

Application of United Nations Framework Classification –2009 (UNFC-2009) to nuclear fuel resources

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Nuclear energy currently provides approximately 15% of the world's electricity, utilized in about 30 countries. As many countries are planning to expand capacity or introduce nuclear power into the energy mix, the demand for uranium fuel is expected to increase. Reactors suitable for utilizing thorium as fuel are also being developed for deployment in the long-term.

Since nuclear power is capital intensive and uranium feedstock is required for a nuclear reactor life of between 40 and 60 years, operators need assurance of a reliable uranium supply. Comprehensive and up-to-date information on the worldwide supply of nuclear fuel resources is therefore essential for planning and implementation of nuclear power programmes. Information on resources are provided through the bi-annual Organisation for Economic Co-operation and Development / Nuclear Energy Agency –International Atomic Energy Agency (OECD-NEA/IAEA) report "Uranium: Resources, Production and Demand"(the "Red Book") and the online datasets of World Distribution of Uranium Deposits (UDEPO) and World Thorium Deposits and Resources (ThDEPO).

Two international classification and reporting systems have been used for uranium and thorium deposits. These systems are 1) the Committee for Mineral Reserves International Reporting Standards (CRIRSCO) Template, and 2) the OECD-NEA/IAEA resource classification schema. The CRIRSCO Template is the most recently developed international standard for the reporting of exploration results, mineral resources, and mineral reserves. The Template is based on a number of compatible and consistent national or regional reporting standards and represents the current international best practice for public reporting by companies. The NEA/IAEA schema was developed for classifying and reporting individual, regional, national and international uranium/thorium resource estimates. The NEA/IAEA schema reports uranium resource estimates in different categories based on geological confidence and the expected cost of recovery. The UNFC system is an alternative to these two systems, and has been developed to be compatible with both energy mineral and oil and gas resource reporting schema.

The United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources 2009 (UNFC-2009) is a project-based system that applies to all fossil energy and mineral reserves and resources. It has been designed to meet, to the extent possible, the needs of applications pertaining to energy and mineral studies, resource management functions, corporate business processes, and financial reporting standards. Bridging documents have been developed to explain the relationship between UNFC-2009 and the other classification schema such as the CRIRSCO Template and the NEA/IAEA schema.

It is desirable that uranium resource estimates are reported in a manner that are universally understood and accepted. The bridging document between NEA/IAEA and UNFC-2009 explains the relationship between these two systems and provides instructions on how to classify estimates generated by the NEA/IAEA scheme using UNFC numerical codes. The bridging document will facilitate mapping of results between the two schemes in a consistent manner. Alignment with UNFC-2009 will assist in communications, especially where issues of socio-economic viability of a resource is considered. The alignment of company reporting to UNFC-2009 will also ensure consistent aggregation of quantities in national governmental and international reporting. Application of UNFC-2009 is expected to support the accurate and transparent management of resources throughout the uranium production life-cycle.

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