



**Silex**  
Systems Limited

## **GLE Presentation to US Nuclear Industry Council**

**25 March 2021**

### **Key Points:**

- *Silex releases presentation to be provided by GLE to the United States Nuclear Industry Council Advanced Reactor Virtual Summit*
- *Summit focuses on the nuclear fuel cycle supply chain for Advanced Reactors, including HALEU production*

Silex Systems Limited (Silex) (ASX: SLX) (OTCQX: SILXY) is releasing the attached presentation to be provided by Global Laser Enrichment (GLE) to a virtual summit being held by the United States Nuclear Industry Council. The summit will focus on the nuclear fuel supply chain for Advanced Reactors. This includes the need for future production of High Assay Low Enriched Uranium (HALEU) for use in next generation Advanced Reactors and Small Modular Reactors. The virtual summit is being held on 23 – 25 March and involves many organisations from the nuclear industry.

***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:

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

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

Silex Systems Limited ABN 69 003 372 067 (Silex) 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 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 at risk. The 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®' through its ownership of subsidiary Translucent Inc. The cREO® technology developed by Translucent has been acquired by IQE Plc based in the UK. IQE is progressing the cREO® 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® 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 should not place reliance on any forward-looking statements 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 patterns, and any new or unforeseen circumstances. The Company's management believes that there are reasonable grounds to make such statements as at the date of this Announcement. Silex does not intend, and is not obligated, to update the forward-looking statements except to the extent required by law or the ASX Listing Rules.

### **Risk Factors**

Risk factors that could affect future results and commercial prospects of Silex include, but are not limited to: ongoing economic uncertainty including 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® products; and the outcomes of various strategies and projects undertaken by the Company.

