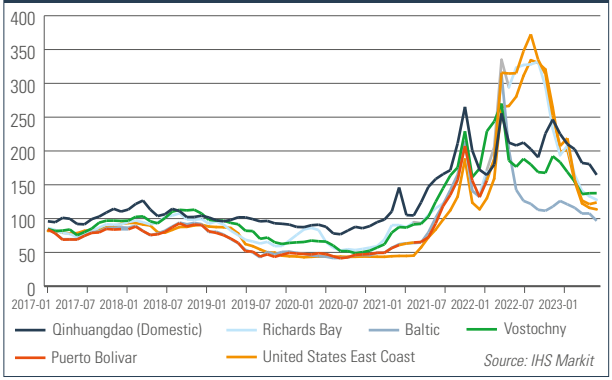
[1] Seaborne only [2] steam incl. Anthracite

*Source: VdKi own analyses*

*HT-W8*

## Development of fob prices for Steam Coal to Rotterdam

in US$/t




*HT-B16*

The price of Australian coking coal also declined during the course of the year and stood at just over US$200/t fob at the beginning of August. However, the price of coking coal then rose again and by the end of the year had climbed back up to a level of almost US$280/t fob. Hard coal coke free Northwest European ports traded at US$709/t cif ARA on a monthly basis in April 2022. This also represents an all-time high. By the end of 2022, by contrast, the monthly quotation for hard coal coke cif ARA had fallen sharply to US$332/t cif ARA, still a relatively high level, especially compared with previous years.

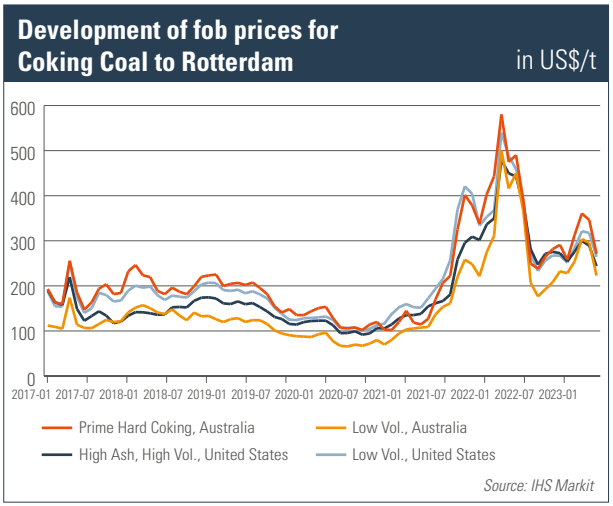
## Market Share Seaborne World Coking Coal Market

| | 2020 | | 2021 | | 2022 | |
|---|---|---|---|---|---|---|
| | Mill. t | Share | Mill. t | Share | Mill. t | Share |
| Australia | 172 | 61 % | 168 | 59 % | 160 | 59 % |
| USA [1] | 36 | 13 % | 38 | 13 % | 39 | 14 % |
| Russia | 43 | 15 % | 49 | 17 % | 39 | 14 % |
| Canada [2] | 26 | 9 % | 26 | 9 % | 28 | 10 % |
| other | 4 | 1 % | 4 | 1 % | 6 | 2 % |
| **Total** | **281** | **100** | **285** | **100** | **272** | **100** |

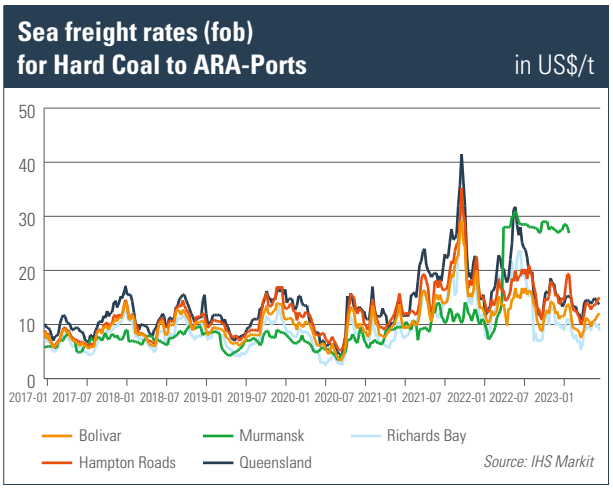
[1] Excl. trade with Canada [2] Excl. trade with USA

*Source: VdKi own analyses*

*HT-W12*




*HT-B17*




*HT-B18*

Ocean freight rates also increased strongly in 2022, especially in the second quarter of 2022, but far from their all-time highs. For example, freight in the Panamax vessel from the U.S. Gulf Coast to ARA ports cost just under US$31/ton in May 2022, and in the Capesizer from Richards Bay in South Africa to ARA ports cost about US$29/ton. In the case of a capesizer shipment from Puerto Bolivar in Colombia to the ARA region, the annual high on a monthly basis was reached in July 2022 at just under US$15/t.

# GLOBAL SEABORNE COAL TRADE 2022*

## Main trade flows 2022, 1,1 billion t (-1,0 %)

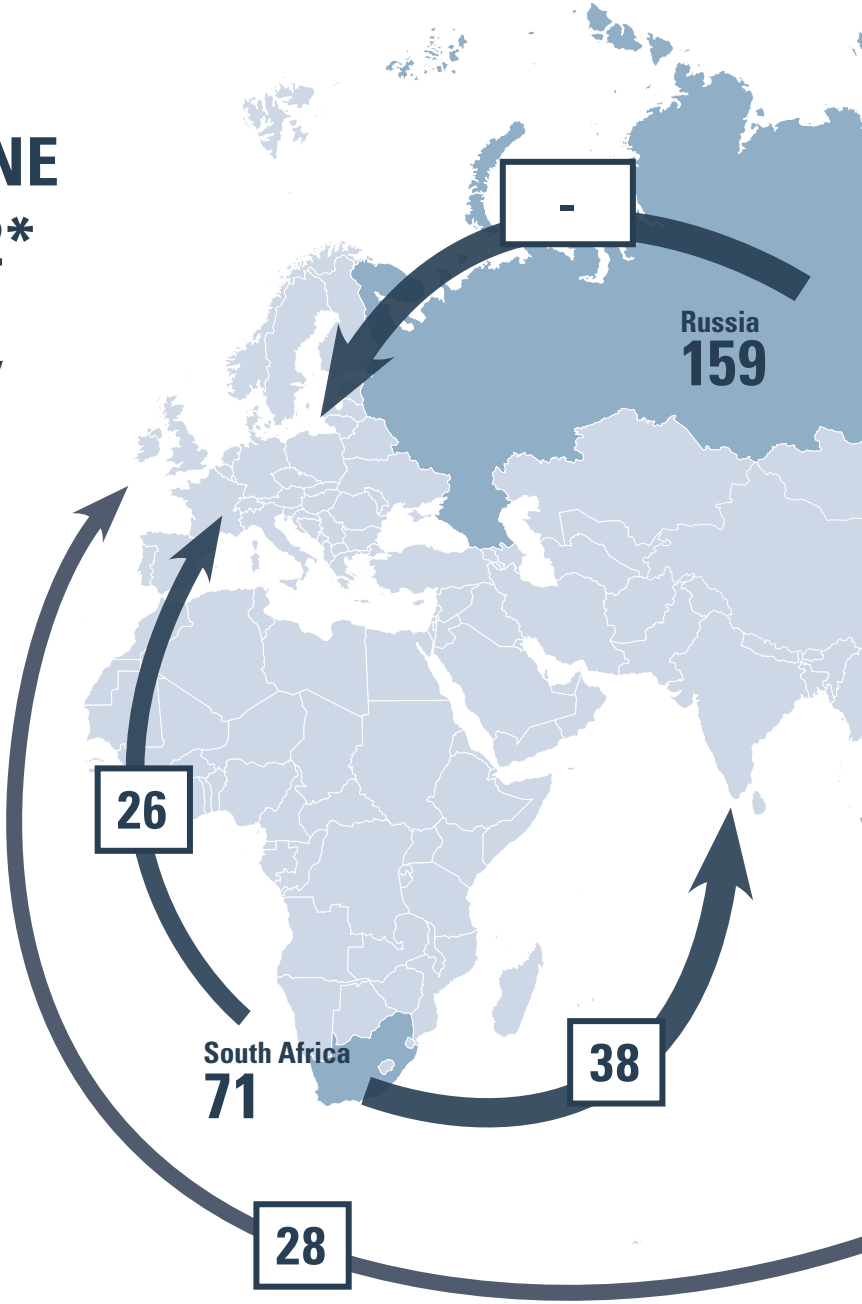
| Global Seaborne Trade | |
|---|---|
| 2021 | 2022 |
| Mill. t | |
| 1 134 | 1 123 |

