



**Silex**  
Systems Limited

## **GLE Presentation to NEI International Uranium Fuel Seminar**

**9 November 2021**

### **Highlights:**

- **GLE's CEO and CCO are presenting to the Nuclear Energy Institute (NEI) International Uranium Fuel Seminar being held in Savannah, Georgia**
- **Presentation will provide a brief update on GLE's commercialization activities**
- **Seminar will explore issues affecting nuclear fuel markets with industry leaders**

Silex Systems Limited (Silex) (ASX: SLX) (OTCQX: SILXY) is releasing the attached presentation providing an update on GLE's commercialisation activities. The presentation is being jointly delivered by Global Laser Enrichment's (GLE) Chief Executive Officer (Steve Long) and Chief Commercial Officer (James Dobchuk) to the NEI International Uranium Fuel Seminar being held this week.

The Seminar is being attended by numerous representatives from nuclear energy utilities, nuclear fuel suppliers, government agencies and other stakeholders with a focus on issues affecting the nuclear fuel cycle markets.

***Authorised for release by the Silex Board of Directors.***

Further information on the Company's activities can be found on the Silex website: [www.silex.com.au](http://www.silex.com.au) or by contacting:

**Michael Goldsworthy**

CEO/Managing Director

T +61 2 9704 8888

E [investor.relations@silex.com.au](mailto:investor.relations@silex.com.au)

**Julie Ducie**

CFO/Company Secretary

T +61 2 9704 8888

E [investor.relations@silex.com.au](mailto:investor.relations@silex.com.au)

## **Forward Looking Statements and Risk Factors:**

### **About Silex Systems Limited (ASX: SLX) (OTCQX: SILXY)**

Silex Systems Limited ABN 69 003 372 067 (**Silex** or **Company**) is a research and development company whose primary asset is the SILEX laser enrichment technology, originally developed at the Company's technology facility in Sydney, Australia. The SILEX technology has been under development for uranium enrichment jointly with US-based exclusive licensee Global Laser Enrichment LLC (**GLE**) for a number of years. Success of the SILEX uranium enrichment technology development program and the proposed Paducah commercial project remain subject to a number of factors including the satisfactory completion of the engineering scale-up program and uranium market conditions and therefore remains subject to associated risks.

Silex is also in the early stages of pursuing additional commercial applications of the SILEX technology, including the production of 'Zero-Spin Silicon' for the emerging technology of silicon-based quantum computing. The 'Zero-Spin Silicon' project remains dependent on the outcomes of the project and the viability of silicon quantum computing and is therefore subject to various risks. The commercial future of the SILEX technology is therefore uncertain and any plans for commercial deployment are speculative.

Additionally, Silex has an interest in a unique semiconductor technology known as 'cREO<sup>®</sup>' through its ownership of subsidiary Translucent Inc. The cREO<sup>®</sup> technology developed by Translucent has been acquired by IQE Plc based in the UK. IQE is progressing the cREO<sup>®</sup> technology towards commercial deployment for 5G mobile handset filter applications. The outcome of IQE's commercialisation program is also uncertain and remains subject to various technology and market risks.

### **Forward Looking Statements**

The commercial potential of these technologies is currently unknown. Accordingly, no guarantees as to the future performance of these technologies can be made. The nature of the statements in this Announcement regarding the future of the SILEX technology, the cREO<sup>®</sup> technology and any associated commercial prospects are forward-looking and are subject to a number of variables, including but not limited to, unknown risks, contingencies and assumptions which may be beyond the control of Silex, its directors and management.

You are strongly cautioned not to place reliance on any forward-looking statements, particularly in light of the current economic climate and the significant volatility, uncertainty and disruption caused by COVID-19 and other economic risk factors, as actual results could be materially different from those expressed or implied by such forward looking statements as a result of various risk factors. Further, the forward-looking statements contained in this Announcement involve subjective judgement and analysis and are subject to change due to management's analysis of Silex's business, changes in industry trends, government policies and any new or unforeseen circumstances. The Company's management believes that there are reasonable grounds to make such statements. Actual operations, results, performance, targets or achievement may vary materially from any projections and forward-looking statements and the assumptions on which those statements are based.

