

MINERALS OF POLAND 2024

MOST IMPORTANT INFORMATION



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Polish Geological Institute
National Research Institute



NATIONAL FUND
FOR ENVIRONMENTAL PROTECTION
AND WATER MANAGEMENT

ENERGY MINERALS OF POLAND

NATURAL GAS

Natural gas is the fossil fuel of organic origin, consisting mainly of methane and minor amounts of ethane, propane, butane, nitrogen, helium and other organic and mineral compounds. In natural conditions, natural gas can occur in fields independently or together with crude oil – dissolved in oil or as a separate fraction. Documented gas fields **in Poland occur in the Polish Lowlands** (mainly in the sediments of Permian and partially Carboniferous, Devonian and Cambrian age), **on the Carpathian Foreland** (mainly in the Miocene formations and partially in the Jurassic, Cretaceous, Devonian, Carboniferous, Triassic and Precambrian formations), **in the Polish Exclusive Economic Zone of the Baltic Sea** (in the

Cambrian sediments), and **in the Carpathians** (mainly in the Cretaceous and Paleogene formations). **Fields occurring in the Polish Lowlands and on the Carpathian Foreland are of the greatest economic importance.** Natural gas, next to crude oil, forms a basis of a contemporary global economy. It is used mainly as a fuel for heating purposes, an energy source for electricity production and as a fuel for cars or industrial machinery engines drive. Natural gas is also widely used in a chemical industry.

328

DOCUMENTED FIELDS

150,402

EXPLOITABLE ANTICIPATED ECONOMIC RESOURCES
[million m³]

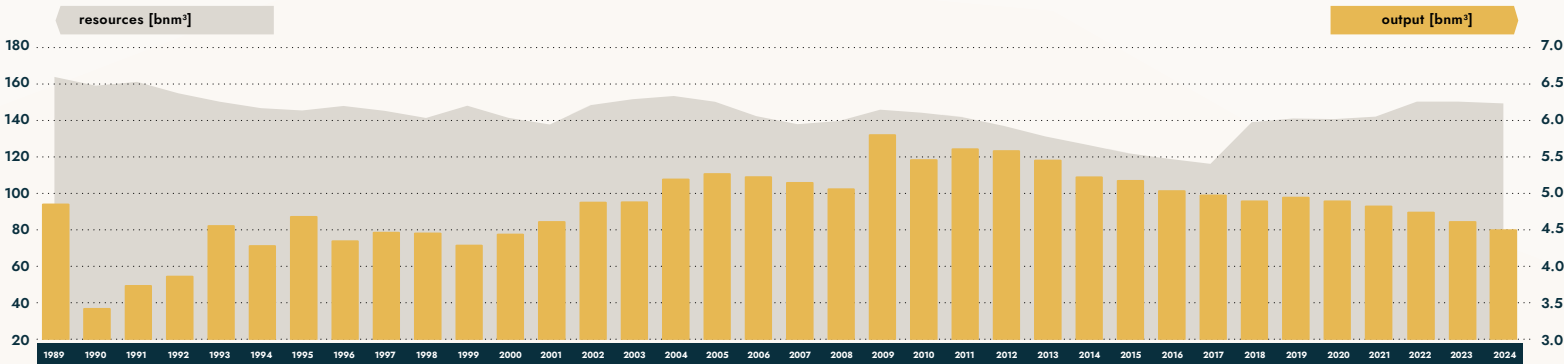
75,495

ECONOMIC RESOURCES IN PLACE
[million m³]

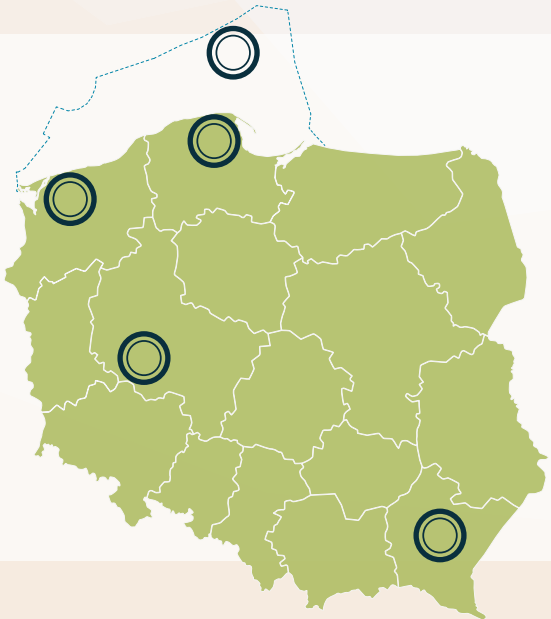
4,517

OUTPUT
[million m³]