# **SILEX Laser Enrichment for HALEU Production**

**Global Laser Enrichment, LLC**

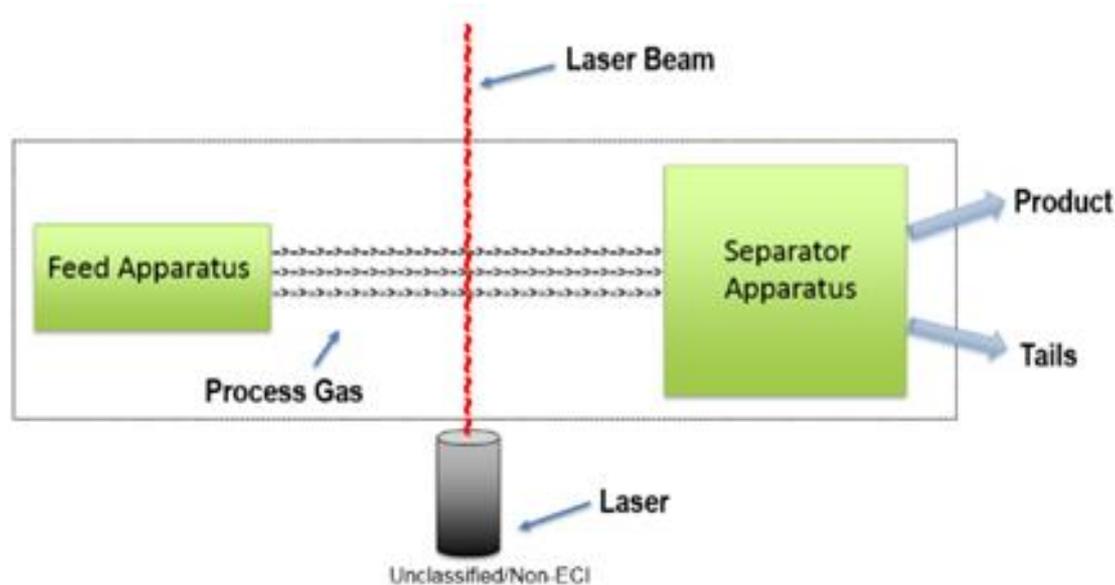
Advanced Reactors Summit VIII

March 23-25, 2021

# GLE Background

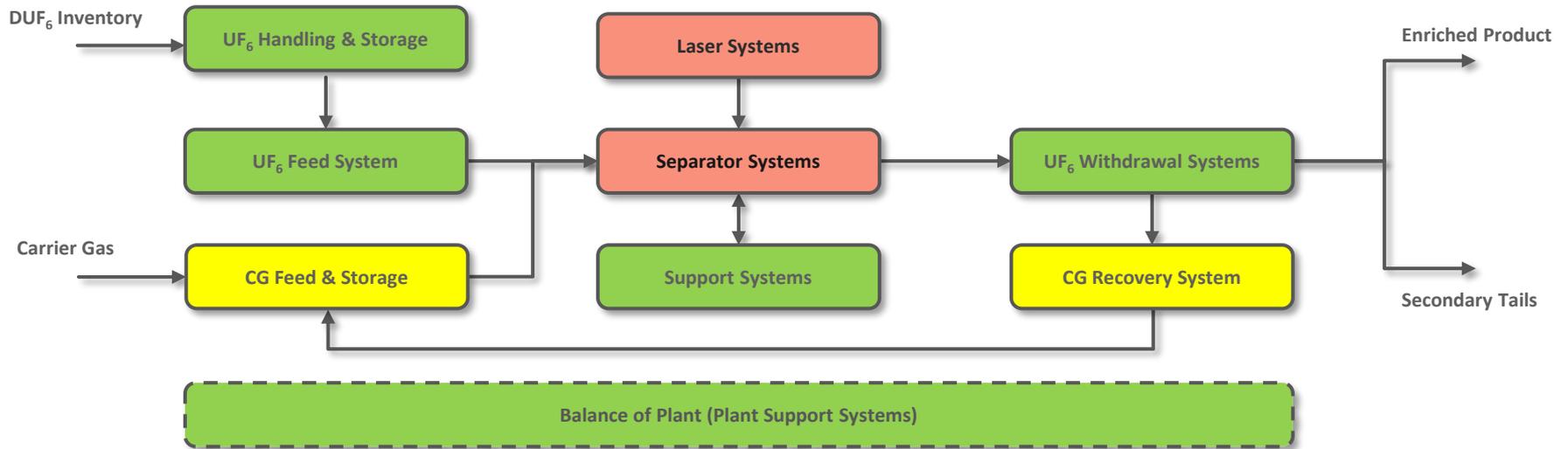
- GLE Formed in 2006 to develop US laser uranium enrichment capability
- Exclusive rights to commercialize the SILEX laser uranium enrichment technology
- Over \$400 million invested in GLE's commercialization program to date
- GLE ownership restructure completed January 31, 2021
- New ownership:
  - Silex Systems Ltd (51%) – Australian, SILEX technology inventor and licensor
  - Cameco Corporation (49%) – Canadian, leading global nuclear fuel supplier
  - Cameco also has an option to become 75% owner (exercisable from 2023)

# SILEX Technology Overview



- Unique third generation (laser-based) enrichment technology
- Highly selective lasers to selectively excite  $\text{UF}_6$  and efficiently separate  $\text{U}^{235}$
- Anticipated to be significantly more efficient than centrifuge technology

# Overview of Proposed GLE Facility



- Mostly new technology
- Known technology, adapted
- Same as gas centrifuge

- Existing UF<sub>6</sub> enrichment technologies ~65% of plant
- Separator systems and laser systems ~35% of plant

# Key Commercialization Milestones

- 2010: Prototype-scale Test Loop facility commissioned in Wilmington, NC
- 2013: Completion of Phase 1 - prototype technology demonstration
- 2016: Agreement with DOE for DUF<sub>6</sub> inventories – to be enriched with SILEX technology at proposed commercial production plant in Paducah, KY
- 2017: GLE submission to DOE's request for information on HALEU production for advanced and small modular nuclear power reactors
- 2019: Purchase Agreement executed for GLE ownership restructure
- 2020: Application for USG approvals for restructure of GLE submitted
- 2021: Restructure closed after receipt of USG approvals

