

Global Laser Enrichment: Uranium Enrichment using Advanced Laser Technology

Uranium Enrichment Services

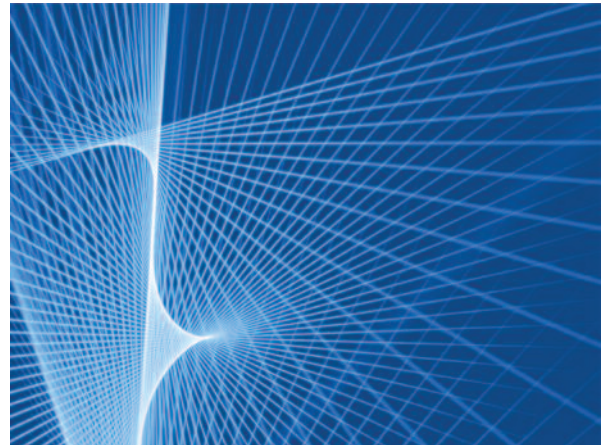
To enhance our ability to better serve our nuclear energy customers through expanded nuclear fuel services, GE Hitachi Nuclear Energy (GEH) is developing uranium enrichment services capability with its subsidiary, Global Laser Enrichment (GLE). As the nuclear energy industry expands globally and the demand for enriched uranium increases, GLE is planning a consistent and secure source of uranium enrichment services.

GEH's GLE business has exclusive rights to commercially develop the SILEX laser isotope separation process technology under an agreement reached with Silex Systems Limited of Australia in early 2006. In October 2006, GEH received the required U.S. government authorizations to proceed with the technology exchange. Since that time, GLE has relocated equipment and key personnel from Australia to its Wilmington, NC facility.

A Phased Approach for Success

GLE is implementing a phased approach to commercializing the laser enrichment technology with three key stages: completion of a test loop; construction of the initial commercial cascade; and finally, construction of a full-scale commercial production facility.

The construction of the test loop is already underway at GEH's existing nuclear energy headquarters and technology site in Wilmington, NC. Final design and procurement activities for equipment for the test loop demonstration are proceeding. The GLE test loop is intended to confirm full-scale facility parameters required for the construction of a larger scale commercial facility.



A facility license amendment request to the U.S. Nuclear Regulatory Commission (NRC) to support the operation of the test loop has been submitted. The NRC has begun the review process for the license amendment request, and GLE anticipates approval of the amendment in late 2007.

In parallel with the GLE work on the Test Loop, the company is also evaluating potential sites for locating the commercial production facility. Part of the site selection includes the completion of the commercial production facility environmental and safety analyses required to support an NRC license application submittal for a commercial production facility.

While the path to constructing full-scale commercial GLE production facilities is subject to government and other approvals and a successful test loop demonstration, the next planned phase is an initial commercial cascade with an estimated production capacity of one million Separative Work Units (SWU) per year.

GEH plans to deploy a commercial enrichment facility as early as 2012, with an increase of approximately one million SWU per year thereafter. The initial commercial cascade would then be expanded in modules to a larger commercial facility, with an expected capacity of 3.5 to 6 million SWU per year.



Third-Generation Enrichment Technology

Uranium hexafluoride is vaporized into a gaseous form and exposed to a laser beam that preferentially excites the $^{235}\text{UF}_6$ isotope, which enables separation of natural uranium into enriched and depleted uranium. The process operation, while technically complex, is potentially more efficient than existing second-generation centrifuge enrichment technology.

The GLE process technology for laser enrichment of uranium involves classified and controlled information up to and including the "Secret-Restricted Data" level and is protected by the U.S. and Australian governments in accordance with the Silex Treaty, effective May 24, 2000 and U.S. law. Access to the technology requires a true "need to know", a "Q Clearance" (or the equivalent Department of Defense "Top Secret" clearance), and U.S. Citizenship.



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