Except as required by law or regulation (including the ASX Listing Rules and OTCQX Rules for U.S. Companies), Silex does not intend, and is not obligated, to update the forward-looking statements and Silex disclaims any obligation or undertaking to update forward-looking statements in this Announcement to reflect any changes in expectations.

No representation, warranty or assurance (express or implied) is given or made in relation to any forward-looking statement by any person (including the Company or any of its advisers). In particular, no representation, warranty or assurance (express or implied) is given that the occurrence of the events expressed or implied in any forward-looking statements in this Announcement will actually occur.

### **Risk Factors**

Risk factors that could affect future results and commercial prospects of Silex include, but are not limited to: ongoing economic and social uncertainty, including in relation to the impacts of the COVID-19 pandemic; the results of the SILEX uranium enrichment engineering development program; the market demand for natural uranium and enriched uranium; the outcome of the project for the production of 'Zero-Spin Silicon' for the emerging technology of silicon-based quantum computing; the potential development of, or competition from alternative technologies; the potential for third party claims against the Company's ownership of Intellectual Property; the potential impact of prevailing laws or government regulations or policies in the USA, Australia or elsewhere; results from IQE's commercialisation program and the market demand for cREO<sup>®</sup> products; decisions made or actions taken by the Company's commercialisation partners that could adversely affect the technology development programs; and the outcomes of various strategies and projects undertaken by the Company.

# Global Laser Enrichment Commercialization Update

*NEI Uranium Fuel Seminar  
November 8, 2021  
Savannah, GA*

*Steve Long  
CEO*

*James Dobchuk  
President & CCO*



# GLE History & Key Milestones

- 2000 USA and Australia sign Agreement for Cooperation (i.e., “123 agreement”) for the SILEX technology. Technology becomes officially classified shortly thereafter
- 2007 GE and GE-Hitachi Nuclear Energy form subsidiary GLE (exclusive licensee of SILEX technology) to develop uranium enrichment capability; Cameco acquires 24% equity interest in GLE (2008)
- 2012 GLE receives first and only US NRC license for construction and operation of commercial scale laser enrichment facility (SNM-2019)
- 2013 GLE completes “Phase 1” (technology validation at prototype scale) of its multi-phase technology development and commercialization plan
- 2016 GLE secures landmark agreement to re-enrich over 200,000 tons of DOE DUF<sub>6</sub> inventories
- 2019 Silex Systems and Cameco execute binding purchase agreement to acquire 76% interest in GLE from GE/GEH
- 2021 Transaction receives USG approval; Silex and Cameco acquire 51% and 49% interests in GLE, respectively

## *Significant US investment in GLE*





## ➤ Commercial pathways - three primary areas of focus

- Enriching DOE tails to produce uranium ( $DUF_6 \rightarrow NUF_6$ )
- Potential to address higher enrichment needs (HALEU)
- Mature into a commercial SWU supplier (LEU)

*GLE will be innovative, agile and creative*





## Core Corporate Principles

- Proactive nuclear safety culture and governance
- Strong relationship with NRC and focus on regulatory compliance
- Disciplined technology development process
- Market-driven commercialization priorities and planning
- Core focus on Paducah commercial project opportunity
- Positioning for emerging opportunities (e.g. HALEU)

*GLE's growth will be disciplined and paced by market needs*



# Reasons for Optimism & Positioned for Growth

- Exclusive licensee of the SILEX technology that could fill a critical supply-chain gap
  - Uniquely positioned as world's only 3<sup>rd</sup> Generation laser enrichment technology
  - Potentially significant technology advantages over existing centrifuge production
- Over a decade of successful development progress in the US
- New JV owners ramping-up technology commercialization activities
- New executive team in place and building business momentum
- Core business case underpinned by DUF<sub>6</sub> agreement with the DOE
- Flexibility to leverage into emerging opportunities (e.g. HALEU)
- Supporting the re-emergence of US nuclear leadership globally
- Strong focus on ESG (legacy waste cleanup; support for clean nuclear power)