# SILEX Technology Commercialization Status

- Ongoing SILEX technology commercialization program in Wilmington, NC and Lucas Heights, Australia – focused on scale-up of technology:
  - Wilmington, U.S.: process and separator equipment
    - Test Loop commissioned in 2010 – continuous upgrades and optimization
    - Separator equipment scale-up (to full scale) advanced to TRL-4/5
  - Lucas Heights, Australia: laser systems
    - Lasers and control systems (full-scale) advanced to TRL-5
- Engineering scale TRL-6 (commercial pilot scale) demonstration in Test Loop in mid-2020's timeframe.
- Technology is highly selective, efficient and modular
  - Provides flexibility to enrich to higher enriched fuels (including HALEU)
  - Potential to address off-spec UF<sub>6</sub> fuels

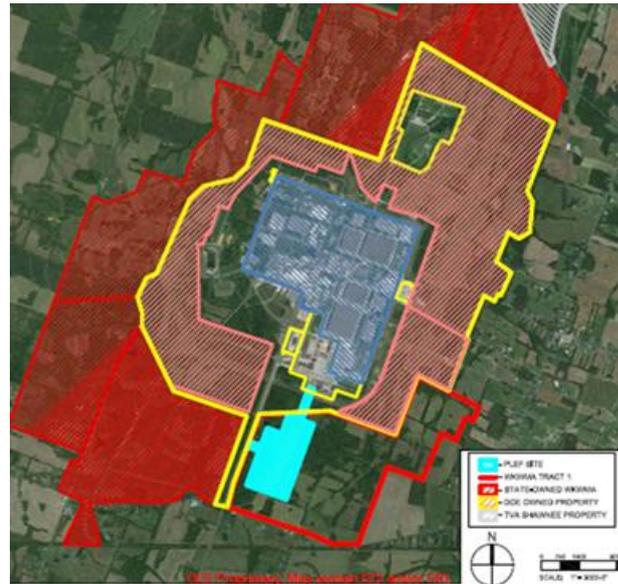
# Commercial Case

- Market-driven commercialization timeline dependent on uranium price
  - DOE DUF<sub>6</sub>: commercialization currently targeted for late 2020's
  - HALEU: ability to address nearer-term if funding for acceleration available
- DOE DUF<sub>6</sub> contract supports commercialization plan in Paducah, KY
  - NRC License for Paducah Laser Enrichment Facility (PLEF) to be obtained
  - Targeting PLEF commercial operation date in late 2020's
  - Ability to extend PLEF to continue enrichment up to LEU grade
  - Potential for up to 6 MSWU capacity, deployed in 1 MSWU halls
  - PLEF easily expandable for HALEU – or start with HALEU
- SILEX technology provides GLE viable options to produce:
  - 1) Natural grade uranium (from DOE DUF<sub>6</sub> inventories)
  - 2) LEU for conventional reactor fuel
  - 3) HALEU for Advanced Reactors and Small Modular Reactors

# SILEX Laser Enrichment for HALEU Production

## Global Laser Enrichment – Paducah, KY

Watch this space ...



Thank you.

## DISCLAIMER

The information provided herein by Global Laser Enrichment, LLC (GLE) contains preliminary business plans and estimates. It is not a formal offer or proposal by GLE to perform any of the work described herein. GLE's purpose in providing this information is to assist the NIC to gather information regarding HALEU enrichment capabilities to meet anticipated future US demand in relation to supplying fuel for next-generation Advanced Reactors. This presentation contains forward-looking statements such as estimates, forecasts and timelines regarding, among other things, business strategies, timing of completion of specific projects, plans and objectives of management, technical capabilities and results of operations. Various factors, many of which are beyond GLE's control, could yield outcomes materially different than those reflected in such forward-looking statements. GLE makes no representations or warranties of any kind with regards to this information. Furthermore, and notwithstanding any statements herein regarding future intent (e.g., GLE "will" perform an action), GLE makes no covenants or promises to perform or not perform any of the actions described in this presentation.