AS OF THE END OF 2024



EXPLOITABLE ANTICIPATED ECONOMIC RESOURCES AND OUTPUT
IN 1989–2024

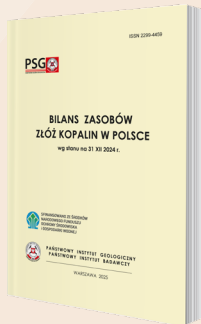


MAIN AREAS OF OCCURRENCE OF
DOCUMENTED NATURAL GAS FIELDS
IN POLAND

DETAILED SPATIAL INFORMATION:
MAP OF OCCURRENCE OF GAS FIELDS
IN POLAND;
AS OF 31 XII 2024

https://www.pgi.gov.pl/images/surowce/2024/mapy/largeEN/large_7.jpg

Data based on the System of management and protection of mineral resources in Poland MIDAS



**BILANS ZASOBÓW ZŁÓŻ KOPALIN W POLSCE
WG STANU NA 31 XII 2024 R. (only in Polish)**
Detailed information on resources volumes and location of
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**MINERAL RESOURCES OF POLAND
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ENERGY MINERALS OF POLAND

CRUDE OIL

Crude oil originated as a result of biochemical and thermal metamorphosis of animal and plant organic matter cumulated in sedimentary rocks. Crude oil is the liquid raw material, consisting of hydrocarbons mixture and a slight admixture of other compounds containing mainly sulphur, nitrogen and oxygen. **Documented crude oil fields in Poland occur in the Polish Lowlands** (mainly in the Permian formations and – to a lesser extent – in the Carboniferous, Devonian and Cambrian), **in the Polish Exclusive Economic Zone of the Baltic Sea** (in the Cambrian formations), **on the Carpathian Foreland** (in the Miocene, Cretaceous and Jurassic sediments) and **in the Carpathians** (in the Cretaceous and Paleogene

formations). Carpathians is the area of the oldest crude oil global mining (practically used already in the 6th century), however today the fields occurring in the Polish Lowlands and in the Polish Exclusive Economic Zone of the Baltic Sea are of the greatest economic importance. Crude oil, as the main energy raw material and one of the main chemical industry raw materials, is a basis of a contemporary global economy. Semi-products obtaining from crude oil processing are used i.e. in construction, agriculture and pharmaceutical, automotive or clothing industry.

88

DOCUMENTED FIELDS

19,477

EXPLOITABLE ANTICIPATED ECONOMIC RESOURCES
[thousand tonnes]

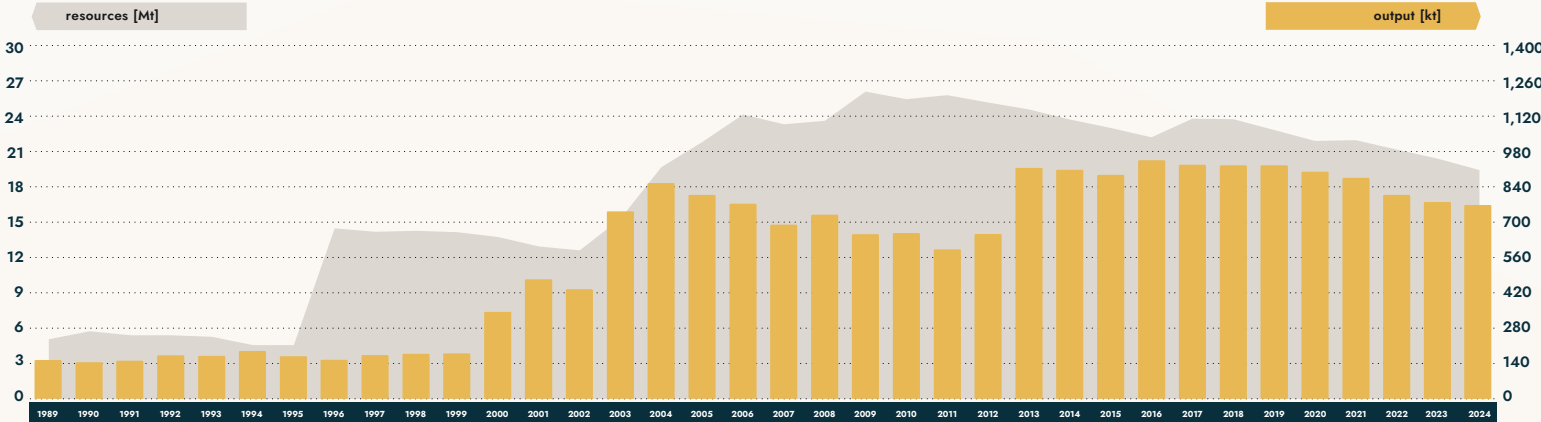
9,023

ECONOMIC RESOURCES IN PLACE
[thousand tonnes]