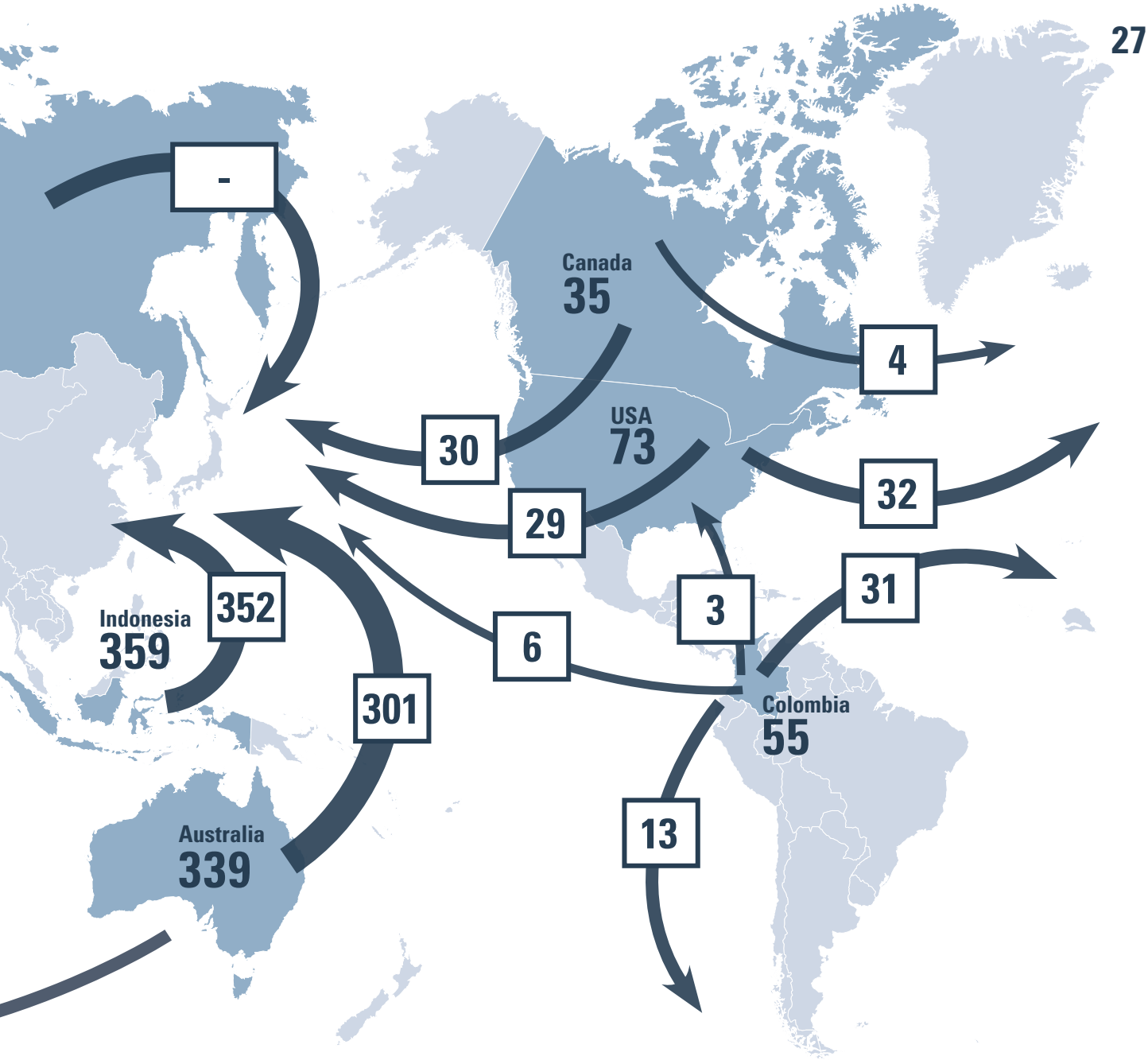
**Legend:**

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

*HT-B14*

**expected*






Sources: IHS, VdKi

# PERSPECTIVES

HIGH DEMAND FOR COAL AND ELECTRICITY

# PERSPECTIVES

According to the International Energy Agency (IEA), global coal demand will reach a plateau by 2025. However, this depends heavily on developments in China.

In the IEA forecast, global coal demand stagnates at around 8 billion tons until 2025.

Developments in China are likely to have the greatest impact on the outlook for global coal demand, as China accounts for more than half of it. China's power sector alone accounts for one-third of global coal consumption. Coal consumption in China has grown strongly recently, but growth is expected to remain relatively stagnant at an average of 0.7 % per year until 2025, mainly due to the increase in renewable power generation.

Meanwhile, India's coal consumption has doubled since 2007 at an annual growth rate of 6 % - and India is expected to continue to be the growth engine of global coal demand.

Moreover, three factors point to a further increase in coal demand.

First, scarce natural gas supplies and the resulting high gas prices are driving some countries and companies to turn to relatively cheaper coal.

Second, heat waves and droughts in some regions of the world drove up electricity demand and reduced hydroelectric generation, creating a gap that had to be filled by mostly regulable thermal power plants .

Finally, nuclear power generation was exceptionally weak in 2022, particularly in Europe, where France had to shut down a significant portion of its nuclear capacity for maintenance work.

