



State Commission of Ukraine
on Mineral Resources

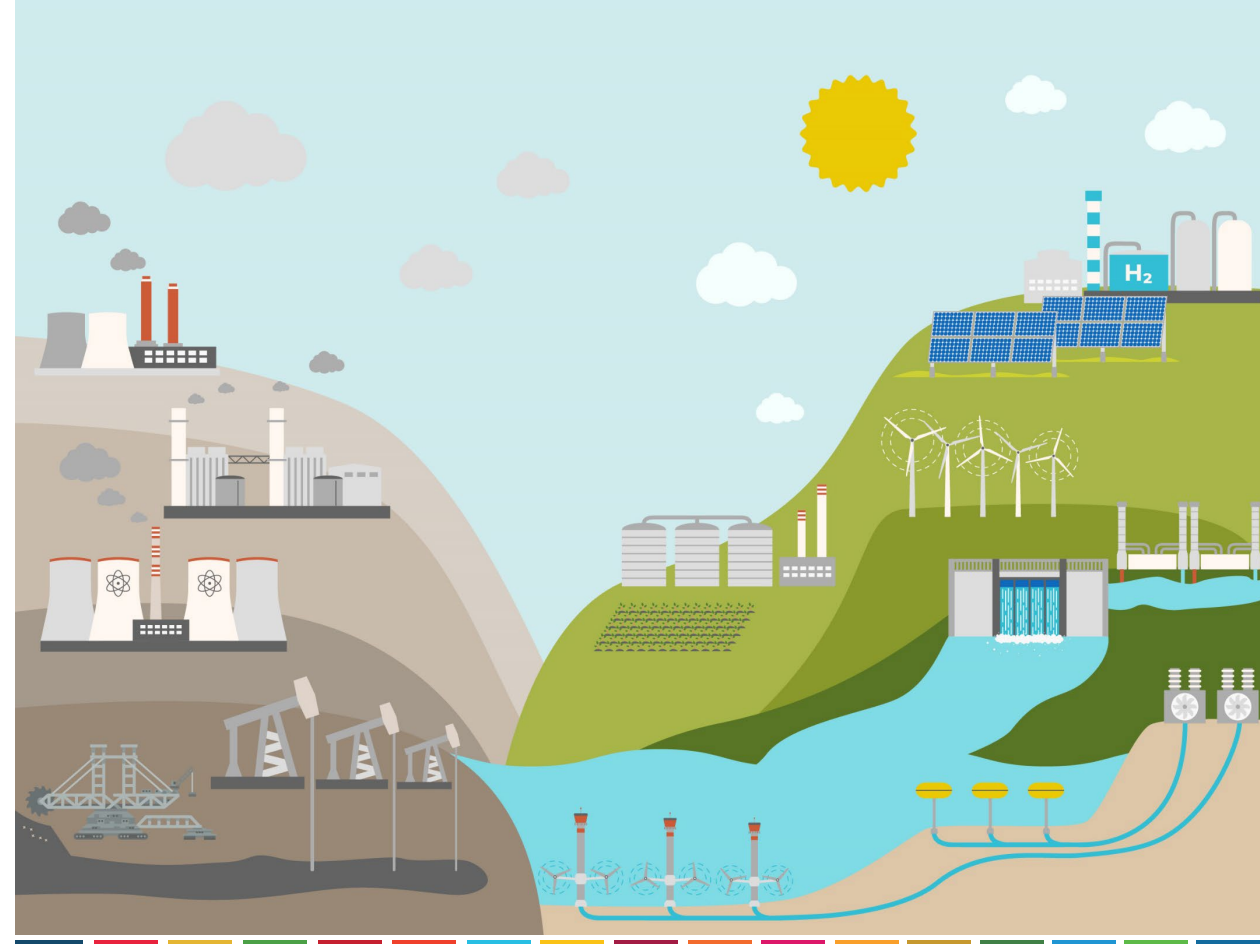


Ukrainian
Geological
Survey

MINERAL RESERVES AND RESOURCES CLASSIFICATION OF UKRAINE 2024



**Implementation
of the UNFC in Ukraine**



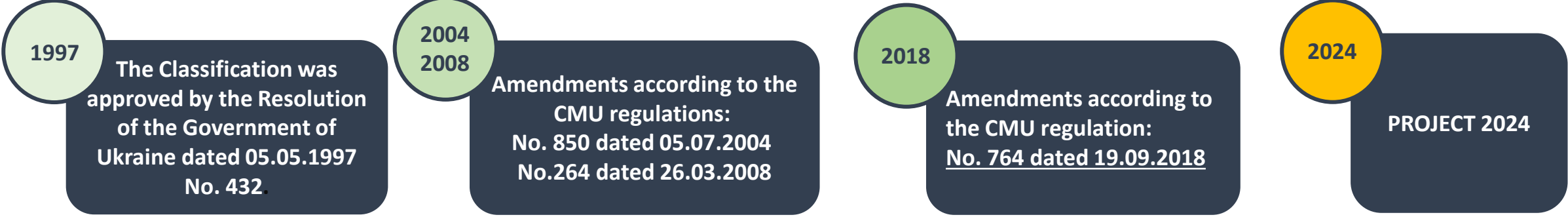
**RESOURCE MANAGEMENT WEEK
2024**



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CURRENT VERSION OF THE CLASSIFICATION IS A RESULT OF A LONG-TERM EVOLUTION OF VARIOUS CLASSIFICATION SYSTEMS



USSR Classifications

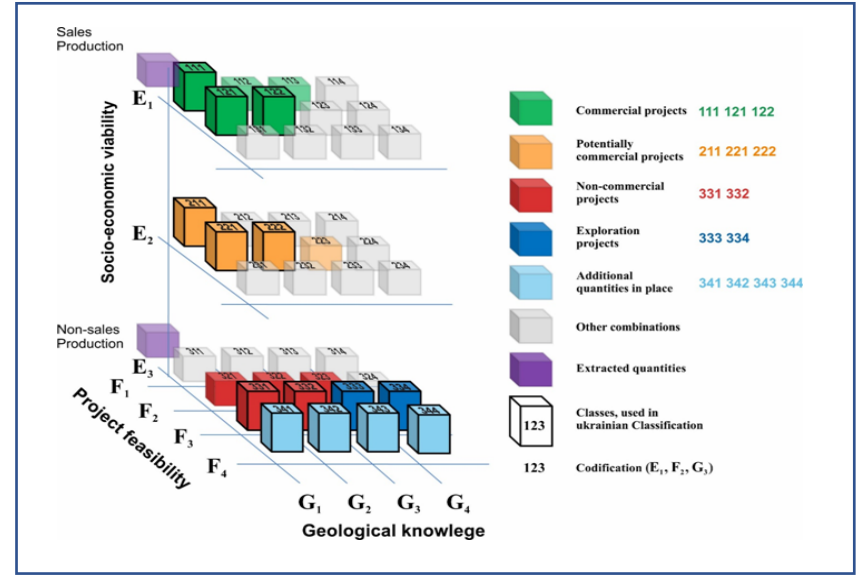
1981 (solid minerals),