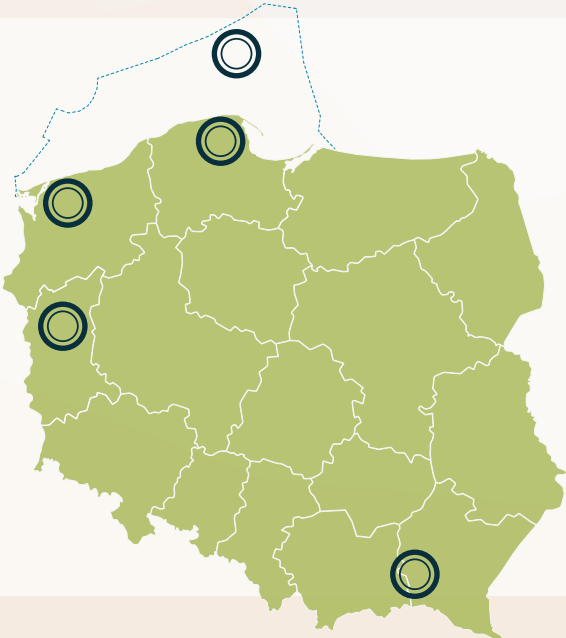
766

OUTPUT
[thousand tonnes]

AS OF THE END OF 2024



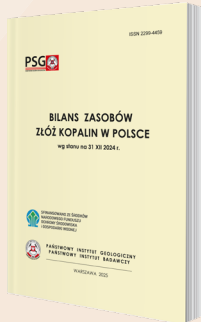
EXPLOITABLE ANTICIPATED ECONOMIC RESOURCES AND OUTPUT
IN 1989–2024



MAIN AREAS OF OCCURRENCE OF
DOCUMENTED CRUDE OIL FIELDS
IN POLAND

DETAILED SPATIAL INFORMATION:
MAP OF OCCURRENCE OF OIL FIELDS
IN POLAND;
AS OF 31 XII 2024
https://www.pgi.gov.pl/images/surowce/2024/mapy/largeEN/large_7.jpg

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ENERGY MINERALS OF POLAND

HARD COAL

Hard coal is a crucial raw material ensuring energy security of Poland. It is classified to primary and non-renewable energy sources. Hard coal contains from 75% to 92% of carbon element, whereas its allotrope – anthracite – up to 97% of carbon element. Anthracite is also the last link of the chain of conversion: peat – brown coal – hard coal – anthracite. In Poland, hard coal originated in the early and late Carboniferous. **Hard coal deposits in Poland occur in three basins: Lower Silesian Coal Basin, Upper Silesian Coal Basin and Lublin Coal Basin, whereas exploitation is currently carried out in the Upper Silesian Coal Basin and Lublin Coal Basin.**

At present, hard coal is recovered by using only an underground mining method. The raw material is mainly used for electricity and heating production, but is also applicable for: metallurgical, cosmetology, agriculture, pharmaceutical, pyrotechnic or clothing industry. Hard coal is also the necessary raw material for chemical processes of coal carbonization, hydrogenation and gasification.

164

DOCUMENTED DEPOSITS

64,616,436

ANTICIPATED ECONOMIC RESOURCES
[thousand tonnes]

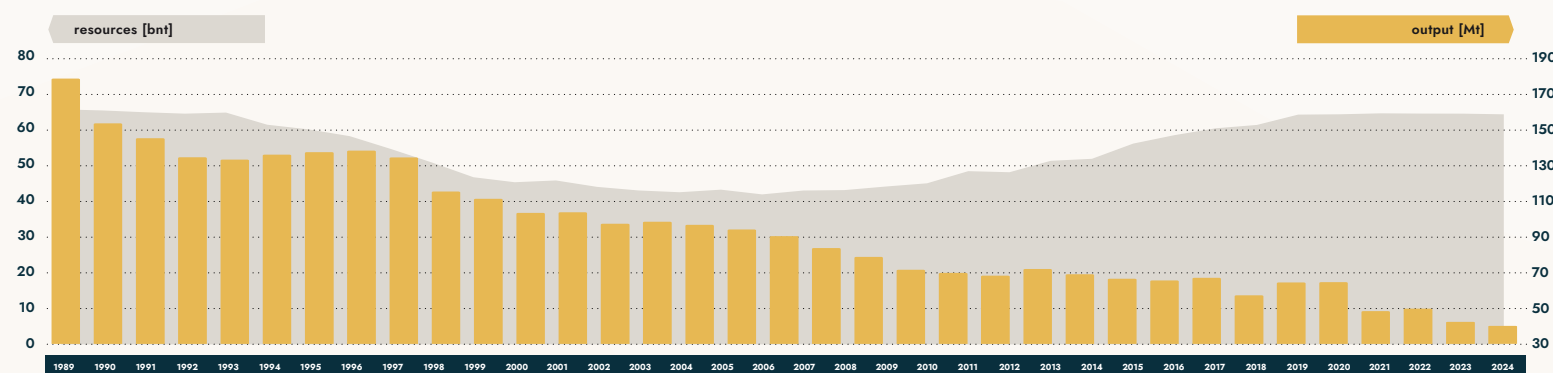
3,999,699

ECONOMIC RESOURCES IN PLACE
[thousand tonnes]

