

**THE MODE OF REPORTING
RESOURCES AND RESERVES DATA IN
POLAND
AND THEIR CLASSIFICATION**

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Basic concepts of mineral policy in Poland

- **Deposits of mineral commodities are the part of natural environment.**
- **Reasonable utilization of deposits of mineral commodities is indispensable for sustainable development**
- **Reasonable utilization of mineral resources should be guaranteed and supervised by government**

State supervision on mineral resources utilization is realized through:

- Legal regulations of the mode of presentation resources and reserves data
- Licensing exploitation rights
- Accounting of mineral deposits in land use planning
- Surveillance of reasonable resources exploitation, executed by mining offices

General procedure of resources and reserves evaluation consists of two steps:

- I Resources evaluation based on exploration data**
Approved by governmental administrative body
- II Preparation of “Deposit development plan” (prefeasibility study) with reserve evaluation

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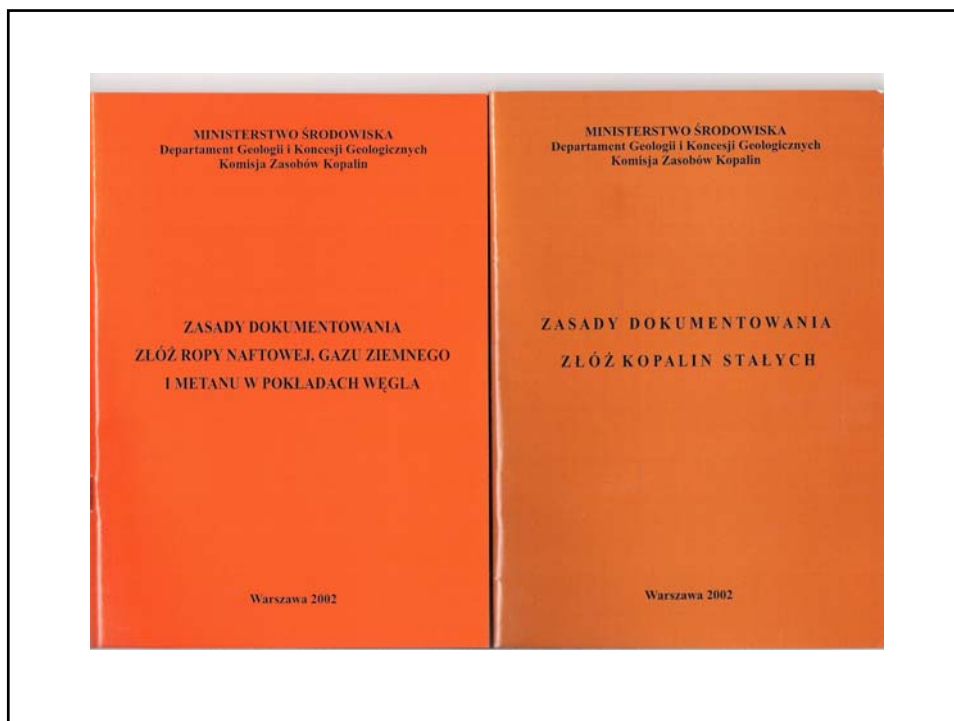
Evaluation of resources taking into account geological model of deposit is considered the most important as the base for further reserve estimation

The competent persons authorized by governmental approval are the only one to prepare Geological documentation of deposit.

Exploration results are presented in “Geological documentation of deposit” that contain presentation of:

- geological model of deposit,**
- quality of mineral commodity,**
- geological conditions of mining (hydrogeology, geotechnic etc.),**
- environmental conditions of the area,**
- resources evaluation**

“Geological documentation” is presented in uniform manner according to the rules prepared by the Commission of Mineral Resources, the advisory body the Ministry of Environment.



Resources are evaluated with the use of uniform criteria for their delineation designed by Ministry of Environment

| | Coal deposit feature | Parameter Value |
|---|--|---|
| 1 | Maximum depth [m] | 1000 (>1000 if deeper mining is possible) |
| 2 | Minimum coal seam thickness [m] | 1 (0,6) |
| 3 | Minimum coal calorific value in seam with barren interlayers [MJ/kg] | 15 |
| 4 | Maximum total sulphur content [%] | 2 (>2 if desulphurization is planned) |

In the „Deposit development plan” Probable reserves are presented

They are calculated in 4 steps:

- delineation of resources technically mineable,
- delineation of resources technically mineable – economically feasible,
- estimation of resources that could be transformed to reserves (economic reserve base in place),
- estimation of probable reserves

„Deposit development plan”