1983 (oil and gas)

A B C₁

X

In 1997, Ukraine was the first country in Europe and worldwide to implement the UNFC standards at the state level.

✓



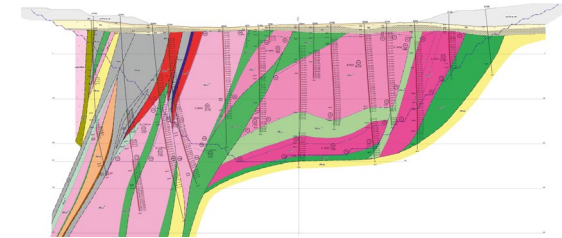


UNFC PRINCIPLES AND METHODOLOGICAL APPROACHES



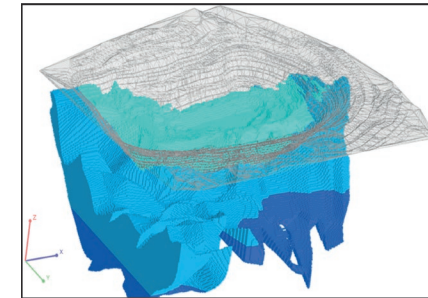
Exploration Targets
Exploration Results
Mineral Resources

E F G



Mineral Reserves
Scoping Study
Pre-feasibility Study
Feasibility Study

E F G



State Accounting of Mineral Deposits
Statistical Data on Production/Extraction
Statistical Data on Resources and Reserves
Licensing and Tax Policy