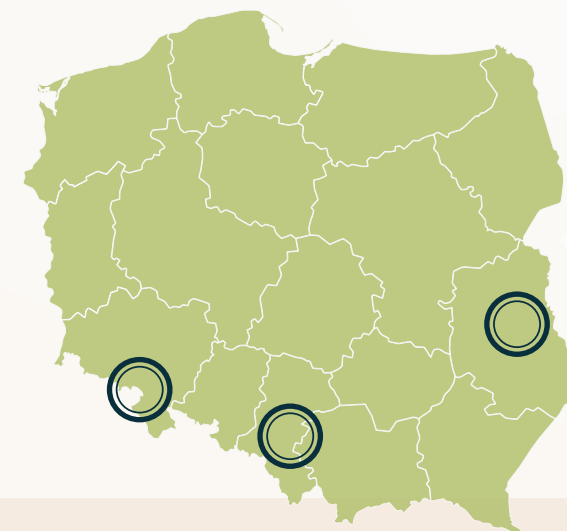
40,158

OUTPUT
[thousand tonnes]

AS OF THE END OF 2024



ANTICIPATED ECONOMIC RESOURCES AND OUTPUT
IN 1989–2024

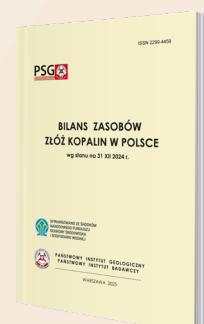


MAIN AREAS OF OCCURRENCE OF
DOCUMENTED HARD COAL DEPOSITS
IN POLAND

DETAILED SPATIAL INFORMATION:
MAP OF OCCURRENCE OF HARD COAL DEPOSITS
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https://www.pgi.gov.pl/images/surowce/2024/mapy/largeEN/large_8.jpg

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ENERGY MINERALS OF POLAND

BROWN COAL

Brown coal is classified to primary and non-renewable energy sources. It contains from 58% to 78% of carbon element – in terms of carbonization brown coal is the intermediate sediment between peat and hard coal. Brown coal forms beds of thickness between several and several dozen meters or occurs in a form of lenses.

In Poland, brown coal occur mostly as the raw material **from younger geological periods, mainly from the Paleogene and Neogene**, and is usually used as the raw material for electricity and heating production, less often in chemical industry.

91

DOCUMENTED DEPOSITS

22,984,999

ANTICIPATED ECONOMIC RESOURCES
[thousand tonnes]

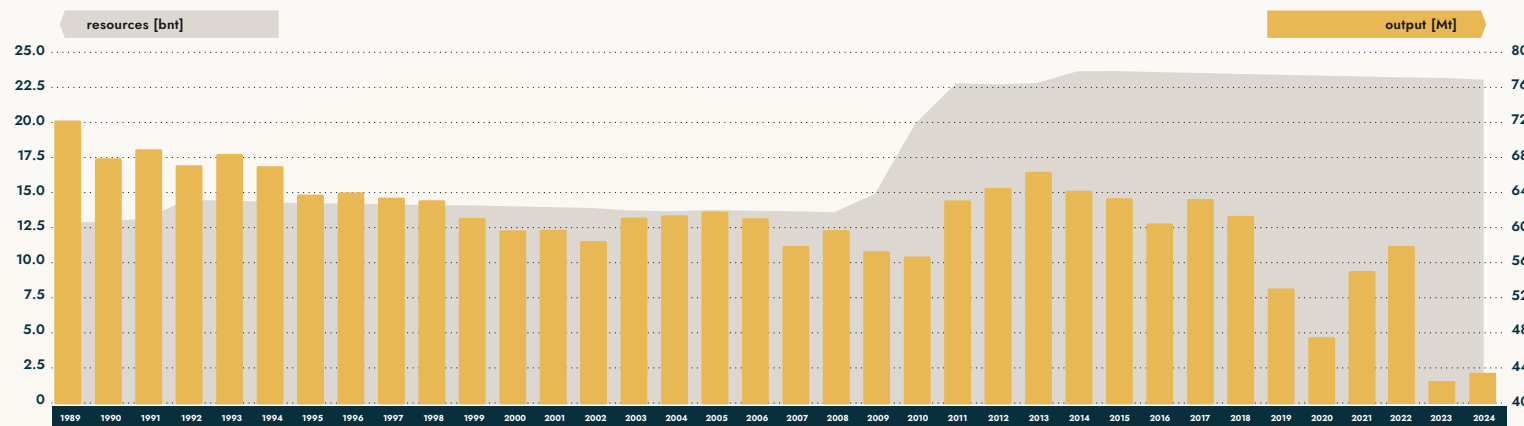
721,982

ECONOMIC RESOURCES IN PLACE
[thousand tonnes]