The current gas shortage and resulting higher prices are supporting coal-based power generation worldwide, especially in the European Union, where natural gas is particularly expensive due to Russia cutting supplies. In China and India, where gas does not play a major role in power generation, the impact of high gas prices on coal demand is more muted. As a result, some European countries have postponed the planned closure of coal-fired power plants and activated reserve capacity for coal-fired power plants to limit gas consumption in the power sector.

Global electricity generation from coal rose to a record level in 2022.

From 2022 to 2025, IEA forecasts that global electricity demand will grow by an average of 2.8 % annually, or by an absolute 2,496 TWh. Renewable energies will cover most of the additional demand with 90 %. The remaining gap of 83 TWh will be covered by coal- and gas-fired power generation. The largest increases in coal combustion are forecast for China (+5 %), India (+7 %) and Southeast Asia (+14 %).

Meanwhile, coal-fired generation in the United States will continue to contract (-18 %), while a return to a declining trend is expected for the European Union (-29 %).

The recovery growth path for globale coal production is expected to peak in 2023, just above the 2022 level.

The IEA estimates that coal production will fall to 8,221 million tons by 2025, back below the level of 2022. The reasons for this are that China's coal production will stagnate in the coming years and the continued growth in Indian coal production (+128 million t) will be offset by sharp declines in other regions such as the United States.

By 2025, two developments will shape global trade. First, countries, especially in Europe, will adapt to and overcome the current energy crisis and return to their coal phase-out paths. Second, China's and India's habitual efforts to secure energy supplies will lead to higher domestic production and lower imports. Overall, the IEA expects trade in thermal coal to decline by about 10 % by 2025. By contrast, trade in metallurgical coal will continue to grow by 6 %.

# COUNTRY REPORTS

FROM AUSTRALIA TO INDIA TO THE USA – COAL STILL IN DEMAND WORLDWIDE

# AUSTRALIA

**FIGURES 2021** (2020) according to World Bank

| | |
|---|---|
| **GDP growth:** | **2.2 %** (-0.1 %) |
| **GDP per capita:** | **US$ 60 443** (US$ 51 720) |
| **Inflation:** | **2.9 %** (0.8 %) |
| **Population:** | **25.7 Mill.** (25.7 Mill.) |

## Coal

In 2022, Australia's coal production decreased to 408 million tons. This is mainly due to weather conditions and the impact of the pandemic on the labour supply, which continue to burden the country's coal industry.

This also had an impact on Australia's exports of thermal coal. Between January and August 2022, exports were 8 % lower than a year earlier. Overall, Australia's exports of thermal coal fell by 15 million tons to 184 million tons in 2022 .

**Key Figures Australia**

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| **Hard Coal Production** | **440** | **425** | **408** |
| **Hard Coal Exports** | **370** | **367** | **339** |
| Steam Coal | 199 | 199 | 179 |
| Coking Coal | 171 | 168 | 160 |
| **Imports Germany** | **3,9** | **5,4** | **6,3** |
| Steam Coal (incl. Anthracite) | 0,0 | 0,0 | 0,4 |
| Coking Coal | 3,9 | 5,4 | 5,9 |
| **Export Ratio** | **88 %** | **91 %** | **88 %** |

*Sources: Own calculations / S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023 / DESTATIS*

*LB-T5*

**Hard Coal Exports According to Grade**

| Coal Grade | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| Coking Coal (HCC) | 118 | 111 | 106 |
| Semi-soft Coking Coal and PCI Coal | 53 | 57 | 54 |
| Steam Coal | 199 | 199 | 179 |
| **Total** | **370** | **367** | **339** |

*Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023*

*LB-T3*

## Development of Australia's Exports to PR China

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| Coking Coal (HCC) | 33.9 | 0.2 | - |
| Semi-soft Coking Coal and PCI Coal | 5.2 | - | - |
| Steam Coal | 34.9 | - | - |
| **Total** | **74.0** | **0.2** | **0.0** |

*Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023*

*LB-T4*

## Usable Production of the Major Production States of Australia

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| New South Wales (NSW) | 196 | 183 | 164 |
| Queensland (QLD) | 223 | 221 | 223 |
| **Total NSW/QLD** | **419** | **404** | **387** |
| Rest of Australia | 21 | 21 | 21 |
| **Total** | **440** | **425** | **408** |

*Sources: Queensland Department of Natural Resources, Mines and Energy / S&P Global-IHS Markit, coal production, from 06.04.2023*

*LB-T1*

## Exports of the Largest Coal Loading Ports

| Coal Loading Ports | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| Abbot Point | 29.9 | 29.7 | 31.4 |
| Dalrymple Bay | 54.6 | 55.5 | 53.2 |
| Hay Point | 46.5 | 45.8 | 46.5 |
| Gladstone | 70.5 | 69.8 | 63.2 |
| Brisbane | 4.5 | 3.9 | 2.2 |
| **Total Queensland** | **206.0** | **204.7** | **196.5** |
| Newcastle | 159.4 | 160.4 | 138.9 |
| Port Kembla | 7.4 | 6.9 | 7.2 |
| **Total New South Wales** | **166.8** | **167.3** | **146.1** |
| **Total** | **372.8** | **372.0** | **342.6** |

*Source: S&P Global-IHS Markit, port throughput by country from 05.05.2023 / own calculations*

*LB-T2*

More than 46 % of the world's most advanced coal mining projects are located in Australia, representing new capacity of 33 million tons per year. Most of these projects are located in Queensland (25 million t per year).

Australia has the third largest coal reserves in the world after China and India. With around 50,000 employees, coal mining is an important economic factor. The new social democratic government under Prime Minister Anthony Albanese also sees it that way. Although the reduction of $CO_2$ emissions by 43 % by 2030 was recently enshrined in law, the social democrats also want to reduce $CO_2$ emissions. But even the Social Democrats do not want to turn their backs on the all-powerful coal industry in the country. Government leader Albanese, for example, rejected a halt to fossil fuel projects because this would have "devastating effects on the Australian economy.

It is not only the government in Canberra that is new. The relationship between Australia and China is also to be readjusted. For three years, there has been an ice age between China and Australia. Now the trade ministers of both countries want to ease the tension.

After the Russian invasion of Ukraine last year, Australian coal is trading at about three times the average price of recent years. These are profitable prospects for further investment. The state government and the Queensland government are offering mining companies the opportunity to mine and export 400 million tons of coal. Revenues of more than 80 billion euros wave.

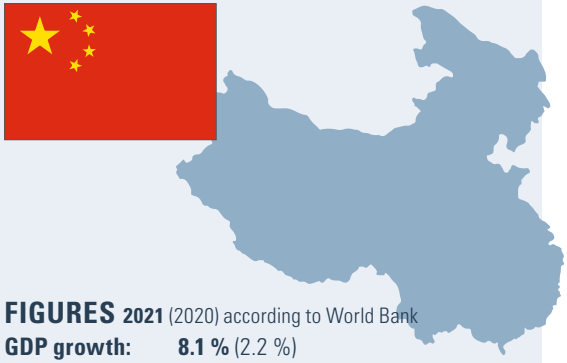
And there are already interested parties. The Swiss commodities giant Glencore and the Indian Adani Group want to invest in Australia. The Indian Adani Group is planning to develop the Carmichael mine in northeastern Queensland into one of the largest coal mines in the world.

