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**Specifications for the application of the United Nations
Framework Classification for Fossil Energy and Mineral
Reserves and Resources 2009 (UNFC-2009)**

Draft report prepared by the Specifications Task Force¹

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¹ This draft document has been prepared as the “basis for discussion” at the second session of the Expert Group on Resource Classification and does not, as yet, represent a consensus view of the Specifications Task Force Phase Two. There are a number of issues that are subject to significant divergence of opinions at this time, and the intention of releasing this draft document is to open up the discussion to the Expert Group in order to obtain additional feedback on the appropriate way forwards, before attempting to achieve a consensus within the Specifications Task Force. In addition, both the Committee for Mineral Reserves International Reporting Standards (CRIRSCO) and the Society of Petroleum Engineers (SPE) have identified specification issues raised by UNFC stakeholders that they wish to consider further from a commodity-specific perspective. No final recommendations will be made by the Specifications Task Force until that process has been completed.

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I. Introduction

1. At its eighteenth session in November 2009, the Committee on Sustainable Energy approved the final text of the United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources 2009 (UNFC-2009). The text of UNFC-2009 is being published as an Economic Commission for Europe (ECE) publication; ECE/ENERGY/85 and ECE Energy Series No. 39 in the six languages of the United Nations (Arabic, Chinese, English, French, Russian and Spanish).

2. The principal objective of UNFC-2009 is to enhance international communication by providing a simple, generic classification framework for the reporting of fossil energy and mineral reserves and resources, even though such estimates may have been generated using classification or reporting systems that: (i) may use different terminology for comparable estimates, or the same terminology with different meanings; (ii) incorporate application guidelines that are commodity-specific; and, (iii) may reflect the extraction of solids by mining or the production of fluids through wells. UNFC-2009 has been developed to meet, to the extent possible, the needs of applications pertaining to international energy and mineral studies, government resource management functions, corporate business processes and financial reporting standards.

3. A key benefit of UNFC-2009 is the potential to provide a common basis for the minerals and petroleum sectors, whose classification systems have been developed primarily for the mining of solids and the production of fluids respectively, but which now must address the increasing overlap between the two extractive industries. Examples of this overlap include the mining of natural bitumen or coal for processing into synthetic oil or gas, and the production of minerals as fluids, such as the in-situ leaching of uranium.

4. At the first session of the Expert Group on Resource Classification in April 2010, it was agreed that generic specifications would be developed for UNFC-2009, but only to the extent considered necessary to achieve an appropriate level of consistency in the reporting of reserve and resource estimates under UNFC-2009. Specifications that were considered necessary for particular commodities would not be addressed, as these were agreed to be more appropriately incorporated in existing commodity-specific classification systems. Consequently, in addition to the provision of generic specifications, there was also a need to establish a linkage between UNFC-2009 and such commodity-specific systems so that the appropriate specifications are applied at a commodity level for the purpose of resource assessment. The framework for this linkage is discussed in Section II, below.

5. In Section III, the issue of disclosure is addressed, noting that UNFC-2009 is a voluntary system that does not mandate specific categories of resources to be disclosed. Generic specifications are provided in Section IV. These are considered necessary to ensure that resource quantities (for any commodity) that are reported as UNFC-2009 compliant are sufficiently comparable to provide meaningful information to users of such data.

6. Governance of UNFC-2009 and its specifications is the responsibility of the Technical Advisory Group, which reports to the Expert Group on Resource Classification.

7. A Glossary of Terms is included (in Annex I), but is limited to those terms for which definitions are not already adequately provided in other published documents.

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II. Relationship with other resource classification systems

8. UNFC-2009 has been aligned with two other classification systems, which facilitates the reporting of the same resource quantities under either UNFC-2009 or the aligned system. The two systems are the CRIRSCO Template of 2006² developed by the Committee for Mineral Reserves International Reporting Standards (CRIRSCO), and the reporting codes and standards that are based on it, and the Petroleum Resources Management System of 2007 (SPE-PRMS³) developed by the Society of Petroleum Engineers (SPE), World Petroleum Council (WPC), American Association of Petroleum Geologists (AAPG) and the Society of Petroleum Evaluation Engineers (SPEE).