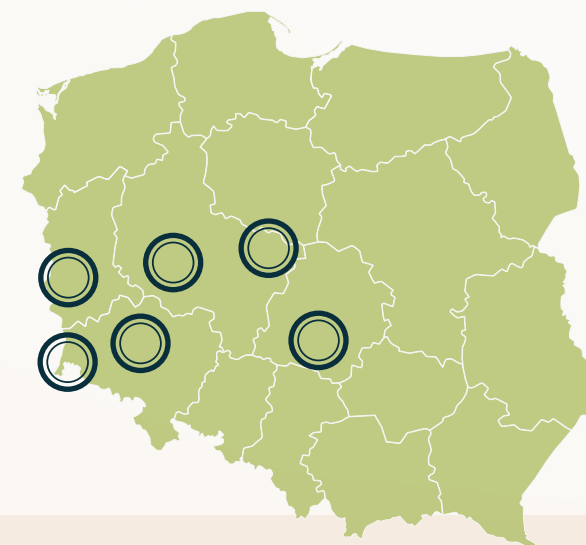
43,462

OUTPUT
[thousand tonnes]

AS OF THE END OF 2024



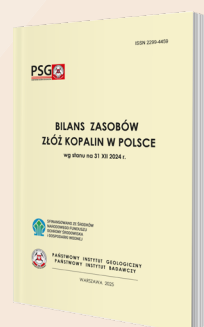
ANTICIPATED ECONOMIC RESOURCES AND OUTPUT
IN 1989–2024



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https://www.pgi.gov.pl/images/surowce/2024/mapy/largeEN/large_8.jpg

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METALLIC MINERALS OF POLAND

METALLIC COPPER

Copper is one of the most useful metals in the world. Usually, it is obtained from ore minerals (mainly sulphides), less often in a native form. **There are over a dozen of copper ores types distinguished, however in Poland of the greatest importance are sediment-hosted stratabound deposits, containing co-occurring silver and other metals ores.** These deposits are related to the Zechstein Kupferschiefer formation.

Copper can be widely applicable. It is used i.e. in electronic industry, metallurgy and construction. It is the basic raw material for production of various types of electronic devices, roof coverings, water supply installations and industrial machines. Copper can be also used in automotive industry, jewellery, agriculture and for food production process. Its special feature is that copper can be recycled without its quality decline.

17

DOCUMENTED DEPOSITS

56,721

ANTICIPATED ECONOMIC RESOURCES
[thousand tonnes]

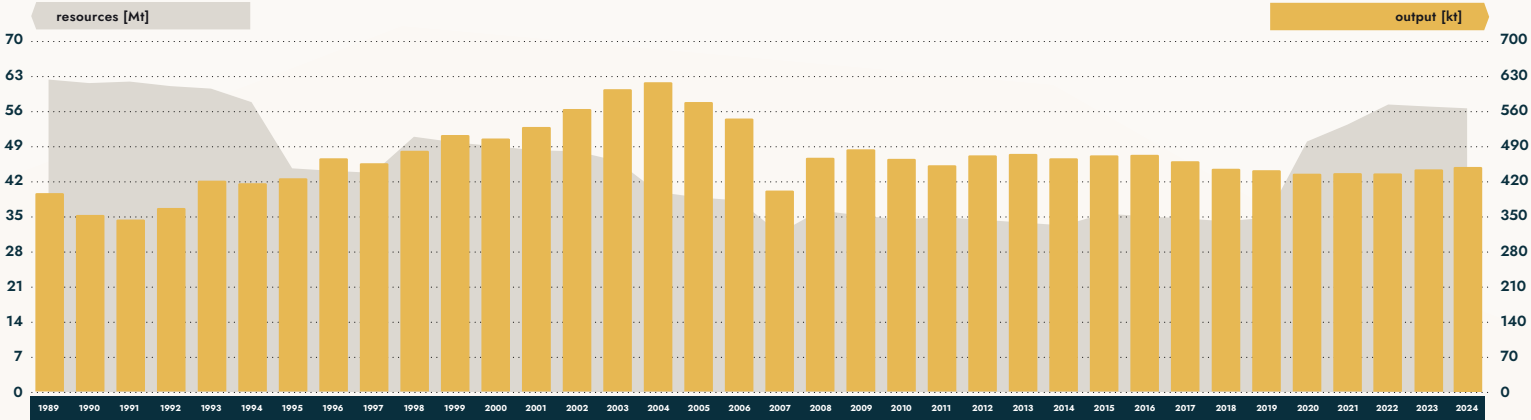
20,020

ECONOMIC RESOURCES IN PLACE
[thousand tonnes]

450

OUTPUT
[thousand tonnes]