*GLE is poised to make significant progress over the coming years*



# Development Timelines

ersonal use only





# Evolution of Enrichment Technology



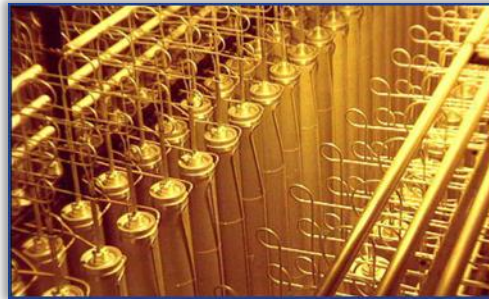
1950's



## Gaseous Diffusion

- 1<sup>st</sup> generation technology
- Separation factors ( $\beta$ ) ~ 1.004
- Obsolete

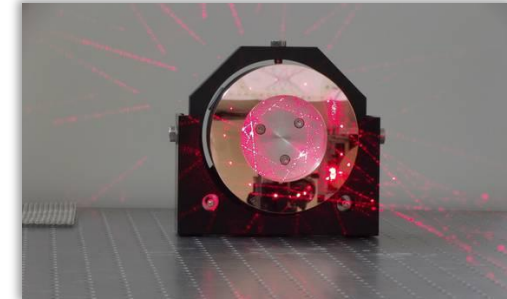
1980's



## Gas Centrifuge

- 2<sup>nd</sup> generation technology
- Separation factors ( $\beta$ ) ~ 1.250
- 100% of current production

2000's



## GLE/SILEX

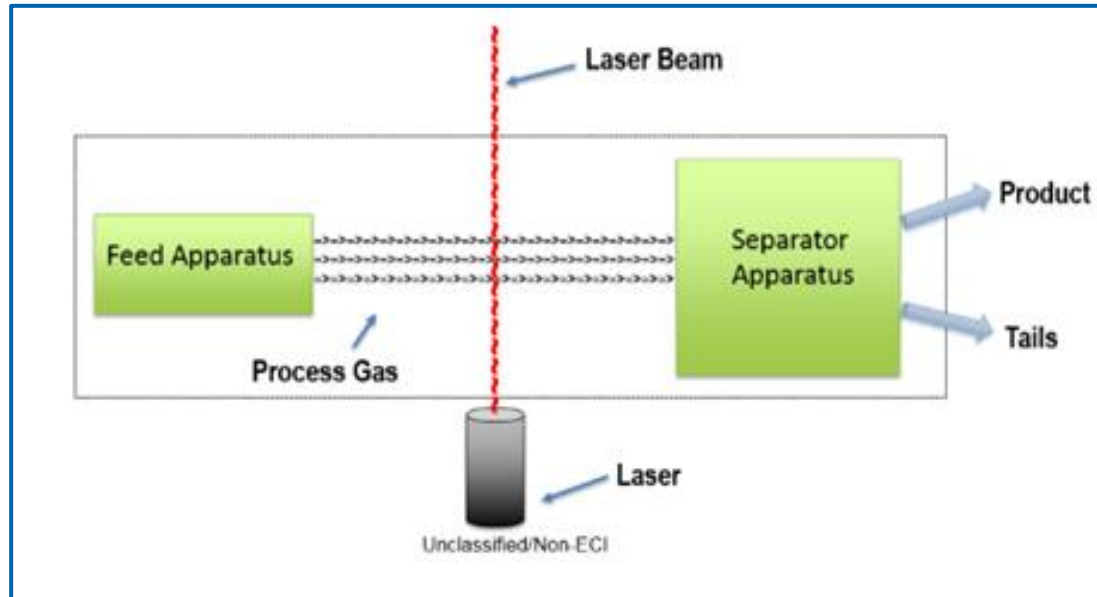
- 3<sup>rd</sup> generation technology
- Separation factors ( $\beta$ ) ~ 2-20\*
- Future of uranium enrichment