## Power

Australia is making great efforts to expand its power transmission network. New power lines with a length of around 5,000 kilometres are to be built along the country's east coast by the beginning of the next decade. The investment volume of the eight largest individual projects is the equivalent of around 15 billion U.S. dollars (US$).

Strengthening transmission capacity is seen as a central building block for the success of Australia's energy transition. The ubiquitous slogan in the energy industry is "No Transition without Transmission". According to the goals of the government in Canberra, 82 % of the electricity generated on the east coast is to come from renewable sources by 2030. This would mean that the 2021 figure - then around 31 % - would more than double.

# PEOPLE`S REPUBLIC OF CHINA



**FIGURES 2021** (2020) according to World Bank

| | |
|---|---|
| **GDP growth:** | **8.1 %** (2.2 %) |
| **GDP per capita:** | **US$ 12 556** (US$ 10 409) |
| **Inflation:** | **1.0 %** (2.4 %) |
| **Population:** | **1.41 Billion** (1.41 Billion) |

## Coal

China is by far the largest coal-consuming country, meeting 53 % of global demand. Coal accounts for more than 60 % of the country's primary energy consumption, making it the backbone of the Chinese economy.

China is relying heavily on coal. According to a study, the country is building more coal-fired power plants. Observers speak of an "extraordinary" speed. The number of new coal-fired power plants approved was the highest since 2015, according to a new research report published by the Finnish Centre for Energy Research (CREA) and the Global Energy Monitor (GEM). According to the report, the Chinese authorities approved the construction of new coal-fired power plants with a total capacity of 106 GW - equivalent to roughly two large power plant units per week. That is four times more than in the previous year and more than at any time since 2015.

| Key Figures PR China [1] | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| **Hard Coal Production** | **3 812** | **4 026** | **4 486** |
| **Hard Coal Exports** | **3.2** | **2.6** | **4.0** |
| Steam Coal | 2.3 | 2.5 | 3.8 |
| of which anthracite | 1.3 | 1.5 | 2.1 |
| Coking Coal | 0.9 | 0.1 | 0.2 |
| **Coke Exports** | **3.5** | **6.7** | **9.0** |
| **Hard Coal Imports** | **205.0** | **204.5** | **162.8** |
| Steam Coal | 124.6 | 140.6 | 87.9 |
| Coking Coal | 72.6 | 54.7 | 63.8 |
| Anthracite | 7.8 | 9.2 | 11.1 |
| **Imports Germany** | **0.06** | **0.15** | **0.08** |
| Steam Coal (incl. Anthracite) | 0.00 | 0.00 | 0.03 |
| Coke | 0.06 | 0.15 | 0.05 |
| **Export Ratio** (coke converted into coal) [1] | **0.18 %** | **0.23 %** | **0.29 %** |

[1]) Excluding lignite

*Sources: Various analyses / S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023*

*LB-T28*

China thus approved and built more coal-fired power plants than the rest of the world combined, according to the report. "The speed at which projects progressed from approval to construction was extraordinary," the researchers said.

In parallel to coal, the People's Republic is also investing massively in the expansion of renewable energies. But so far, around 60 % of China's energy needs still come from coal.

The 14th Five-Year Plan sets out China's economic development goals for the period 2021 to 2025. The plan aims to balance the environment, energy security and affordability in its development strategies. Coal is seen as an irreplaceable energy source in the coming years, although China is committed to achieving its $CO_2$ emissions before 2030 and reaching $CO_2$ neutrality by 2060. In its forecasts for annual coal consumption, China has targeted a growth rate of 1 % to 4,200 million tons in 2025. At the same time, coal production is expected to increase to 4,100 million tons, with the remainder covered by imports. The IEA expects China's coal production to grow more slowly, peaking next year before declining slightly from 2024. As a result, China's coal production in 2025 would be very close to the 2022 level of 4,237 million tons.

## Power

Electricity consumption in China, an important indicator of economic activity, continued to grow steadily in 2022, according to official data. According to the National Energy Administration, electricity consumption last year increased by 3.6 % year-on-year to nearly 8.85 trillion kWh. Electricity consumption in the primary sector (industry) grew by 10.4 % year-on-year in 2022. Electricity consumption in the secondary and tertiary sectors rose by 1.2 % and 4.4 % respectively at the same time. Among residents, electricity consumption increased by 13.8 % in this period compared to the previous year.

| Electricity/Crude Steel/Pig Iron Production PR China | | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Electric Power Generation | TWh | 7 727 | 8 460 | 8 854 |
| Crude Steel Production | Mill. t | 1 065 | 1 035 | 1 018 |
| Pig Iron Production | Mill. t | 908 | 869 | 864 |

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

*LB-T25*

| Import/Export Development PR China | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t | Difference 2022/2021 Mill. t |
|---|---|---|---|---|
| Imports Steam Coal [1)] | 132.3 | 149.9 | 99.0 | -50.9 |
| Imports Coking Coal | 72.6 | 54.7 | 63.8 | 9.1 |
| **Total Imports** | **204.9** | **204.6** | **162.8** | **-41.8** |
| Exports Steam Coal [1)] | 2.3 | 2.5 | 3.8 | 1.3 |
| Exports Coking Coal | 0.9 | 0.1 | 0.2 | 0.1 |
| Export Coke | 3.5 | 6.7 | 9.0 | 2.3 |
| **Total Exports** | **6.7** | **9.3** | **13.0** | **3.7** |

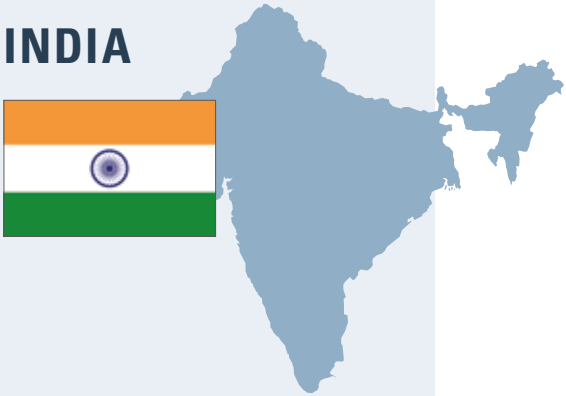
[1)] Incl. anthracite, excl. lignite

*Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023*

*LB-T27*

China's share of global electricity consumption is projected to grow to one-third by 2025, up from one-quarter in 2015, and China, India, and Southeast Asia are expected to account for more than 70 % of global electricity demand growth over the next three years, according to IEA forecasts. The IEA forecasts that global electricity demand will grow at 3 % per year in 2023-2025, faster than in 2022. The assumed total increase in global electricity demand of about 2,500 TWh by 2025 is more than twice the current annual electricity consumption in all of Japan.