AS OF THE END OF 2024



ANTICIPATED ECONOMIC RESOURCES AND OUTPUT
IN 1989–2024

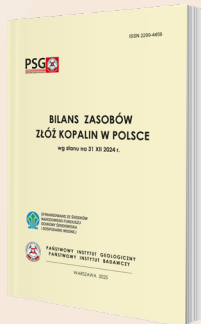


MAIN AREAS OF OCCURRENCE OF
DOCUMENTED COPPER ORES DEPOSITS
IN POLAND

DETAILED SPATIAL INFORMATION:
MAP OF OCCURRENCE OF METAL ORES DEPOSITS
IN POLAND;
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https://www.pgi.gov.pl/images/surowce/2024/mapy/largeEN/large_9.jpg

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CHEMICAL MINERALS OF POLAND

ROCK SALT

Rock salt is one of the most common mineral in the world. It is known from all geological periods and occurs on every continent. It originates usually as a result of seawater evaporation (contemporary seaside salinas) or highly mineralized inland water evaporation (i.e. Dead Sea, Salar de Uyuni). Rock salt under pressure and high temperature becomes plastic and therefore can break from the depths of the Earth through other sedimentary rocks – forming salt domes (i.e. Kłodawa salt dome).

In Poland, the Upper Permian rock salt is of the greatest importance; it occurs on 2/3 of the country's area. Industrial use of rock salt is very wide. It covers such industries as: food, chemical, paints, cosmetics, metallurgical and refining, but also agriculture and road construction. Salt is also an essential dietary ingredient. Rock salt deposits are nowadays used also as safe, underground gases and fuels storages and as hazardous wastes dumps.

19

DOCUMENTED DEPOSITS

112,369,281

ANTICIPATED ECONOMIC RESOURCES
[thousand tonnes]

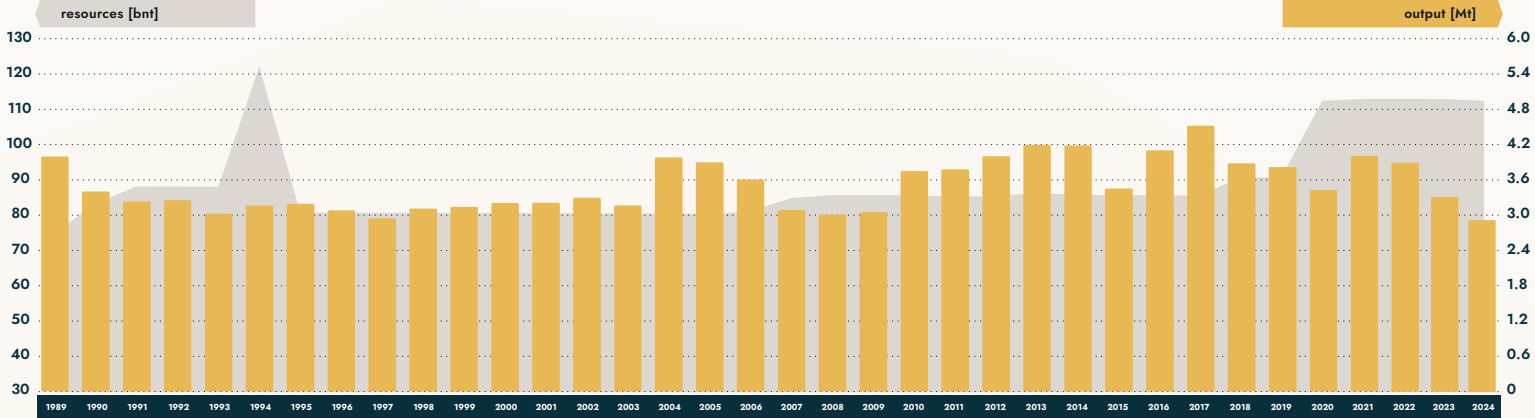
1,887,600

ECONOMIC RESOURCES IN PLACE
[thousand tonnes]

2,916

OUTPUT
[thousand tonnes]