E F G





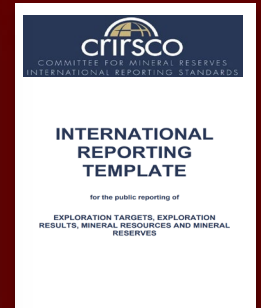
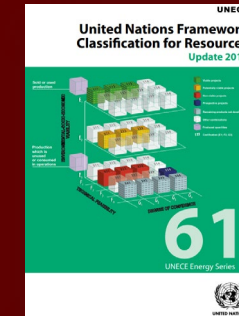
PREREQUISITES FOR THE UPDATE OF THE CLASSIFICATION OF MINERAL RESERVES AND RESOURCES



EXPANSION AND IMPROVEMENT OF SOCIAL AND ENVIRONMENTAL FACTORS INFLUENCING PROJECT'S VIABILITY



REGULATORY ASPECTS OF RESOURCE MANAGEMENT



UPDATE 2019 UNFC & CRIRSCO





EXPANSION AND IMPROVEMENT OF SOCIAL AND ENVIRONMENTAL FACTORS INFLUENCING PROJECT'S VIABILITY

1

Environmental, socio-economic study –
environmental protection, ecology
social development
economic efficiency



2

Technical and technological study –
development technology
enrichment technology
commodities production



3

Geological study –
quantity, quality and technological properties of mineral raw materials
geological, mining-geological and hydrogeological structure





REGULATORY ASPECTS OF RESOURCE MANAGEMENT

PROJECT

2024



SUBSOIL CODE OF UKRAINE

Bridging Documents Methodological guidelines

Unified data of the State Balance of Mineral Reserves on Critical Mineral Raw Materials

- UNFC
- CRIRSCO
- PRMS
- NEA/IAEA



Viabile Projects

Coking coal, Graphite, Manganese, Silicon metal, Titanium, Vanadium, Zircon

Potentially Viable Projects

Beryllium, Cobalt and Nickel, Copper, Hafnium, Lithium, REE, Scandium, Tantalum and Niobium

Prospective Projects

Aluminium, Barite, Fluorspar, Germanium, Magnesium, Strontium



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GRAPHITE DEPOSITS



Reserves of graphite ores and graphite are accounted for in the State Balance based on categories of geological study (G-axis) for 9 subsoil areas:

- ❑ *balance* $A+B+C_1$ – **224,778** thousand tonnes of ore, C_2 – **99,742** thousand tonnes of ore
- ❑ *off-balance* $A+B+C_1$ – **11,710** thousand tonnes of ore
- ❑ *conditionally balance* – **15,561** thousand tonnes of ore

In 2021, 17,000 tonnes were produced



HARMONIZATION AND COMPARISON OF CATEGORIES OF RESERVES AND RESOURCES OF GRAPHITE ORE DEPOSITS

Case #1

Objects that have been subjected to the state expertise



Crystalline graphite ore, thousand tonnes

Subsoil area / deposit	Preliminary accounting data from the State Balance	Confidence in commercial significance (E-axis)	Confidence in technological efficiency (F-axis)	Confidence in the degree of study (G-axis)	Results of the state expertise and proposal for accounting	
					Class code	UNFC
Zavallivske 1	B+C₁: 98612 C₂: 14612	Reserves were approved by the Protocol of the SCMR of Ukraine №4355 dated 19.04.2018	Acknowledged by the Protocol of the SCMR of Ukraine as prepared for further commercial development	Detailed exploration GEA-1 On Production	111 - 7712 211 - 15561	Viable projects
Balakhivske	B+C₁: 23936 C₂: 18469	Graphite ore reserves were approved by the Protocol of the SCMR of Ukraine №5420 dated 16.12.2021	Acknowledged by the Protocol of the SCMR of Ukraine as prepared for further commercial development	Detailed exploration GEA-1 On Production	111 - 22297 122 - 20356 331+332 - 26328	Viable projects
Burtynske 1	No assessment Detailed exploration	Graphite ore reserves were approved by the Protocol of the SCMR of Ukraine №915 dated 20.12.2004	Acknowledged by the Protocol of the SCMR of Ukraine as prepared for further commercial development	Detailed exploration GEA-1 On Production	111 - 113390 122 - 16586	Viable projects





