

Abstract for Session IV, UCOP Asia-Pacific Forum

R&D required for closing the nuclear fuel cycle

Harold McFarlane, 3:15-3:30 p.m., Friday, June 13, 2008

The minimum requirement for closing the fuel nuclear cycle is reprocessing the used nuclear fuel from power plants to recover some or all of the remaining energy potential. The basic process has been demonstrated at commercial scale for more than 50 years. Commercial reprocessing has been industrialized in France, the UK and now Japan, with experience in several more countries. R&D to support this conventional approach, which uniquely targets LWR fuel, primarily addresses evolutionary process improvements to reduce costs. However, closing the fuel cycle in a manner that will promote the sustainability of nuclear power will require R&D that begins at a much more fundamental level. The goal is to develop a truly sustainable nuclear system, which involves more sophisticated spent fuel separations technology, Generation-IV reactors, and waste packages compatible with structured geologic repositories.