The Expert Group on Resource Classification

COAL SEAM RESOURCES/RESERVES
POLISH, UNFC AND JORC CODE (CRIRSCO)
CLASSIFICATION

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### POLISH RESOURCES CLASSIFICATION SYSTEM

<table>
<thead>
<tr>
<th>Geologic assurance (category)</th>
<th>A</th>
<th>B</th>
<th>C&lt;sub&gt;1&lt;/sub&gt;</th>
<th>C&lt;sub&gt;2&lt;/sub&gt;</th>
<th>D (D&lt;sub&gt;1&lt;/sub&gt;)</th>
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Geneva, 23-26 April 2013
Polish classification (economic and feasibility subdivision)

- **GEOLOGICAL RESOURCES**
- **BALANCED RESOURCES**
- **INDUSTRIAL RESERVE BASE**
- **EXPLOITATION RESERVES**
- **OPERATIONAL RESERVES**
- **OUT-OF-BALANCE RESOURCES**
- **NON-INDUSTRIAL RESOURCES**
- **losses**
- **dilution**

Geneva, 23-26 April 2013
GENERAL PROCEDURE OF RESOURCES AND RESERVES EVALUATION CONSISTS OF 3 STEPS:

1. Resources evaluation based on exploration data (Approved by governmental administrative body) - delineation of resources, supposed economic that are technically mineable presented in geological report.

2. Delineation of resources technically mineable by the proposed mining method and economically feasible, that could be transformed to reserves, Preparation of “Deposit development plan” (prefeasibility study).

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

- geological model of deposit,
- quality of mineral commodity (coal, lignite etc.),
- 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.
The „Deposit development plan” presents resources that could be transformed to reserves (economic reserve base in place). They are calculated by:

- delineation of resources technically mineable by the proposed mining method,
- delineation of resources technically mineable – and economically feasible.
- estimation of probable reserves

„Deposit development plan” is the obligatory document presented with the application for mining licence
Mine operation plan presents:
- delineation and estimation of reserves

**Proved reserves** are evaluated only for internal use of mining enterprises and are not officially reported
Bogdanka Coal Deposit

Przekrój przez złoże węgla kamiennego
Skala planowa 1:5000
Skala pozomena 1:3000

Protection band below waterbearing overburden

Cr₂

J₁
Geological Report
Polish classification
Mine Development Plan
(Pre-Feasibility Study)
Polish classification

Legend
- Industrial Reserves category C1
- Non-industrial Reserves category C1
- Non-industrial Reserves category C2

Geneva, 23-26 April 2013
Mining Operational Plan
(Feasibility Study)
Polish classification
The general rules of classification of resources and reserves used in Poland are concordant with the United Nations Framework Classification (UNFC) and resources/reserves data can be easily transferred to CRIRSCO (JORC code) classification.
Polish resources/reserves classification and UNFC

- **reserves**: extractable - accessible, planned for extraction
- **economic resources in place**
- **anticipated economic resources**
- **developed deposits**
- **undeveloped deposits**
- **not economic resources in developed deposits**
- **anticipated subeconomic resources in undeveloped deposits**
- **prognostic resources**
- **prospective resources (hypothetical)**

**Legend**:
- F1: Mining operation plan
- F2: Deposit development plan
- F3: Geological report
- E1: Planned for extraction
- E2: Economic resources in place
- E3: Anticipated economic resources
- G1: A+B
- G2: C_1
- G3: C_2
- G4: D

*Geneva, 23-26 April 2013*
<table>
<thead>
<tr>
<th>Polish classification</th>
<th>JORC Code CRIRSCO</th>
<th>PRMS (zasoby wydobywalne)</th>
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**Geneva, 23-26 April 2013**
Mine Development Plan
(Pre-Feasibility Study)
UNFC
Mining Operational Plan (Feasibility Study) UNFC
CRIRSCO (JORC Code) and Polish resources/reserves classification

Diagram:

Exploration Results

Coal Resources

- Inferred
  - Balanced Resources (category C₂ and D)

Coal Reserves

- Probable
  - Operational Reserves in estimated and fully explored deposits (category C₁ + C₂)

- Measured
  - Balanced Resources (category A + B)

- Proved
  - Operational Reserves in fully explored deposits (category A + B)

Increasing level of geological knowledge and confidence

Impact of geologic and mining, working, economic, marketing, legal, environment, social and administrative factors (so called 'modification factors')
Geological Report
JORC Code
Mining Operational Plan
(Feasibility Study)
JORC Code
Geological Report

Polish classification

Balanced Resources

C2
(7,194 tys. Mg)

C1
(60,499 tys. Mg)

C1, C2 - Accuracy of knowledge of resources (category)

UNFC

332
(7,194 tys. Mg)

333
(60,499 tys. Mg)

JORC Code

Resources Inferred
(7,194 tys. Mg)

Resources Indicated
(60,499 tys. Mg)
Mine Development Plan

Polish classification

Non-industrial Reserves
- C2 (7 194 tys. Mg)
- C1 (24 177 tys. Mg)

Industrial Reserves
- C1 (36 311 tys. Mg)

UNFC
- 323 (7 194 tys. Mg)
- 322 (24 177 tys. Mg)
- 222 (36 311 tys. Mg)

C1, C2 - Accuracy of knowledge of resources (category)
Polish classification

Non-industrial Reserves
- C2: 7,194 tys. Mg
- C1: 24,177 tys. Mg

Operational Reserves
- C1: 25,004 tys. Mg

Losses
- C1: 11,307 tys. Mg

Accuracy of knowledge of resources (category)

UNFC
- 313: 7,194 tys. Mg
- 312: 24,177 tys. Mg
- 112: 25,004 tys. Mg
- 342: 11,307 tys. Mg

JORC Code
- Reserves Probable: 25,004 tys. Mg
Resources/reserves [t.t] recoverable

212 11545 112 10189
312 (222) 14960
213 (223) 2206
312 2392
+313

Coal seam 404/9
Thickness 0,8 – 1,9
av. 1,45

Geneva, 23-26 April 2013
Coal seam 409/3
Thickness 0.7 – 2.4
av. 1.43
Thank you for attention