


Alignment of UNFC and Classification System of the Russian Federation

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On the job implemented by Russian experts

- The tasks set forth before Russian working groups:
 - Mapping of the UNFC and Classification of the Russian Federation
 - Developing methods and procedures to transfer reserve/resource data from the RF Classification to the Framework Document
 - Showing up specific features of reclassifying Russia's mineral and energy reserves/resources into UNFC
 - Choosing a format of presentation of resulting reclassification data
 - Identifying possible directions of further alignment of the RF reserves/resources classification system with the UNFC.

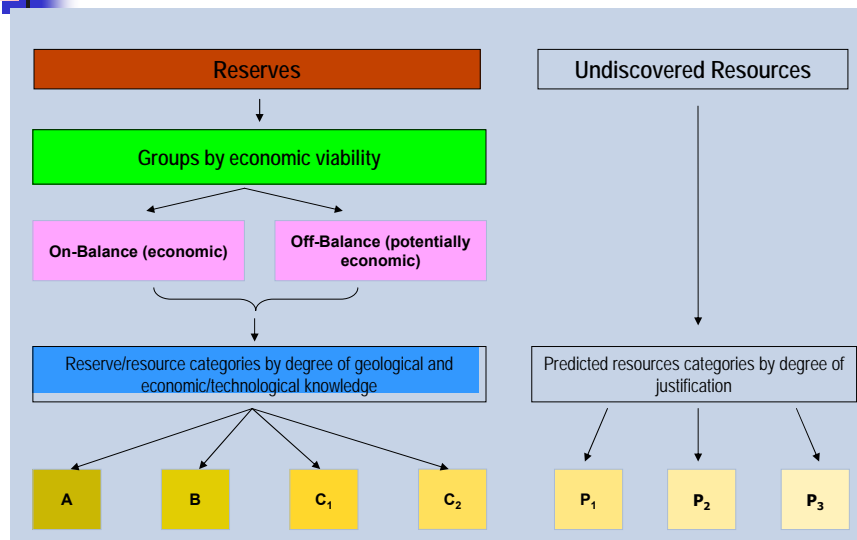
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On the job implemented by Russian experts

- As a result of the job implemented the similarity by three main criteria was established:
 - Economic viability (cost-effectiveness of production) of a deposit (accumulation)
 - Level of economic-technological knowledge of deposits and their maturity for production
 - Degree of geological knowledge.
- It was established that for the majority of UNFC reserve/resource categories a respective analog in the RF Classifications can be selected .

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RF Classification for Solid Minerals



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Comparison of reserve/resource categories for solid minerals by economic viability

Codes	Labels of reserve/resource categories and subcategories for solid minerals	
	UNFC	RF Classification
E1 <i>E1.1</i> <i>E1.2</i>	Economic <i>Normal Economic</i> <i>Exceptional Economic</i>	On-Balance (economic) <i>Not used</i> <i>Not used</i>
E2 <i>E2.1</i> <i>E2.2</i>	Potentially Economic <i>Marginal</i> <i>Submarginal</i>	Off-Balance (Potentially Economic) <i>Not used</i> <i>Not used</i>
E3	Intrinsically Economic	<i>Not used</i>

- The requirements for economic and potentially economic reserve/resource categories by economic viability as defined in UNFC and RF Classification are analogous.
- Subcategories E1.1, E1.2 and category E3 not singled out in the RF Classification.
- Subcategories E2.1, E2.2 not singled out in the RF Classification.

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Comparison of reserve/resource categories for solid minerals by degree of operational maturity

Codes	Labels of reserve/resource categories and subcategories for solid minerals	
	UNFC	RF Classification
F1 <i>F1.1</i> <i>F1.3</i>	Mining Report and/or Feasibility Study <i>Mining Report</i> <i>Feasibility study</i>	Feasibility Study of operational and/or permanent (development) cut-off limits <i>Feasibility Study (TEO) of operational cut-off limits</i> <i>Feasibility Study (TEO) of permanent (development) cut-off limits</i>
F2	Prefeasibility Study	Feasibility Study (TEO) of tentative (exploration) cut-off limits
F3	Geological Study	Technical- Economic Considerations (TES)

- The requirements for technical-economic knowledge by categories F1, F2, F3 and subcategories F1.1 and F1.3 in both classifications are analogous.

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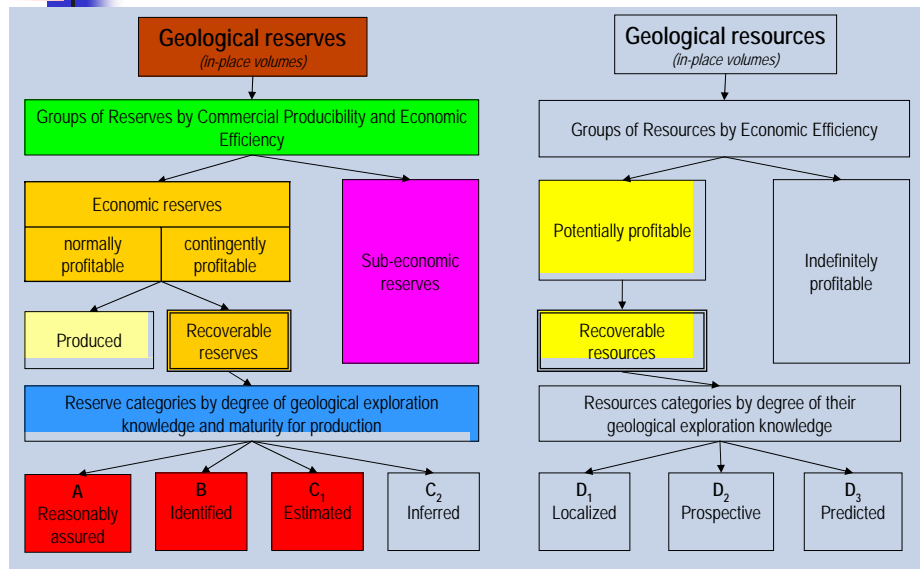
Comparison of reserve/resource categories for solid minerals by level of geological exploration knowledge