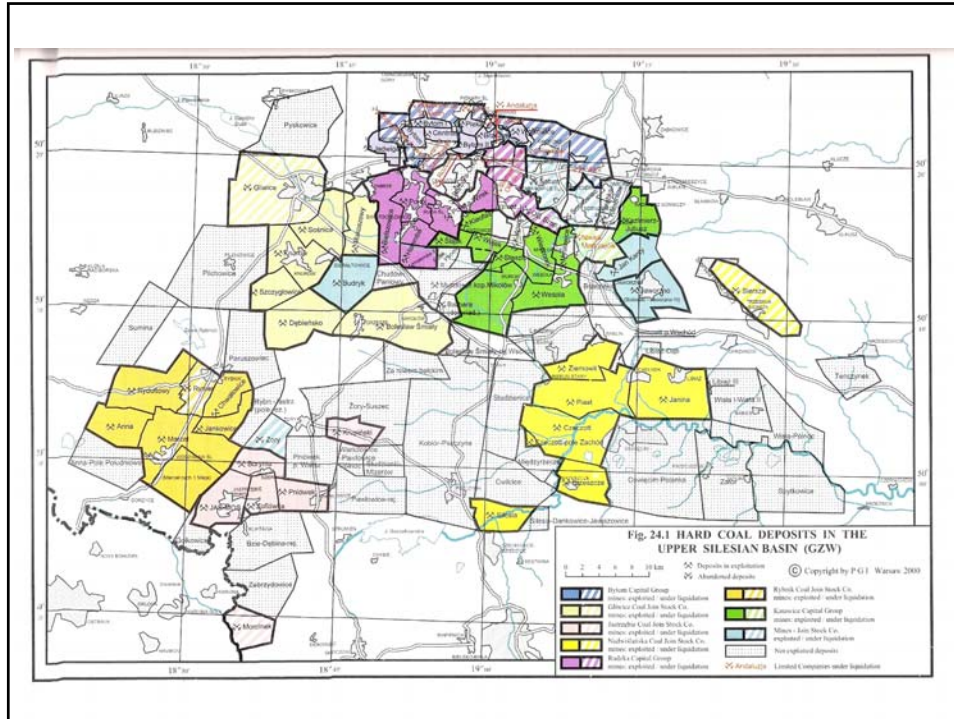
Is the obligatory document presented with the application for mining licence

Proved reserves are evaluated only for internal use of mining enterprises and are not officially reported

The resources and reserves of operating mines are yearly recalculated and presented (obligatory) to geological survey (Polish Geological Institute)

The data on resources at the end of each year are published in open file report.





WĘGLE KAMIENNE 61

| Lp. | Nazwa złoża | Stan zagł. złóża | Zasoby geologiczne bilansowe | | | Zasoby przemysłowe | Wydobycie |
|-----|---------------------------|------------------|------------------------------|-----------|-----------|--------------------|-----------|
| | | | Razem | A+B+C1 | C2 | | |
| 54 | Laziska | E | 204 927 | 94 179 | 110 748 | 53 524 | 1 546 |
| 55 | Makoszowy | E | 480 398 | 235 144 | 245 254 | 207 468 | 2 716 |
| 56 | Marcel | E | 275 396 | 237 860 | 37 536 | 143 448 | 2 444 |
| 57 | Marcel-Biech 1 Maja | Z | tylko pgh. | - | - | - | - |
| 58 | Maszyce | P | 403 864 | - | 403 864 | - | - |
| 59 | Mikołów | R | 294 070 | 172 266 | 121 804 | - | - |
| 60 | Mocinek | Z | tylko pgh. | - | - | - | - |
| 61 | Moszczenica | Z | tylko pgh. | - | - | - | - |
| 62 | Muchki | E | 461 428 | 365 247 | 98 181 | 224 781 | 2 566 |
| 63 | Mysławice | E | 36 830 | 36 286 | 544 | 31 547 | 1 817 |
| 64 | Niewia-Modrzejów | Z | tylko pgh. | - | - | - | - |
| 65 | Oświęcim-Polanka | R | 2 086 237 | 5 207 | 2 081 030 | - | - |
| 66 | Paraszowice | R | 348 020 | 160 572 | 187 448 | - | - |
| 67 | Parz | Z | tylko pgh. | - | - | - | - |
| 68 | Piekłowice-rz. | R | 2 048 850 | 1 150 143 | 898 707 | - | - |
| 69 | Piast | E | 931 786 | 903 284 | 28 502 | 291 415 | 4 176 |
| 70 | Piekary | E | 29 750 | 29 750 | - | 12 425 | 653 |
| 71 | Piślowek | E | 295 411 | 205 227 | 90 184 | 154 619 | 3 666 |
| 72 | Pokój | E | 135 805 | 134 774 | 1 031 | 67 086 | 1 485 |
| 73 | Polka-Wisok | E | 81 497 | 81 059 | 438 | 23 599 | 1 656 |
| 74 | Polanka-Klimontów | Z | tylko pgh. | - | - | - | - |
| 75 | Powiatów-Słupskich | Z | tylko pgh. | - | - | - | - |
| 76 | Rozalia | Z | tylko pgh. | - | - | - | - |
| 77 | Rozbark | Z | tylko pgh. | - | - | - | - |
| 78 | Rybn.-Jastrz (pole rz.) | R | 21 141 | 3 437 | 20 704 | - | - |
| 79 | Rydułtowy | E | 166 121 | 71 281 | 94 840 | 73 709 | 1 816 |
| 80 | Rymer | Z | tylko pgh. | - | - | - | - |
| 81 | Satur | Z | tylko pgh. | - | - | - | - |
| 82 | Siermianowice (p. rz.) | R | 30 600 | 8 600 | 22 000 | - | - |
| 83 | Siermianowice OG Strop. I | Z | tylko pgh. | - | - | - | - |
| 84 | Siermianowice OGSt. LIII | Z | tylko pgh. | - | - | - | - |
| 85 | Siersza | Z | tylko pgh. | - | - | - | - |
| 86 | Siersza (oboz rz.) | R | 61 240 | 11 800 | 49 440 | - | - |
| 87 | Silesia | E | 505 692 | 336 598 | 179 094 | 50 082 | 660 |
| 88 | Silesia-Dątkowice-Jawian | R | 159 668 | 111 169 | 87 499 | - | - |
| 89 | Sosnowiec | Z | tylko pgh. | - | - | - | - |
| 90 | Sosnica | E | 294 192 | 156 997 | 137 195 | 99 485 | 2 060 |
| 91 | Spytkowice | P | 662 614 | - | 662 614 | - | - |
| 92 | Staszice | E | 683 348 | 575 901 | 107 447 | 329 240 | 3 837 |
| 93 | Staszyniec | R | 1 282 150 | 16 883 | 1 265 267 | - | - |
| 94 | Strzyżów | E | 620 488 | 375 826 | 244 582 | 326 538 | 2 744 |
| 95 | Stusk | E | 158 344 | 134 904 | 23 440 | 63 861 | 839 |
| 96 | Styk-Pole Parzewickie | E | 116 599 | 111 836 | 4 763 | 8 115 | 136 |
| 97 | Tenczynek | P | 64 543 | - | 64 543 | - | - |