AS OF THE END OF 2024



ANTICIPATED ECONOMIC RESOURCES AND OUTPUT
IN 1989–2024

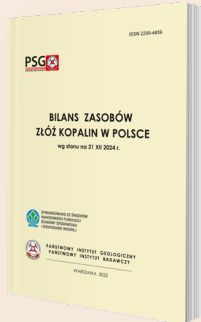


MAIN AREAS OF OCCURRENCE OF
DOCUMENTED ROCK SALT DEPOSITS
IN POLAND

DETAILED SPATIAL INFORMATION:
MAP OF OCCURRENCE OF CHEMICAL
MINERAL DEPOSITS IN POLAND;
AS OF 31 XII 2024

https://www.pgi.gov.pl/images/surowce/2024/mapy/largeEN/large_9.jpg

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ROCK MINERALS OF POLAND

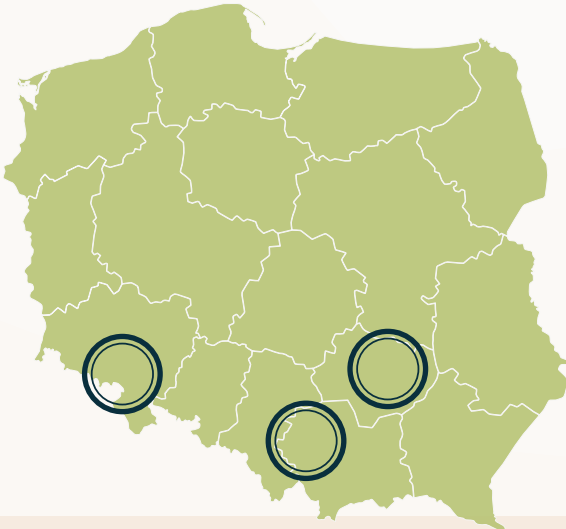
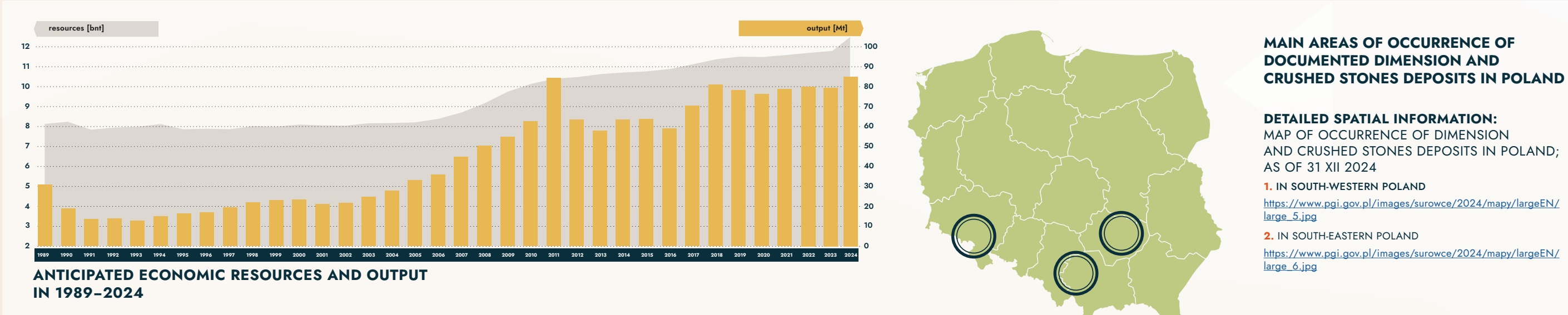
DIMENSION AND CRUSHED STONES

Dimension and crushed stones is a group of rocks covering several dozen types within three basic genetic groups of rocks: igneous, metamorphic and sedimentary. The way of economic use of dimension and crushed stones depends on physical-mechanic features of rocks i.e. compression strength, abrasibility, freeze resistance and water absorption. **In Poland, deposits of dimension and crushed stones occur commonly in Lower Silesia, in Świętokrzyskie Mts., in Carpathians, on Kraków-Częstochowa Upland and Lubelszczyzna region.**

Dimension and crushed stones are used as the basic raw material for production of crushed aggregates which are i.e.: the component of concrete, material for road bases and mineral-asphalt masses in road building, or materials for trackbed in railway construction. Dimension stones are recognized as the valuable raw material for production of stony building-architectural elements (paving stones, plates, covers, curbs, construction and wall stones) but also as decorative material or carving stone.



AS OF THE END OF 2024



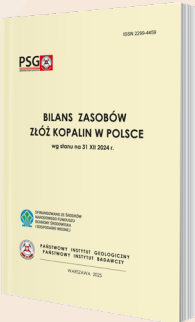
MAIN AREAS OF OCCURRENCE OF DOCUMENTED DIMENSION AND CRUSHED STONES DEPOSITS IN POLAND

DETAILED SPATIAL INFORMATION:
MAP OF OCCURRENCE OF DIMENSION AND CRUSHED STONES DEPOSITS IN POLAND;
AS OF 31 XII 2024

1. IN SOUTH-WESTERN POLAND
https://www.pgi.gov.pl/images/surowce/2024/mapy/largeEN/large_5.jpg

2. IN SOUTH-EASTERN POLAND
https://www.pgi.gov.pl/images/surowce/2024/mapy/largeEN/large_6.jpg

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ROCK MINERALS OF POLAND

SAND AND GRAVEL

Sand and gravel is the most frequently extracted mineral. It is a loose mixture of clastic material, divided – depending on participation of grains below 2 mm (sand content) – into: sand, sand with gravel and gravel. In Poland, deposits of sand and gravel are mainly of the Quaternary age. There can be several genetic types distinguished: glacial, fluvioglacial, fluvial (river), eolian, maritime. **Deposits of sand and gravel occur throughout the country, also in the maritime area, but vary**

in terms of quality. The raw material is used directly or after processing. It is applicable mainly in bulk and infrastructure construction and for production of concrete. Separate, but related group, is industrial sand with wide range of uses and with quartz grains as a main component.