\* classified

*SILEX process → much higher separation efficiency vs. centrifuge technology*



# SILEX Process Overview



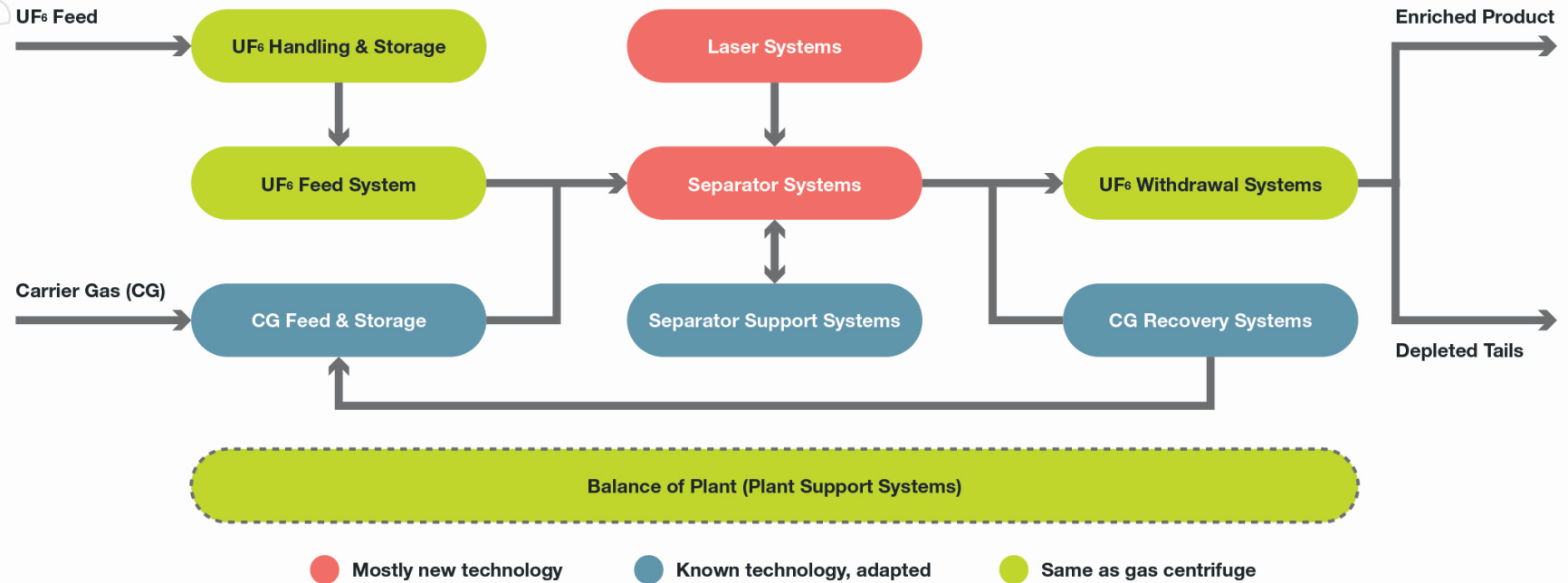
- Unique third generation (laser-based) enrichment technology
- Highly selective lasers to excite  $UF_6$  and efficiently separate  $U^{235}$
- Anticipated to be significantly more efficient than centrifuge technology

*$UF_6$  throughout feed, separation and withdrawal processes*

# Compatibility with Existing Fuel Cycle



ersonal use only



Commercial scale production will be compatible with existing fuel cycle infrastructure



# SILEX Technology Advantages



- **Highly selective and efficient** – ability to fine-tune the process to excite and separate  $U^{235}$  with higher efficiency compared to centrifuge technology
- **Modularity/flexibility** – greater flexibility to produce wide range of fuels for next generation SMR's (HALEU) as well as installed base (LEU)
- **Lower capital costs** – laser enrichment capacity is expected to be deployed at lower cost per SWU than gas centrifuge technology
- **Bolster U.S. competitive position** – potential to leapfrog centrifuge technology and support re-emergence of US advanced nuclear technology leadership

