ENRICHMENT:
GLE Years From Production

Although in 2008 GE-Hitachi Nuclear Energy (GEH) declared that it expected to see its Global Laser Enrichment (GLE) technology go into commercial production in 2012, it now appears that this may be delayed by up to half a decade.

GEH expects a final license for the innovative technology to be issued by the US Nuclear Regulatory Commission (NRC) in the third quarter of 2012, but the project is still in a testing phase that will take “years to complete.” Moreover, GEH and Cameco, its 24% partner in the project, have yet to make a final decision on whether to construct a commercial facility.

“The decision [on commercialization] will be made after further testing is completed, regulatory approval of the technology is achieved, and analysis of the market conditions is finalized,” GEH spokesman Michael Tetuan wrote in an e-mailed response to NIW questions.

Debating the Schedule

Tetuan declined to discuss production start dates and timetables, saying they are “commercially confidential information.” GLE originally had a start-up date of 2012 and a target production capacity anywhere between 3.5 and 6 million separative work units (SWU) per year (NIW May ’08). The sense around the industry now is that GEH wants to move forward with limited commercial production in the 2016-2017 timeframe and have SWU production ramped up to about 3 million by 2020.

That coincides with a statement by Cameco. “GLE is continuing with the testing phase. We expect this process will take a couple of years to complete, due to the sophistication of this advanced technology,” company spokesman Rob Gereghty told NIW by e-mail. “The Test Loop continues to operate and we are pleased with results to date. We are in the process of scaling up components for further testing and finalizing the design for the commercial facility.”

The facility’s environmental impact statement and safety evaluation report should be handed down by the NRC by the end of February, Tetuan said. That will be followed by hearings before the Atomic Safety Licensing Board, which will precede the final licensing.

But possessing a license is a far cry from starting production, and even a 2016-2017 timeframe for the latter seems like a reach to some participants and observers of the industry. Several market participants noted that they have yet to hear any contracts being signed for SWU production from GLE. Moreover, there’s very little excess enrichment demand over the next several years. Could this mean that the delayed production start might be at root a commercial decision? Possibly. But one industry observer indicated that production is likely to ramp up slowly. If that’s the case, GLE would need very few contracts initially.

“Bringing up technology production is a major undertaking — it took Urenco 20 years to do it,” said one knowledgeable industry source. Engineers at competing enricher Usec “have been at it 10-15 years and still haven’t gotten there. The [GLE] technology works but it’s a matter of getting production-scale equipment. I think they’re in this ‘producibility’ loop.”

The industry observer believes that GLE might produce a commercially viable product “sooner rather than later.” GLE is a different technology than the centrifuge technologies used by Urenco and Usec with the American Centrifuge Plant (ACP), making a comparison of GLE to those very poor. The technology has also been around for a long time: it was first developed in the 1990s as Silex by Australia’s Silex Systems Limited, which then worked jointly on the project for six years with Usec. Three years after Usec walked away from Silex in favor of its ACP, the technology landed in the hands of GEH.

Possible Roadblocks?

“But they are still having trouble getting this thing to work the way they want,” the source added. Part of the problem may be the difficulty in getting a company to produce the physical components that make up GLE, a utility producer said. “There are likely huge security clearance issues to work through for any company producing the components,” he said.

That means it’s almost a certainty that the components will be produced in the US. “I think GE has consciously made the decision, ‘We will make it here rather than go through the nightmare of sending the specs to a foreign country,’” he said, noting there are probably better options in Japan and Germany. “I don’t see an American company to make it.”

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GLE comes with enormous proliferation concerns, and GEH hasn’t done itself any favors by getting fined $45,000 for multiple security violations (NIW Oct.24’11). The technology requires less space, making its detection much more difficult. The amount of energy it consumes during the enrichment process is also believed to be greatly reduced from other technologies. The technology came into US possession in the 1990s through a nuclear cooperation agreement with Australia. At the time, the US State Department did a nonproliferation assessment and concluded it was in the US interest to purchase the technology to prevent it from being used elsewhere. Once in American hands, however, that technology was given to Usec and then to GEH to try to make commercially viable. While the NRC is reviewing the proliferation risks, only another State Department nonproliferation assessment would likely prevent commercial production from a security standpoint. And the State Department isn’t likely to call for another assessment, due to the fact that both it and the US Department of Energy support the project, the industry observer noted. ©

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