The general rules of classification of resources and reserves in Poland are concordant with UNFC

Geologic axis

| <u>UNFC</u> | <u>categories used in Poland</u> |
|------------------------|---|
| 4 Reconnaissance | E (D ₃), D ₂ (officially not used) |
| 3 prospecting | D (D ₁), C ₂ |
| 2 general exploration | C ₁ |
| 1 detailed exploration | B, A |

Economic and feasibility subdivisions used in Poland



Economic axis:

UNFC

polish categories

| | |
|--------------------------|---|
| 3 intrinsically economic | supposed economic and subeconomic resources – “geologiczne” (“bilansowe” + “pozabilansowe”) |
| 2 subeconomic | subeconomic resources - “pozabilansowe” + subeconomic reserve base - “nieprzemysłowe” |
| 1 economic | supposed economic (resources) – “bilansowe”, <i>economic reserve base (in place)</i> - “ <i>przemysłowe</i> ”, economic - “operatywne”, |

Feasibility axis

UNFC

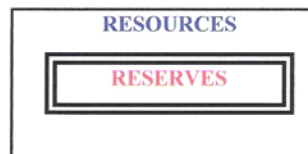
- 3 Opportunity study
- 2 Prefeasibility study
- 1 Feasibility

polish categories

supposed economic resources (“bilansowe”)
probable reserves - “operatywne”
reserves – “wydobywalne”, “eksploatacyjne”
(officially not in use for solid mineral commodities)

The basic problem of presentation of resources and reserves data

CUMULATIVE HIERARCHICAL



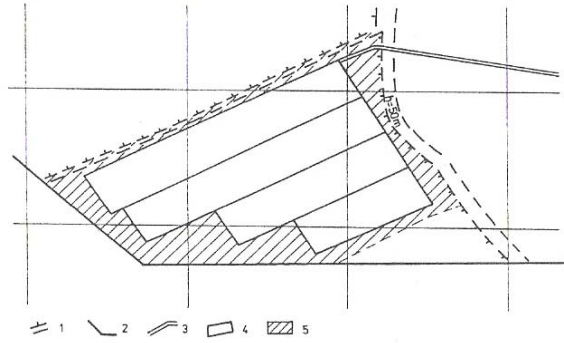
SEPARATED ADDITIVE



**COAL RESOURCES AND PROBABLE RESERVES IN POLAND WITHIN
OPERATING MINES (mln t)**

| Mode of data presentation | CUMULATIVE HIERARCHICAL | SEPARATED ADDITIVE |
|----------------------------------|--------------------------------|---------------------------|
| Resources | 15291 | 9280 |
| <i>Economic reserve base</i> | 6012 | |
| Probable reserves | 4208 | 4208 |





Resources –reserves relationship

1. Faults, 2 – boundary of mining field, 3 – adit, 4- designed longwall field, 5 – **lost resources**