Agenda

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Background
GLE Background

- Formed in 2006 by GE to develop uranium enrichment services capability
- Exclusive rights to commercialize the SILEX laser enrichment technology
- Hitachi and Cameco join in 2007 and 2008, respectively
- Approximately $500 million invested in GLE to date
- Presently undergoing a restructuring
  - Proposed ownership structure of Silex (51%) and Cameco (49%)
  - Cameco option to become a 75% owner
  - Restructure agreement signed – now going through USG approval process
  - Agreement expected to close late 2020
Key milestones
Key Milestones

• 2012: Receipt of NRC License SNM-2019
• 2013: Completion of Phase 1 technology development
• 2016: Concluded an agreement with DOE for DUF₆ re-enrichment
• 2017: GLE submits response to DOE’s request for information on HALEU production for advanced and small modular nuclear power reactors
• 2019: Agreement signed by GEH, Cameco and Silex for restructure of GLE
• 2020: Application for USG approvals for restructure of GLE submitted for review by NRC
Technology overview & advantages
Technology Overview

- 3rd generation (laser) enrichment technology
- Highly selective lasers to selectively excite UF$_6$ and efficiently separate U$^{235}$
- Expected to be significantly more efficient than centrifuge technology
Basic GLE facility

- Existing UF₆ enrichment technologies ~65% of plant
- Separators/lasers ~35% of plant
Technology advantages

• **Highly selective and efficient** – ability to fine-tune the process to excite and separate $\text{U}^{235}$ with higher throughput compared to centrifuge technology

• **Modularity/flexibility** – ability to meet lumpy SWU demand; HALEU production with only a few compact cascades

• **Lower Capital Costs** – laser enrichment SWU capacity can be deployed at lower cost than existing gas centrifuge technology.

• **Bolster U.S. competitive position** – leapfrog existing centrifuge technology

GLE is uniquely positioned to meet DOE’s requirements for HALEU
Technology status & next steps
Technology status & next steps

• Ongoing program development in Wilmington, NC and Lucas Heights, Australia
  – Wilmington, U.S.: process equipment
    • Test Loop commissioned in 2009; operational for over 10 years
    • Separation equipment advanced to TRL-4/5
  – Lucas Heights, Australia: laser systems;
    • Lasers and control systems advanced to TRL-5

• Engineering scale TRL-6 (commercial pilot scale) demonstration test in Test Loop in mid-2020’s timeframe.

• Market-driven commercialization timeline dependent on uranium price
  – DOE tails: commercialization currently targeted for late 2020’s
  – HALEU: ability to address nearer-term if funding for acceleration available

• GLE currently on a reduced-risk commercialization path
Commercial case
Commercial Case

• DOE DUF$_6$ contract supports commercialization plan in Paducah, KY
  – License for a tails re-enrichment facility
  – Targeting commercial operation date in late 2020’s
  – Potentially 3 - 6 MSWU capacity, deployed in 1 - 1.5 MSWU halls
  – Easily expandable for HALEU – or start with HALEU

• Nearer-term opportunities could be explored
  – Potential to modify deployment plans to accelerate
    HALEU capability on a smaller commercial scale
Questions