

United Nations Framework Classification for Fossil Energy and Mineral Resources (2008).

Short version

Part 1 – Explanatory Note

To be written last

Part 2 United Nations Framework Classification for Fossil Energy and Mineral Resources (2008) (UNFC-2008).

§1

The United Nations Framework Classification for Fossil Energy and Mineral resources (2008) applies to mineral resources and to energy resources of organic origin in the subsoil. It serves the needs for classification in energy policy formulation, government resources management, industry business process management and financial reporting.

§2

The total initial quantities in place at a given date are classified in:

1. Recovered quantities that have been sold
2. Recovered quantities that have not been sold
3. Discovered quantities that may be recovered in the future by extractive activities. Technical and commercial evaluation studies based on potential or confirmed recovery projects constitute the basis for the classification.
4. Additional discovered quantities in place
5. Undiscovered quantities that may be recovered in the future provided that the potential discovery is confirmed.
6. Additional undiscovered quantities in place.

Material balance is maintained. For this purpose a reference point shall be established where the amount of recovered quantities are determined.

With the exception of past production that may be measured, quantities are estimated. There will be a degree of uncertainty associated with the estimates. The uncertainty is communicated either by three discrete scenarios or outcomes (low, best and high estimates) or by quoting incremental quantities of decreasing levels of confidence. The former approach is commonly used in petroleum, while the latter method is typically applied for solid minerals. A low estimate scenario is directly equivalent to a high confidence estimate, whereas a best estimate scenario is equivalent to the aggregation of the high confidence and moderate confidence estimates. A high estimate scenario is equivalent to the aggregation of high, moderate and low confidence estimates. All estimated quantities may be communicated as a probability density function.

Discovered quantities that may be recovered in the future are subdivided in quantities that are forecasted to be sold and quantities that are forecasted to be extracted but not sold.

Potentially recoverable quantities are recovered through projects that are contingent on one or more conditions to be fulfilled. Contingent projects are classified into projects for which the social and economic conditions are expected to be acceptable

for implementation and those where they are not. In the former case, contingency is caused by the recovery project not being sufficiently matured to confirm technical and/or commercial feasibility, which can then provide the basis for a commitment to produce and sell the commodity at a commercial scale. In the latter, neither the project nor the economic and social conditions are sufficiently matured to indicate a potential for commercial recovery and sale. A deposit or an accumulation may give rise to several projects with different status.

§3

Quantities are classified on the basis of the three fundamental criteria of economic viability (E), field project status and feasibility (F) and geological knowledge (G) using a numerical coding system. Categories (e.g. E1) and, in some cases, sub-categories (e.g. E1.1) are defined for each of the three criteria as set out and defined in Enclosure 1. A “class” is then defined uniquely by selecting the appropriate level (category or sub-category) for each of the three criteria, with level 1 being the most “attractive”. Since the codes are always quoted in the same sequence (i.e. E; F; G), the letters may be dropped and just the numbers retained. The three numbers defining a class are then identical in all languages using Arab numbers.

A class is defined by a particular combination of a category or sub-category for each of the three criteria. The first set of categories (the E axis) designates the maturity of social and economic conditions in furthering recovery, including market prices, legal, regulatory and contractual conditions. The second set (the F axis) designates the maturity of commitments to implement mining plans and/or exploration, development and production projects. These extend from early exploration efforts before an accumulation or deposit has been confirmed to exist through to a project that is producing and selling a commodity. They reflect standard value chain management principles. The third set of categories (the G axis) designates the level of certainty in the knowledge of the quantities.

The categories are conveniently presented in three dimensions as shown in Figure 1.

While there are no explicit restrictions on the possible combinations of E, F and G categories or sub-categories, only a limited number will generally be applicable.