# INDIA



**FIGURES 2021** (2020) according to World Bank

**GDP growth:** **8.7 %** (-6.6 %)
**GDP per capita:** **US$ 2 257** (US$ 1 910)
**Inflation:** **5.1 %** (6.6 %)
**Population:** **1.41 Billion** (1.40 Billion)

## Coal

The rapidly growing India with a population of more than 1.4 billion people has an enormous energy demand. This is one of the reasons why the country continues to rely on coal as the main source of energy generation. This inexpensive fossil fuel supplies 70 to 80 % of the country's electricity.

The subcontinent has nearly doubled its coal consumption in the last decade to keep pace with its booming economy.

Indian coal production increased by 7 % last year to more than 861.5 million tons.

## Key Figures India

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| **Hard Coal Production** | **718.8** | **766.2** | **861.5** |
| **Hard Coal Imports** | **218.2** | **219.8** | **234.0** |
| Steam Coal | 159.3 | 145.8 | 163.3 |
| Coking Coal | 56.9 | 71.9 | 68.5 |
| Anthracite | 2.0 | 2.1 | 2.2 |

*Sources: various analyses, S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023*

*LB-T32*

The government in India has long been trying to increase production in order to reduce imports. According to the IEA forecast, India's production will exceed 1 billion tons by 2025.

The energy-hungry nation's coal imports also increased to more than 200 million tons. This means that the coal consumption of India, the world's second-largest producer and consumer after China, exceeded the one billion metric ton mark fort he first time last year.

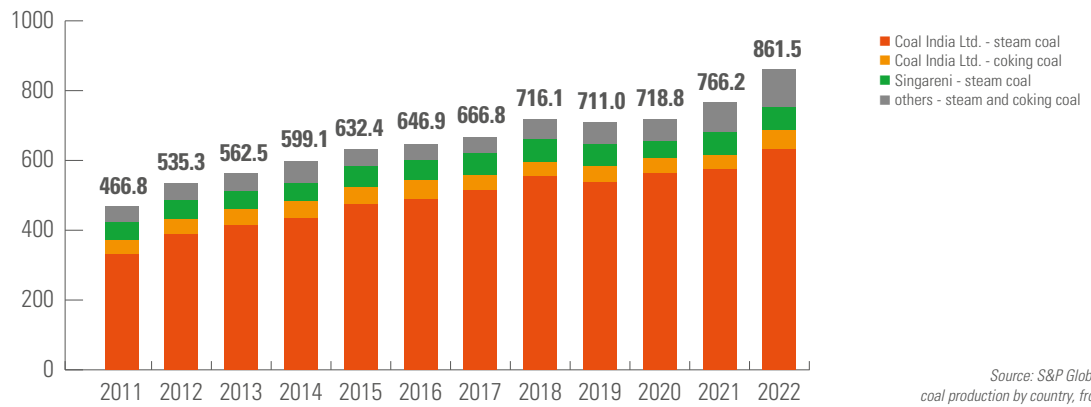
According to UN forecasts, India's population will continue to grow until the middle of the century. At the same time, the economy will grow strongly by five to 7 %. Along with this, energy demand is predicted to double between 2035 and 2040 compared to 2020. Electricity demand is expected to increase even more.

## Power

Indian power generation grew at its fastest pace in more than three decades in the past fiscal year.

Intense heat waves in summer, an unusually cold winter in northern India, and an economic upswing have led to a surge in electricity demand, forcing India to increase the output of coal-fired power plants and solar farms to avoid blackouts.

**Indian Coal Production by Companies** in Mill. t




*Source: S&P Global-IHS Markit, coal production by country, from 05.05.2023*

*LB-B12*

**Power generation in India by energy source**

| | 2020 TWh | 2021 TWh | 2022[1)] TWh | Change over PY in % | 2022 Share in % |
|---|---|---|---|---|---|
| Coal | 1 125.8 | 1 271.1 | 1 363.1 | 7.2 | 74.2 |
| Natural Gas | 74.5 | 64.2 | 49.9 | -22.4 | 2.7 |
| Oil | 2.1 | 2.3 | 2.4 | 3.5 | 0.1 |
| *Fossil Fuels in total* | *1 202.4* | *1 337.6* | *1 415.3* | *5.8* | *77.0* |
| Nuclear Energy | 44.6 | 43.9 | 46.3 | 5.4 | 2.5 |
| Hydro Electric | 163.7 | 160.3 | 174.6 | 8.9 | 9.5 |
| Renewables | 152.0 | 171.9 | 201.7 | 17.3 | 11.0 |
| Other | 0.6 | 1.1 | 0.0 | -100.0 | 0.0 |
| **Total** | **1 563.3** | **1 714.8** | **1 838.0** | **7.2** | **100.0** |

[1)] preliminary

*Sources: BP Statistical Review of World Energy 2022 / values for 2022 are from Ember, "Global Electricity Review 2023", April 2023*

*LB-T31*

Power generation rose 11.5 % to 1,591.11 billion kWh, or units, in the fiscal year ended March 2023, according to an analysis of daily load data by Indian regulator Grid-India. This is the largest increase since the year ended March 1990.

The production of fossil fuel power plants increased by 11.2 %, the fastest rate in more than three decades. This is thanks to a 12.4 % increase in electricity generation from coal, as shown by the analysis of the offset a 28.7 % decline in electricity generation from cleaner gas-fired power plants, as a global increase in LNG prices prevented the use of natural gas.

In the new fiscal year, Indian power plants are expected to burn about 8 % more coal.

India's rapid increase in c o a l - f i r e d generation to meet s u r g i n g electricity demand underscores the challenges the world's third-largest greenhouse gas emitter faces in weaning its economy off carbon while trying to provide energy security for some 1.4 billion Indians.

Last fiscal year, a total of 1,363.1 billion kWh of electricity was supplied, 8.4 % more than the previous year, but still 6.69 billion units short, the largest deficit in six years.

India's economy is expanding rapidly. Economic output is expected to grow by 6.1 % and by 6.8 % in the coming year. This would make India the most dynamically developing industrialized and emerging country, eclipsing even China. India has overtaken the former colonial power Great Britain to become the fifth largest economy. But the country wants more and to become the global number three behind the U.S. and China. "India is well on its way to becoming the most important country in the world in the medium term," said economist Nouriel Roubini.