11,216

DOCUMENTED DEPOSITS

21,362,397

ANTICIPATED ECONOMIC RESOURCES
[thousand tonnes]

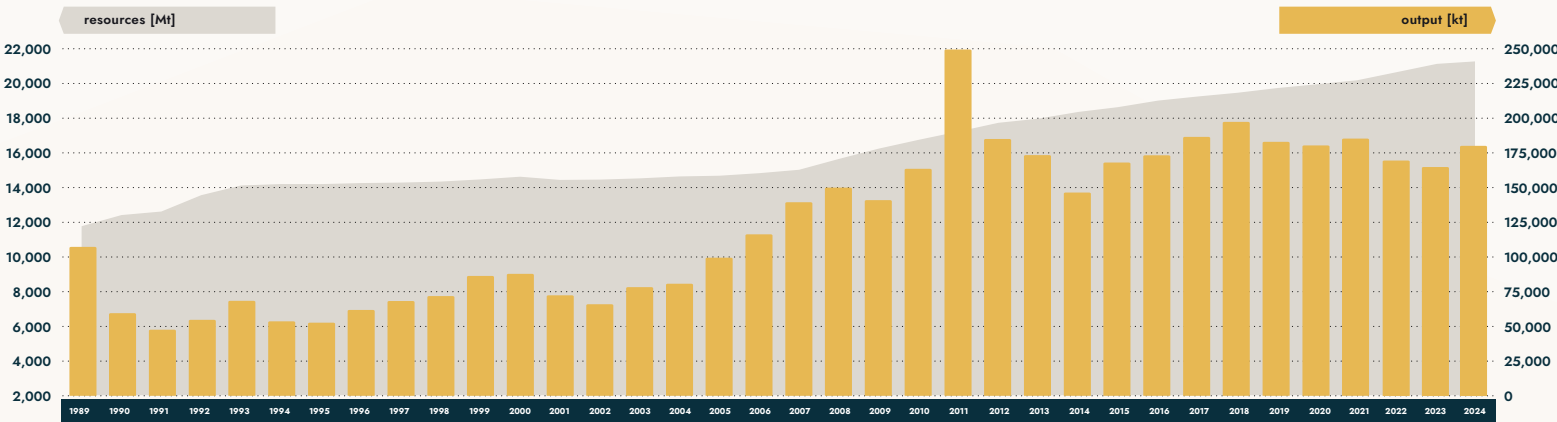
4,400,515

ECONOMIC RESOURCES IN PLACE
[thousand tonnes]

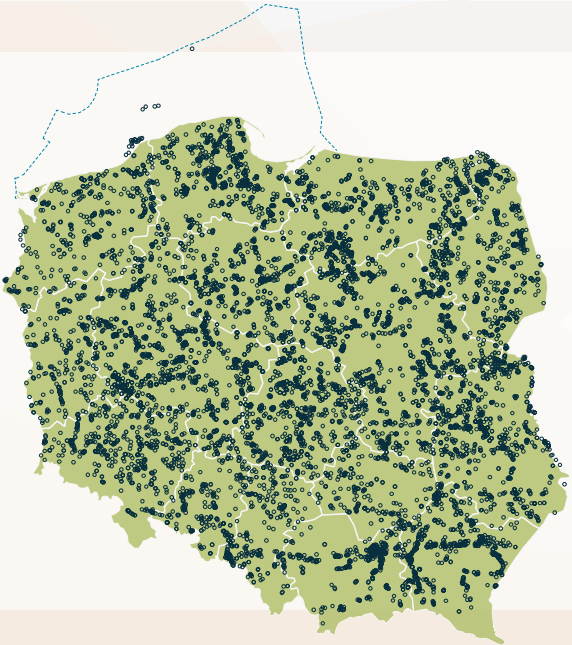
180,100

OUTPUT
[thousand tonnes]

AS OF THE END OF 2024



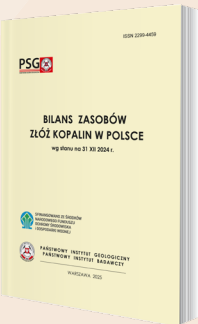
ANTICIPATED ECONOMIC RESOURCES AND OUTPUT
IN 1989–2024



OCCURRENCE OF DOCUMENTED
SAND AND GRAVEL DEPOSITS
IN POLAND

DETAILED SPATIAL INFORMATION:
MAP OF OCCURRENCE OF CLASTIC ROCK MINERAL
DEPOSITS IN POLAND;
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https://www.pgi.gov.pl/images/surowce/2024/mapy/largeEN/large_13.jpg

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