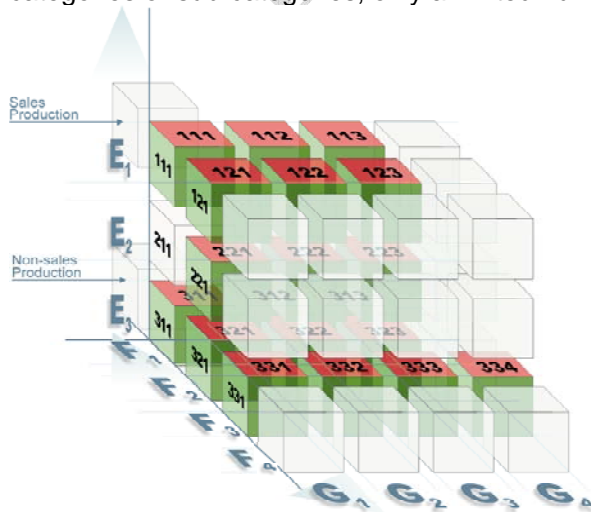


Figure 1 The categories.

§5

Other classifications can be produced by choosing appropriate combinations of categories, or by grouping or further subdividing the categories. This permits the harmonization of resources inventories that are developed on the basis of different classification systems.

§6

Classifications often need to be adapted to national or local needs. UN recommended applications of this nature need to be checked for consistency with the UNFC and other applications in use.

Enclosure 1 Definition of categories

Category / Sub-category	Definition
E1	Extraction and sale is economically¹ viable. Refer to definitions of E1.1 and E1.2.
E1.1	Extraction and sale is economic on the basis of current market conditions and realistic assumptions of future market conditions. ² Economic viability is not affected by short-term adverse market conditions provided that longer-term forecasts remain positive.
E1.2	Extraction and sale is not economic on the basis of current market conditions and realistic assumptions of future market conditions, but is made viable through government subsidies and/or other considerations.
E2	Extraction and sale has not yet been confirmed to be economically viable. Refer to definitions of E2.1 and E2.2.
E2.1	Extraction and sale has not yet been confirmed to be economic but, on the basis of realistic assumptions of future market conditions, there are reasonable prospects for economic extraction in the foreseeable future.
E2.2	Extraction and sale is not economic on the basis of realistic assumptions of future market conditions, and eventual economic extraction would require a substantial improvement in market conditions.
E3	Extraction and sale is not economic or economic viability has not yet been determined. Refer to definitions of E3.1, E3.2 and E3.3.
E3.1	Extraction without sale.
E3.2	Economic viability of extraction has not yet been determined.
E3.3	Currently considered to have no potential for eventual economic extraction.
F1	A technically and commercially feasible development project has been confirmed. Refer to definitions of F1.1, F1.2 and F1.3.
F1.1	Extraction is currently taking place.
F1.2	All necessary approvals have been obtained, capital funds have been committed, and implementation of the development project is under way.
F1.3	Implementation of the development project is commercially justified and there are reasonable expectations that all necessary approvals/contracts will be obtained.
F2	A potential development project has been identified, but technical and commercial feasibility has not yet been confirmed. Refer to definitions of F2.1, F2.2 and F2.3.
F2.1	Project activities are ongoing to justify development in the foreseeable future.
F2.2	Project activities are on hold and/or where justification as a commercial development may be subject to significant delay.
F2.3	There are no current plans to develop or to acquire additional data at the time due to limited potential.
F3	Project evaluation is at too early a stage to determine technical and commercial feasibility.
F4	Additional quantities in-place.
G1	Quantities associated with a known deposit that can be estimated with a high level of confidence.
G2	Quantities associated with a known deposit that can be estimated with a moderate level of confidence.
G3	Quantities associated with a known deposit that can be estimated with a low level of confidence.
G4	Estimated quantities associated with a potential deposit, based primarily on indirect evidence.

¹ The term economically encompasses economic (in the narrow sense) as well as legal, regulatory, contractual and other socially determined conditions that need to be met.

² Market conditions are defined to include prices, costs, legal/fiscal framework, environmental, social and other non-technical factors that directly impact economic viability.