HARMONIZATION AND COMPARISON OF CATEGORIES OF RESERVES AND RESOURCES OF GRAPHITE ORE DEPOSITS

Case #2

Objects that have not been subjected to the state expertise



Crystalline graphite ore, thousand tonnes

Subsoil area / deposit	Preliminary accounting data from the State Balance	Confidence (E-axis) (F-axis) (G-axis)	Results of applying the conversion methodology and proposal for accounting	
			Class code	UNFC
Zavallivske 2	A+B+C₁: 18950/1052 C₂: 14613/744	Reserves were approved by the Protocol of the SCMR of the USSR № 11046 (1991) Detailed exploration 1982-1991	221: 18950/1052 222: 14613/744	Potentially viable projects
Zavallivske 3	A+B+C₁: 6305/597	Reserves were approved by the Protocol of the SCMR of the USSR № 9100 (1982) Detailed exploration 1982	221: 6305/597	Potentially viable projects
Zavallivske 4	A+B+C₁: 37116/2282 Pillar: A+B+C₁: 4185/263	Reserves were approved by the Protocol of the SCMR of the USSR № 9100 (1982) Detailed exploration 1982	221: 37116/2282 Pillar: 331: 4185/263	Potentially viable projects
Zavallivske 5	A+B+C₁: 5028/310	Reserves were approved by the Protocol of the SCMR of the USSR № 9100 (1982) Detailed exploration 1982	221: 5028/310	Potentially viable projects
Zavallivske 6	A+B+C₁: 5177/322	Reserves were approved by the Protocol of the SCMR of the USSR № 9100 (1982) Detailed exploration 1982	221: 5177/322	Potentially viable projects
Petrivske	A+B+C₁: 7523/540 C₂: 1696/115	Reserves were approved by the Protocol of the SCMR of the USSR № 2156 (1958) Detailed exploration 1958	331: 7523/540 332: 1696/115	Prospective projects



RESULTS & COMMENTS

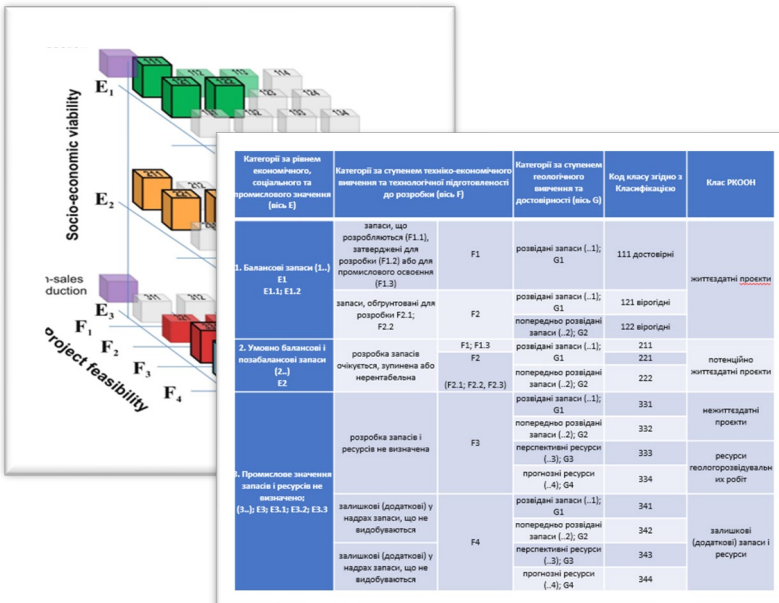


Introduction of percentage and numerical gradation of the degree of confidence and determination of project's mining and geological complexity **(development of additional specifications)**

Expansion of study during geological and economic assessment **(development of additional specifications for the methodology of geological and economic assessment)**

Provision of extended definitions of classification features according to the UNFC **(Text)**

Terminology update according to the UNFC **(Text)**



Consideration of amendments in the updated UNFC & CRIRSCO classification systems **(concept of “project”, specifications for new types of resources, reinterpretation of the E2 & F2 categories)**

Clarifications, definitions and criteria for the classification of reserves and resources **(Text, harmonization of the Classification with other regulatory and legal documents)**



THE VIEWS EXPRESSED ARE THOSE OF THE STATE COMMISSION OF UKRAINE ON MINERAL RESOURCES AND DO NOT NECESSARILY REFLECT THE VIEWS OF THE UNITED NATIONS.