# INDONESIA

**FIGURES 2021** (2020) according to World Bank

| | |
|---|---|
| **GDP growth:** | **3.7 %** (-2.1 %) |
| **GDP per capita:** | **US$ 4 333** (US$ 3 894) |
| **Inflation:** | **1.6 %** (1.9 %) |
| **Population:** | **273.8 Mill.** (271.9 Mill.) |

**Key Figures Indonesia**

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| **Coal Production** [2] | **563** | **610** | **684** |
| **Hard Coal Production** [1] | **498** | **522** | **577** |
| Exports of Lignite | 65 | 88 | 106 |
| Exports of Hard Coal | 342 | 346 | 360 |
| **Coal Exports** [2] | **407** | **434** | **466** |
| Domestic Consumption [2] | 141 | 138 | 150 |
| Imports Germany | 0 | 0 | 0 |
| **Export Ratio** [2] | **72.3 %** | **71.1 %** | **68.1 %** |

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

*Sources: Indonesian Coal Mining Association (APBI) & ESDM / S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023 / DESTATIS / own calculations*

*LB-T8*

## Coal

Indonesia, the world's third largest producer, expanded its production to a new high in 2022. Indonesia's coal production increased by 9 % to 684 million tons, driven by increased demand for Indonesian coal from abroad. This was despite limited factors for Indonesian coal production: wet weather conditions, infrastructural bottlenecks, and lack of mining equipment. In addition, sharply increased royalties and operating costs, combined with the government's drive to direct more coal to the domestic market, are reducing incentives, especially for small miners, to open or expand their coal production.

Exports of steam coal in Indonesia will rise to 466 million tons in 2022, 9 % above the previous year. The country's coal exports account for around 7 % of global demand for thermal coal.

Faced with a shortage in the domestic market, the Indonesian government imposed a ban on coal exports in January 2022. The ban was imposed in response to non-compliance by some coal producers with the requirement that producers supply at least 25 % of their coal to the domestic market.

Exports of thermal coal slumped to around 13 million tons in January, down 66 % from the previous year's level. As Western countries stopped buying Russian coal and China reduced its imports, Indonesian exports shifted to Europe.

In 2022, Indonesia recorded record-high exports to Europe. Compared to 2021, exports of thermal coal increased from 0.2 million tons to 2.3 million tons in the first seven months of the year. Most of these shipments went to Italy, the Netherlands

and to Poland. With an expected growth of 37 million tons in 2022, Indonesia underlines that it has a very flexible capacity and is the only major exporter with capacity for a fast ramp-up, albeit mainly of low calorific value coal.

In the coming years, however, the IEA expects Indonesian coal production to decline by an average of 2.2 % per year as import demand from the main export destinations China and India falls. Lower production will be partially offset by higher domestic coal consumption in the power sector. Overall, the IEA forecasts a decline in Indonesian production to 582 million tons by 2025.

**Indonesia's Hard Coal Exports by Market**

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| Pacific | 340.6 | 342.7 | 352.7 |
| Europe | 0.5 | 0.4 | 5.9 |
| USA | 0.6 | 0.5 | 0.1 |
| **Total** | **341.7** | **343.6** | **358.7** |

*Source: Prepared S&P Global-IHS Markit figures from coal imports and exports by country and type, from 27.03.2023*

*LB-T6*

**The Largest Buyers of Indonesian Hard Coal**

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| India | 98.2 | 70.1 | 110.2 |
| PR China | 62.5 | 108.5 | 69.7 |
| Japan | 27.0 | 23.0 | 26.4 |
| South Korea | 25.1 | 21.0 | 25.9 |
| Taiwan | 17.6 | 16.3 | 18.2 |

*Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023*

*LB-T7*

# COLOMBIA

**FIGURES 2021** (2020) according to World Bank

| | |
|---|---|
| **GDP growth:** | **10.7 %** (-7.0 %) |
| **GDP per capita:** | **US$ 6 104** (US$ 5 307) |
| **Inflation:** | **3.5 %** (2.5 %) |
| **Population:** | **51.5 Mill.** (50.9 Mill.) |

## Coal

In 2022, coal production in Colombia fell to 65.3 million tons. The production of Colombia's largest producer Drummond declined which led to an increase in production by smaller companies in the interior provinces. After increasing production by 11 % in the first half of 2022, coal production at Cerrejon declined in the second half of the year. Due to significant production restrictions from blockades and protests by the indigenous population.

The new Colombian government has announced its intention to gradually reduce Colombia's dependence on oil and coal. For this legislative period, it plans not to approve any new exploration project for fossil resources. Before this year's elections, investors began to withdraw from the consolidating Colombian market. BHP and Anglo American sold their stakes in the Cerrejon coal mine to Glencore in early 2022.

The International Energy Agency (IEA) expects Colombian coal production to decline by about 1 million tons by 2025 due to lower demand from major importers.

**Key Figures Colombia**

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| **Hard Coal Production** | **49.3** | **59.3** | **65.3** |
| **Hard Coal Exports** | **53.3** | **57.1** | **55.0** |
| Steam Coal | 52.1 | 56.0 | 53.7 |
| Coking Coal | 1.2 | 1.1 | 1.3 |
| **Imports Germany** | **1.9** | **2.3** | **7.2** |
| **Export Ratio** | **108 %** | **96 %** | **84 %** |

*Source: Various analyses*

*LB-T13*

# POLAND

**FIGURES 2021** (2020) according to World Bank

**GDP growth:** **6.8 %** (-2.0 %)
**GDP per capita:** **US$ 18 000** (US$ 15 817)
**Inflation:** **5.1 %** (3.4 %)
**Population:** **37.7 Mill.** (37.9 Mill.)

## Coal

Poland meets around two-thirds of its energy needs from coal. Much of this was imported from Russia until the Polish government imposed an embargo on Russian coal in April 2022 in response to the war in Ukraine. Galloping energy prices and kilometre-long queues in front of domestic coal mines were the consequences. Worried about the cold, people began collecting dead wood in the forests to fuel their furnaces. In Wałbrzych, where the last mines closed at the end of the 1990s, illegal mining of hard coal in the slum shafts gained new momentum. Since then, the government has been trying to calm the situation with the so-called solidarity shield, a mix of additional payments, subsidies, and one-off payments from the state coffers.

## Key Figures Poland

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| **Hard Coal Production** | **54.4** | **55.0** | **52.9** |
| **Hard Coal Exports** | **4.6** | **6.4** | **5.3** |
| Steam Coal [1)] | 2.0 | 3.0 | 2.1 |
| Coking Coal | 2.6 | 3.4 | 3.2 |
| **Coke Exports** | **6.3** | **7.1** | **6.2** |
| **Hard Coal Imports** | **12.9** | **12.5** | **20.1** |
| **Imports Germany** | **1.2** | **1.6** | **1.8** |
| Steam Coal | 0.2 | 0.2 | 0.2 |
| Coking Coal | 0.0 | 0.0 | 0.0 |
| Coke | 1.0 | 1.4 | 1.6 |
| **Export Ratio** (coke converted into coal) | **20 %** | **25 %** | **22 %** |

[1)] Including anthracite coal

*Sources: S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023 / DESTATIS*

*LB-T24*

## Poland's Coking Coal Exports

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t | Change over PY |
|---|---|---|---|---|
| **Total** | **2.66** | **3.37** | **3.25** | **-3.6 %** |
| of which: | | | | |
| Czech Republic | 1.53 | 1.92 | 1.94 | 1.0 % |
| Ukraine | 0.08 | 0.02 | 0.13 | 550.0 % |
| Austria | 0.71 | 0.91 | 0.84 | -7.7 % |
| Slovakia | 0.20 | 0.32 | 0.28 | -12.5 % |
| Hungary | 0.13 | 0.20 | 0.06 | -70.0 % |

*Sources: S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023 / DESTATIS*

*LB-T23*

Poland is struggling with the sudden lack of coal and other raw materials from Russia and record inflation of almost 18 %. The government is trying to counter the effects of the war on the energy sector with drastic measures.