*GLE is uniquely positioned to meet the needs of the next-generation nuclear industry*



# Commercialization Timeline\*

\* Subject to technology development program outcomes, market conditions, and other factors



## Near-term focus (2022+)

- Ramping up operations under new JV ownership
- Development and demonstration of production-scale separator and process systems
- Fabrication and testing of production-scale laser and optical systems
- Assessment of full-scale plant designs and preliminary economics
- Monitoring opportunities to potentially de-risk future investment decisions

*Market-driven approach to technology scale-up and commercialization*

# Commercial Pathways

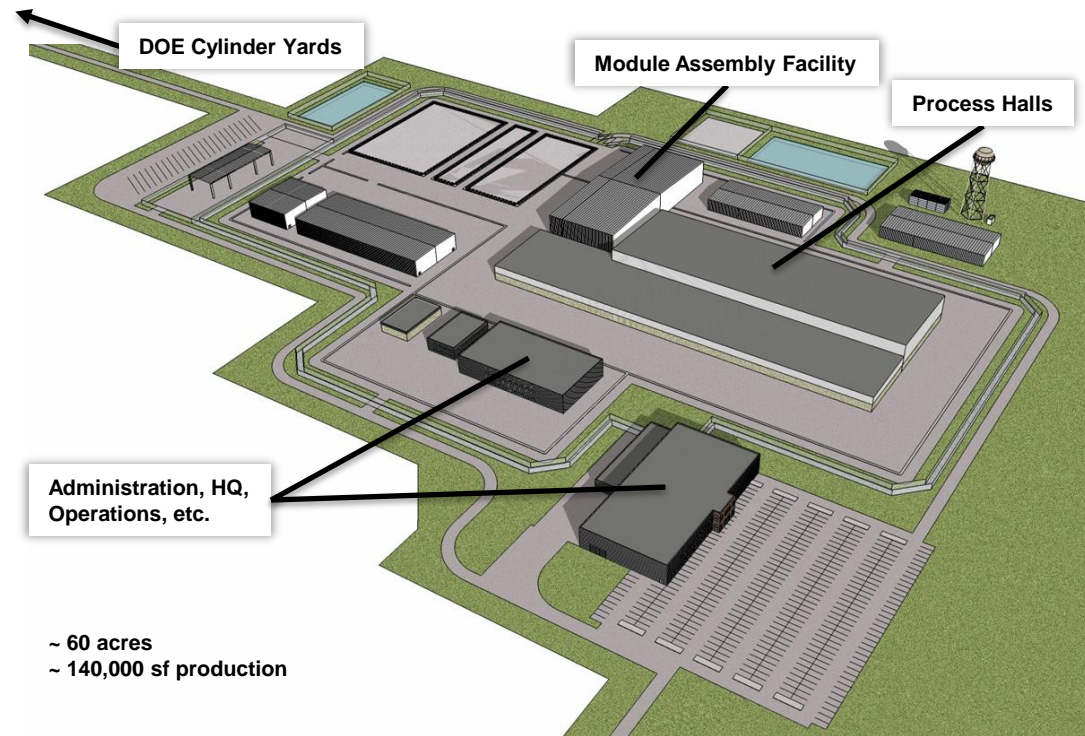
## Paducah Laser Enrichment Facility (PLEF)

- Potential to produce ~5MM lbs uranium annually
- Estimated to operate for around 30 years
- Reduces DOE disposal obligations by 25+%
- Target COD market paced

## Higher enrichment opportunities

- Potential to complement PLEF uranium production with LEU, HALEU production
- HALEU would involve less capital to deploy meaningful capacity
- Deploy separately or add-on to PLEF
- Partnership opportunities with SMR/AMR vendors

## Paducah Laser Enrichment Facility Conceptual



*Multiple, risk-informed pathways to meet anticipated market demands*

ersonal use only

# Thank you