Codes	Labels of reserve/resource categories and subcategories for solid minerals	
	UNFC	RF Classification
G1	Detailed Exploration	Reserves of A, B and C ₁ categories
G2	General Exploration	Reserves of C ₁ and C ₂ categories
G3	Prospecting	Resources of P ₁ and P ₂ categories
G4	Reconnaissance Study	Resources of P ₃ category

- The requirements for geological exploration knowledge by categories G1, G2, G3 and G4 in both classifications are analogous.

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Scheme of the Russian Classification for petroleum



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Comparison of petroleum reserves/resources by economic viability (efficiency of recovery)

Codes	Labels of petroleum reserve/resource categories and subcategories	
	UNFC	RF Classification
E1	Economic Reserves/Resources	Economic Reserves
<i>E1.1</i>	<i>Normal Economic Reserves</i>	<i>Normal Economic Reserves</i>
<i>E1.2</i>	<i>Exceptional Economic Resources</i>	<i>Exceptional Economic Reserves</i>
E2	Potentially Economic Resources	Subeconomic Reserves
<i>E2.1</i>	<i>Marginal Resources</i>	<i>Not used</i>
<i>E2.2</i>	<i>Submarginal Resources</i>	<i>Not used</i>
E3	Intrinsically Economic Resources	Unrecoverable Reserves
<i>E3.1</i>	<i>Non Commercial Resources (Non-sales)</i>	<i>Not used</i>
<i>E3.2</i>	<i>Undetermined Resources</i>	<i>Not used</i>
<i>E3.3</i>	<i>Unrecoverable Resources</i>	<i>Unrecoverable Reserves</i>
-	<i>Not used</i>	Economic Recoverable Resources
-	<i>Not used</i>	Undetermined geological resources

- The principles of recognizing groups of reserves/resources remaining in the subsoil by economic viability in UNFC and RF Classification (2005) are analogous.
- Subcategories E2.1, E2.2, E3.1 and E3.2 not singled out in the RF Classification (2005).
- Economically efficient recoverable resources not evaluated in the UNFC.
- Category of "Undetermined geological resources" not recognized in the UNFC.

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Comparison of petroleum reserves/resources by degree or project maturity

Codes	Labels of petroleum reserve/resource categories and subcategories	
	UNFC	RF Classification
F1	Justified development and/or production project.	Preparation of the project technological documentation for development.
<i>F1.1</i>	<i>Project in production</i>	<i>Recoverable "A" category reserves in production, technological scheme and production plan being realized</i>
<i>F1.2</i>	<i>Committed Development Project</i>	<i>Recoverable "B+C₁" category reserves prepared for production; "C₁" category - in exploration.</i>
<i>F1.3</i>	<i>Uncommitted Development Project</i>	<i>"C₂" category identified.</i>
F2	Contingent development project	<i>Not used</i>
<i>F2.1</i>	<i>Under investigation</i>	<i>Not used</i>
<i>F2.2</i>	<i>Unclearified or On-Hold</i>	<i>Not used</i>
<i>F2.3</i>	<i>Not viable</i>	<i>Not used</i>
F3	Project undefined	<i>Not used</i>

- The requirements for technical-economic justification of a project development as formulated for F1 category and its subcategories are analogous in both classifications (except for F1.2 subcategory of UNFC not including "recoverable C₂ reserves of a deposit or its part").
- The other categories and subcategories being absent in the RF Classification.

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Comparison of reserve/resource categories for petroleum by level of geological knowledge

Codes	Labels of petroleum reserve/resource categories and subcategories	
	UNFC	RF Classification
G1	Reasonably Assured Geological Conditions	Category A – recoverable (proved) reserves under production
G2	Estimated Geological Conditions	Categories B + C₁ Category B – recoverable reserves of a field or its part (demonstrated) prepared for development Category C ₁ - recoverable reserves of accumulations (or their parts) under exploration (estimated)
G3	Inferred Geological Conditions	Category C₂ (inferred)
G4	Potential Geological Conditions	Economic, recoverable, localized, prospective and predicted resources <i>Category D₁ (localized)</i> <i>Category D₂ (prospective)</i> <i>Category D₃ (predicted)</i>
-	<i>Not used</i>	
-	<i>Not used</i>	
-	<i>Not used</i>	

- The requirements for geological exploration knowledge by categories G1, G2, G3 in both classifications are analogous. Those for G4 in the RF classification are graded by subcategories G4.1, G4.2, G4.3.

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Conclusion

- With the above taken into account, it is possible to declare with a good deal of confidence that there are no in principle discrepancies between Russian classifications and UNFC in the volume of information accommodated and disclosed in terms of economic viability of reserves/resources, technical/economic and geological exploration knowledge.

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