## Poland's Steam Coal Exports

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t | Change over PY |
|---|---|---|---|---|
| Total | **1.95** | **3.05** | **2.10** | **-31.1 %** |
| of which: | | | | |
| Czech Republic | 1.15 | 1.48 | 1.15 | -22.3 % |
| Germany | 0.15 | 0.25 | 0.02 | -92.0 % |
| Austria | 0.18 | 0.10 | 0.42 | 320.0 % |
| Slovakia | 0.22 | 0.14 | 0.15 | 7.1 % |
| Ukraine | 0.09 | 0.76 | 0.37 | -51.3 % |

*Sources: S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023 / DESTATIS*

*LB-T22*

What Poland is struggling with most in the energy crisis is the enormous increase in the price of coal. In the neighbouring country, coal is still primarily burned for electricity and heat. And although Poland is the largest coal producer in the EU, domestic coal is mainly used for industry and district heating. Until this year, private households primarily used coal from Russia, which was cheaper and of somewhat better quality.

With the absence of Russian coal, heating suddenly became a risk of poverty for many Poles. In June, the Polish government therefore allowed small amounts of wood to be collected from state owned forests for personal use. In addition, households with coal stoves received a subsidy of the equivalent of 640 €.

## Power

Not so long ago, electricity prices in Poland were low. In autumn 2021, the Polish electricity market was even the third cheapest in Europe. Wysokie Napięcie, an Internet portal on energy issues, reported that the average monthly price on the Polish Power Exchange was slightly more than 100 € per megawatt hour (MWh). It was cheaper only in Sweden and Finland, and more expensive even in Norway, one of the countries in Europe with the cheapest electricity price.

After the start of the Russian war of aggression against the Ukraine (February 2022), the price spiral, which was not controlled by the state, spun faster and faster. High prices for gas and $CO_2$ certificates were joined by a dramatic rise in the price of coal. Russia's war against Ukraine and the EU's oil embargo against Russia, which was decided in June, have only added to this.

Electricity price increases are taking on an even greater momentum, leaving consumers, both individual and municipal, struggling with horrendous price increases.

# RUSSIA

**FIGURES 2021** (2020) according to World Bank

| | |
|---|---|
| **GDP growth:** | **4.7 %** (-2.7 %) |
| **GDP per capita:** | **US$ 12 195** (US$ 10 169) |
| **Inflation:** | **6.7 %** (3.4 %) |
| **Population:** | **143.4 Mill.** (144.1 Mill.) |

## Coal

Russia is the world's third largest coal exporter. In terms of hard coal production, Russia ranks fifth in the world.

Sanctions against Russia's coal exports have turned traditional trade flows, especially to Europe, upside down. As early as March 2022, Russia's coal exports to European countries began to decline before plummeting when the ban came into full effect in early August 2022.

## Key Figures Russia

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| **Coal Production** | **401** | **437** | **436** |
| **Hard Coal Exports Seaborne** | **160** | **171** | **159** |
| Steam Coal (incl. Anthracite) | 117 | 122 | 120 |
| Coking Coal | 14 | 20 | 16 |
| PCI | 29 | 29 | 23 |
| **Imports Germany** | **14.7** | **20.3** | **13.1** |
| Steam Coal (incl. Anthracite and Briquettes) | 13.7 | 18.7 | 12.2 |
| Coking Coal | 0.9 | 1.4 | 0.8 |
| Coke | 0.1 | 0.2 | 0.1 |
| **Export Ratio** | **40 %** | **39 %** | **36 %** |

*Sources: CAA, Russian and Kazakh Coal Export, Quarterly Report Q1-Q4_2019, _2020, _2021, _2022 / DESTATIS / own calculations*

*LB-T10*

## Hard Coal Production Russia

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| Coking Coal | 101 | 110 | 110 |
| Steam Coal [1)] | 300 | 327 | 326 |
| **Total** | **401** | **437** | **436** |

[1)] Incl. anthracite and lignite

*Sources: CAA, IHS, TASS*

*LB-T9*

Already in the first half of 2022, Russia's exports of thermal coal were significantly below the level of 2021. With the EU ban in August last year, European countries stopped imports and exports to India, China, Turkey and Korea increased. Thus, Russia has found ways to partially circumvent the Western sanctions.

The methods range from simple tricks to sophisticated shadow deals - most of them legal.

In addition, China sharply increased its coal imports from Russia after the invasion of Ukraine. This depressed prices for Russian coal and attracted buyers.

However, the slump in exports to the West was only partially offset by exports to other countries.

Moreover, exports to Asia were constrained by limited shipping capacity within Russia. In addition, t h e sharp rise in freight rates for Russian exports and securing financing and insurance became increasingly difficult.

Overall, Russia's coal exports fell by 10 % to 159 million tons in 2022.

# REPUBLIC OF SOUTH AFRICA

**FIGURES 2021** (2020) according to World Bank

| | |
|---|---|
| **GDP growth:** | **4.9 %** (-6.3 %) |
| **GDP per capita:** | **US$ 7 055** (US$ 5 742) |
| **Inflation:** | **4.6 %** (3.2 %) |
| **Population:** | **59.4 Mill.** (58.8 Mill.) |

## Coal

South Africa's economy lives from coal. Almost 90 % of the energy consumed in South Africa is generated from coal, including almost the entire electricity requirement. Coal is also liquefied to produce mineral oil.

Almost a quarter of gasoline and diesel is produced by this process. According to estimates, around 200,000 jobs depend on coal.

The country ranks seventh in the global ranking of the most important coal-producing countries.

### Key Figures South Africa

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| **Hard Coal Production** | **248.4** | **228.6** | **229.6** |
| Steam Coal | 244.1 | 225.5 | 226.3 |
| Anthracite | 4.3 | 3.1 | 3.3 |
| **Hard Coal Exports [1)]** | **74.9** | **66.2** | **71.5** |
| Steam Coal | 73.6 | 64.9 | 70.4 |
| Anthracite | 1.3 | 1.3 | 1.1 |
| **Imports Germany** | **0.4** | **1.0** | **3.7** |
| Steam Coal | 0.4 | 1.0 | 3.7 |
| Anthracite | 0.0 | 0.0 | 0.0 |
| **Export Ratio** | **30.2 %** | **29.0 %** | **31.1 %** |

[1)] Seaborne only

*Sources: S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023 and coal production by country from 20.04.2023 / DESTATIS*

*LB-T15*

### Structure of South Africa's Exports in 2022

| | Total Mill. t | Europe [1)] Mill. t | Asia Mill. t | Other Mill. t |
|---|---|---|---|---|
| Steam Coal | 70.4 | 19.8 | 38.6 | 12.0 |
| Anthracite | 1.1 | 0.3 | 0.4 | 0.4 |
| **Total** | **71.5** | **20.1** | **39.0** | **12.4** |

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

*Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023*

*LB-T14*

In 2021, South African coal production fell by almost 8 % to 228.6 million t. In the following year, 2022, coal production remained largely stable compared to the previous year at 229.6 million.