9. The CRIRSCO Template (and the codes/standards based on it) and SPE-PRMS are independent from UNFC-2009 and may be mandatory for reporting purposes in some jurisdictions or in particular circumstances. This UNFC-2009 specifications document has no bearing whatsoever on such mandatory reporting requirements or on the independent application of these other systems/codes/standards.

10. However, since these systems are aligned with UNFC-2009, resource quantities may be generated using the principles and detailed commodity-specific guidelines applicable to those systems and then reported using the UNFC-2009 Classes and Numerical Codes, provided that the UNFC-2009 specifications documented herein are also honoured. The requirement to comply with these UNFC-2009 specifications is mandatory for all external (public) reporting of quantities that are claimed to be compliant with UNFC-2009. This requirement is necessary in order to ensure that resource quantities that are reported under a specific UNFC-2009 Class or Code can be relied upon to be comparable, regardless of the underlying basis for the estimate.

11. The relationship between UNFC-2009 and the CRIRSCO Template, and between UNFC-2009 and SPE-PRMS, is illustrated in Annex II and Annex III, respectively.

12. It is hoped that additional classification systems will be mapped to UNFC-2009 in the future and, where possible, their alignment established.

III. Disclosure

13. UNFC-2009 is a voluntary system and does not impose any rules regarding which categories of resources (Classes or Sub-classes) that should be disclosed. Unless mandated or restricted by a government or other regulatory body, the disclosure of resource quantities under UNFC-2009 is entirely at the discretion of the reporter. However, in order to ensure that those quantities that are disclosed will provide meaningful information to users of resource information, certain specifications are included below for the purpose of ensuring clarity and comparability. In some cases, these specifications can be appropriately addressed through the use of footnotes to the resource report.

² www.crirSCO.com

³ www.spe.org

IV. Generic specifications

14. In these generic specifications, the following words have specific meanings:

- “Shall” is used where a provision is mandatory;
- “Should” is used where a provision is preferred; and,
- “May” is used where alternatives are equally acceptable.

A. Use of numerical codes

15. While the defined Classes and Sub-Classes shown in Figures 2 and 3 of UNFC-2009 may be used as supplementary terminology, the relevant Numerical Code(s) shall always be reported in conjunction with each resource quantity. For example, these may be documented in the form 111, 111+112, or 1.1;1.2;1, as appropriate. (Examples of possible reporting formats and the use of combined categories, such as G1+G2, are shown in Annex IV, and an illustration of the relationship between primary classes of UNFC-2009 is included as Annex V.)

B. Effective date

16. Reported quantities are estimates of remaining quantities as at the Effective Date of the evaluation. The Effective Date shall be clearly stated in conjunction with the reported quantities. The evaluation should take into account all data and information available to the evaluator prior to the Effective Date. Material exceptions shall be documented.

C. Commodity or product type

17. Estimated quantities should be reported separately for each commodity or product type that will be sold, transferred or disposed of separately. Where estimates for different commodities or product types have been aggregated for reporting purposes, the estimates shall be accompanied by a statement clarifying which commodities or product types have been aggregated.

D. Basis for estimate

18. Reported quantities may be those quantities attributable to the project as a whole, or may reflect the proportion of those quantities that are attributable to the reporting entity’s participating interest in the mining operation or project. The reporting basis shall be clearly stated in conjunction with the reported quantities. Royalty obligations are generally classified as a cost of operations and are not deducted from reported quantities. Exceptions shall be documented.

E. Reference point

19. Reported recoverable quantities are estimates of quantities of the stated commodity that are expected to be sold, transferred or disposed of at a Reference Point from the

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Effective Date forward for each mining operation or project. Typically, the Reference Point is either the point of sale of the commodity or the point at which it is deemed to have been sold for regulatory, fiscal or accounting reasons. Exceptions shall be documented.

F. Classification of projects based on level of maturity

20. Where it is considered appropriate or helpful to sub-classify projects to reflect different levels of project maturity, based on the probability associated with the project proceeding and the estimated quantities eventually being sold, transferred or disposed of, the optional Sub-classes shown in Figure 3 of UNFC-2009 may be adopted for reporting purposes.

