

International Nuclear Energy Research Initiative

U.S. DEPARTMENT OF ENERGY
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ABSTRACT

Proliferation Resistance and Physical Protection Assessment Methodology

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An expert group for the development of an *Evaluation Methodology for Proliferation Resistance and Physical Protection (PR&PP) of Generation IV Nuclear Energy Systems* reporting to the Generation IV International Forum (GIF) Expert Group created in December 2002. During the first year of operation, the PR&PP developed a methodological approach for the assessment of Generation IV nuclear energy systems for proliferation resistance and physical protection robustness.

Current development has progressed to the point of defining the overall methodological approach, the segmentation of the assessment in three basic elements (threats, methods, measures), and the establishment of the approach to performing each of the three elements. The implementation of each of the elements, however, has not been defined, and only guidelines for the implementation have been provided. The specific implementation of the methodology needs to be completed with the conduct of a development study.

Beginning in calendar year 2004, the conceptual framework developed by the group will be tested and its implementation developed with the use of a specific sample case (development study). This will assure that the methodology has the appropriate emphasis and structure for subsequent use by Generation IV program policy makers and concept design teams.

A critical element of the completion of the methodology will be to establish the relationships between the system characteristics and the PR&PP measures. Therefore, sufficient detail about the system characteristics is needed to permit the test application to progress beyond the initial phase.

The scope of the proposed collaborative project is the performance of the development study and the update of the PR&PP assessment methodology during approximately the first year, followed by a demonstration study with the updated methodology in the second year, and the application of the verified methodology to Gen IV systems in coordination with development teams.