Thank you!

STANISLAV LYTVYNIUK

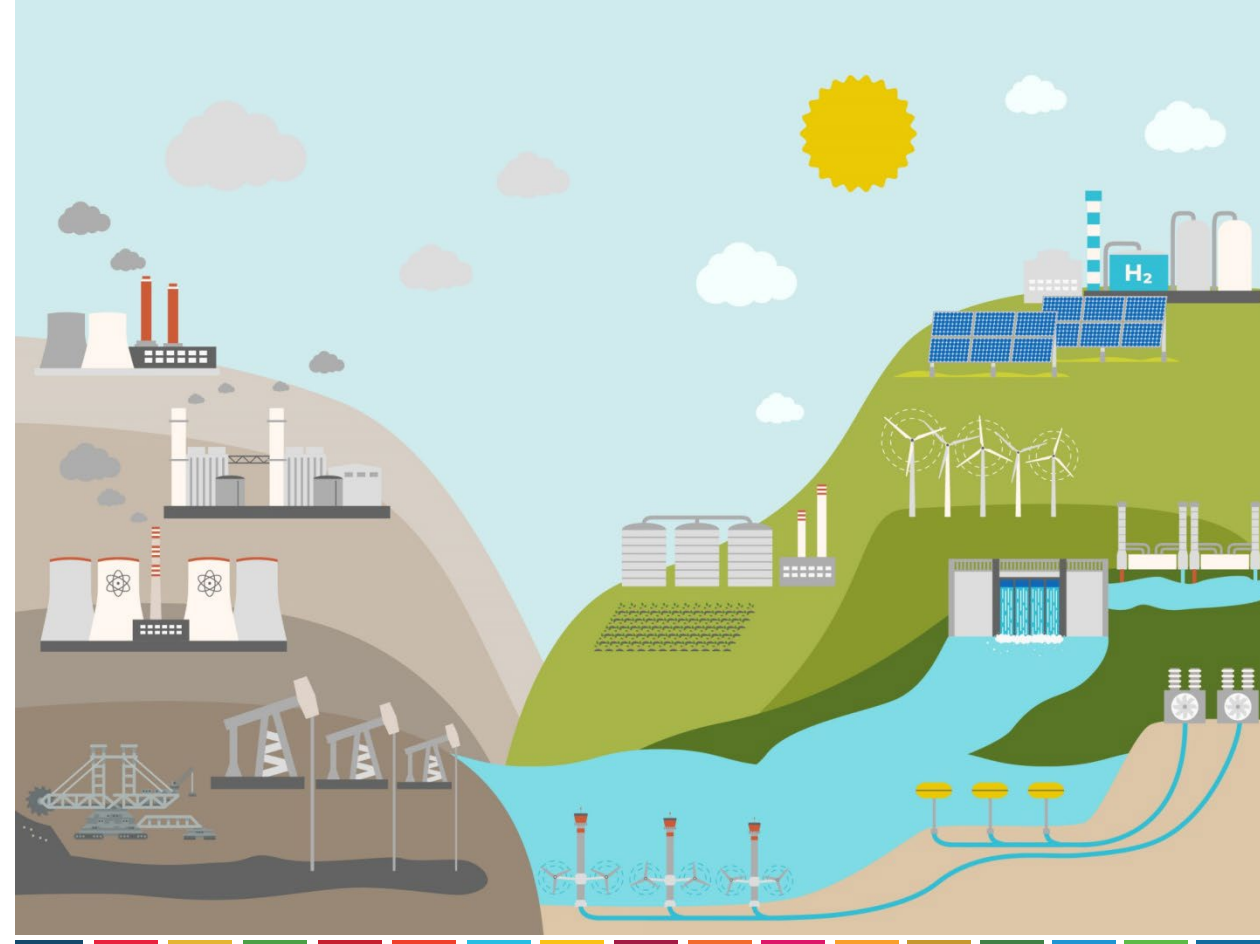
Deputy Chairman of the State Commission of Ukraine on Mineral Resources on Ore, Non-Metallic and Solid Combustible Minerals

SERGII PAIUK

Chairman of the State Commission of Ukraine on Mineral Resources

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22 April, 2024, Geneva



RESOURCE MANAGEMENT WEEK

2024



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