G. Distinction between E1, E2 and E3

21. The distinction between quantities that are classified on the Economic axis as E1, E2 or E3 is based on the phrase “reasonable prospects for economic extraction and sale in the foreseeable future”. The definition of “foreseeable future” can vary depending on the commodity and hence more detailed specifications can be found in relevant commodity-specific systems that have been aligned with UNFC-2009.

H. Confidence levels for G1, G2 and G3

22. The level of confidence for quantities that are classified on the Geological axis as G1, G2 and G3 is defined as “high”, “medium” and “low”, respectively. These are not specified more precisely at a generic level because there are fundamental differences between the approaches that are appropriate for commodities extracted as solids and those extracted as fluids, as discussed in the Supporting Explanation to the definitions of these categories in UNFC-2009. More detailed specifications can therefore be found in relevant commodity-specific systems that have been aligned with UNFC-2009.

I. Distinction between recoverable quantities and in situ (in-place) quantities

23. Other than quantities that are classified on the Feasibility axis as F4, all quantities are considered to be potentially recoverable on the basis of existing technology and are associated with actual or possible future exploration/development projects or mining operations.

J. Aggregation of quantities

24. Estimated quantities associated with mining operations or projects that are classified in different categories on the Economic or Feasibility axis shall not be aggregated with each other without due consideration of: the probability that the project may never achieve E1 and F1 status; dependencies between projects, where relevant, in order to avoid “double-

counting”; and, the portfolio effect when aggregating estimates that incorporate probabilistic ranges of uncertainty.⁴

K. Economic assumptions

25. In accordance with the definitions of E1, E2 and E3, economic assumptions shall be based on current market conditions and realistic assumptions of future market conditions. Assumptions of future market conditions may reflect either: (i) an internal company view; (ii) the view of a Competent Person;⁵ or, (iii) an externally published independent view, which is considered to be a reasonable forecast of future market conditions.⁶

L. Competent person

26. Reported quantities should be derived and/or approved by a Competent Person. As a minimum standard, a Competent Person must:⁷

(a) Be a member in good standing of a recognised professional body that requires its members to comply with the professional standards of competence and ethics prescribed by that organisation that are relevant to the estimation and classification of quantities of commodities or product types being reported; and,

(b) Have a minimum of five years’ experience relevant to the estimation and classification of quantities of commodities or product types that are being reported and, in addition, such experience must have reflected the same type and nature of deposits in which the reported commodities or product types are located.

M. Undiscovered and unconventional uranium and thorium resources

27. Requires further input from appropriate experts.

N. Units and conversion factors

28. In order to facilitate comparability of resource estimates it is recommended that the Système International d’Unités (SI units) is used for reporting of resource quantities. However, it is recognized that there are traditional measurement units that have historically been used for certain commodities; where such non-SI units are used, conversion factors to SI units should also be provided. Similarly, where quantities are converted from volume or mass to energy equivalents, or other conversions are applied, the conversion factors should be documented.

⁴ Note that regulatory bodies may explicitly preclude such aggregation under any circumstances.

⁵ See definition of Competent Person, below

⁶ Note that regulatory bodies may explicitly require the use of a forecast that is constrained to current market conditions

⁷ Note that regulatory bodies may impose additional requirements and/or restrict recognized professional bodies to specific, named, organizations.

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O. Documentation

29. Estimates of resource quantities shall be supported by full documentation of the methodology used and the assumptions that were made in the evaluation. However, the extent to which such information is disclosed publicly is entirely a matter for the reporter unless otherwise specified by the relevant regulatory body or required to meet other contractual obligations.

Annex I

Glossary of Terms

Still to be prepared.

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Annex II

Relationship between UNFC-2009 and the CRIRSCO Template

Still to be prepared.

Annex III

Relationship between UNFC-2009 and SPE-PRMS

Still to be prepared.

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Annex IV

Examples of reporting resource quantities using UNFC-2009

Still to be prepared.

Annex V

**Illustration of relationship between primary classes of UNFC-
2009**

Still to be prepared.