Overall, the South African coal mining sector is slowly but steadily shrinking after years of underinvestment.

South African producers continue to struggle with severe logistical bottlenecks.

In 2022, South African coal consumption falls from 166 million tons to 157 million tons (-5.5 %), due to the country's very slow economic recovery after the pandemic shock.

Exports increased to 71.5 million tons in 2022. Mainly to Germany and the EU to replace the lack of energy from Russia.

Economic growth fell by 1.6 % in 2022, down from 4.9 % in 2021 and a pandemic-related slump of 6.3 % in 2020.

For the coming years, the IEA expects a certain stabilization of South African coal production, but no recovery. In 2025, total coal production is projected at 217 million tons.

## Power

There are major problems with the energy supply in South Africa. The state-owned energy supplier Eskom could drag the entire national economy into the abyss. Up to twelve hours of power failure every day throughout the country - and this has been the case for months.

Outdated infrastructure, corruption and sabotage cause major problems. High-quality coal is exported; the South African power plants receive low-quality coal, which causes immense damage there. The state-owned power utility Eskom makes a loss of € 50 million every month. The national economy loses the same amount due to power cuts - every day.

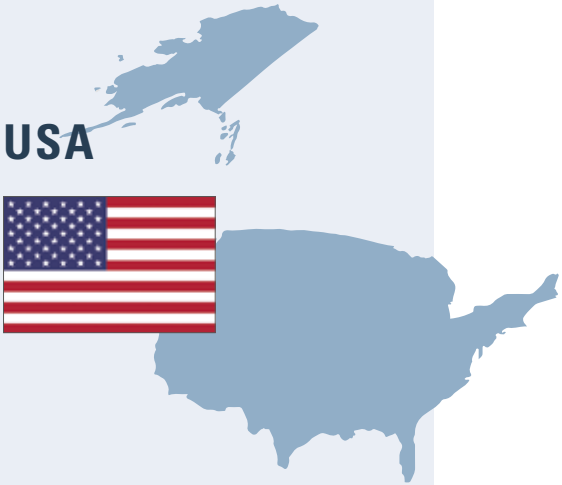
Entire sectors of the economy are going under. More and more companies are going bankrupt because they lack the electricity for their production, for example in the mining industry. In the province of North West, a chicken farmer had to kill 40,000 chickens overnight because the oxygen supply no longer worked.

In hospitals, operations must be cancelled. Funeral homes are urging families to bury their deceased immediately because the cold rooms in the homes have broken down. More and more pumps in the waterworks fail due to the constant on and off switching.

"But these are both miserable figures," says Jens Papperitz, president of the German-South African Chamber of Commerce. The country needs at least four to five percent economic growth. That could be achieved with a combination of rising tourist numbers, stable agricultural production and booming mining - but only once the electricity problem has been solved.

South Africans are suffering from the crisis. The current rate of food price increases is over 13 %. Many people have become unemployed due to bankrupt companies.

# USA



**FIGURES 2021** (2020) according to World Bank

| | |
|---|---|
| **GDP growth:** | **5.9 %** (-2.8 %) |
| **GDP per capita:** | **US$ 70 249** (US$ 63 531) |
| **Inflation:** | **4.7 %** (1.2 %) |
| **Population:** | **331.9 Mill.** (331.5 Mill.) |

## Coal

Coal production in the USA increased to 496 million tons in 2022. Exports decreased slightly to 34 million t.

In the coming years, the IEA expects coal production to decline as domestic demand for thermal coal continues to shrink, investment shortages and staffing shortages persist. The IEA forecast for U.S. coal supply calls for an average annual decline of 6.1 % through 2025 - to about 443 million tons.

**Key Figures USA**

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| **Coal Production*** | **441** | **481** | **496** |
| **Hard Coal Exports** | **63** | **77** | **77** |
| Steam Coal | 24 | 36 | 34 |
| Coking Coal | 39 | 41 | 43 |
| **Hard Coal Imports** | **5** | **5** | **6** |
| **Imports Germany** | **6** | **7** | **9** |
| Steam Coal | 2 | 3 | 5 |
| Coking Coal | 4 | 4 | 4 |
| **Export Ratio** | **14.3 %** | **16.0 %** | **15.5 %** |

* incl. Lignite

*Sources: S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023, coal production by country, from 20.04.2023 / own calculations*

*LB-T19*

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

| | 2020 Mill. t | 2021 Mill. t | 2022 Mill. t |
|---|---|---|---|
| Appalachians | 126 | 141 | 145 |
| Middle West | 82 | 85 | 90 |
| West | 278 | 298 | 304 |
| Other | 0 | 0 | 0 |
| **Total** | **486** | **524** | **539** |

*Source: DOE-EIA*

*LB-T16*

| Exports USA 2022 | | | |
|---|---|---|---|
| | **Coking Coal** Mill. t | **Steam Coal** [1] Mill. t | **Total** Mill. t |
| Seaborne | 37.9 | 35.1 | 73.0 |
| Overland (Canada) | 2.6 | 1.3 | 3.9 |
| **Total** | **40.5** | **36.4** | **76.9** |

[1] Including anthracite coal

*Source: S&P Global-IHS Markit, coal imports and exports by country and type, from 27.03.2023*

*LB-T17*

## Power

In the USA, coal-fired generation remains on a downward trend after a brief but strong recovery of 15 % in 2021. The expansion of renewables is accelerating, while the coal fleet continues to shrink. Limited access to coal due to logistical issues and high prices on world markets have put additional pressure on coal-fired generation to increase the share of renewables and natural gas in power generation despite higher prices.

Coal-fired power generation in the U.S. will continue to decline in the coming years, with a total capacity of 22 GW. In addition, IAE expects the U.S. Inflation Reduction Act to accelerate the transition to clean energy and further reduce U.S. coal demand. The Act will fund nearly $400 billion in energy and climate change spending and includes more spending on clean energy and energy infrastructure expansion. As a result, coal's share of the electricity mix is projected to decline to just 16 % by 2025, an 18 % drop in coal consumption from 2022 levels. If the economic situation deteriorates, the decline could be even greater.

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## Corporate Social Responsibility
The VdKi's policy statement for a socially responsible, socially, ethically and environmentally friendly Acting in the supply chain is published on the VdKi website!

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### Important note on facts, figures and data
We have refrained from pointing out each time in the text and in the tables, lists and other enumerations that all figures etc. for 2022 are provisional.

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