Testing of First Full-Scale Laser System Module Completed for SILEX Uranium Technology

31 August 2022

Highlights:

- **The first full-scale laser system module developed for deployment in GLE's commercial pilot demonstration facility in the US has successfully completed an extensive testing program at Silex's Lucas Heights facility in Sydney.**
- **The laser system module test program involved eight months of rigorous testing under plant-like operational conditions and marks an important milestone in the development of commercial-scale equipment for GLE's quest to become the only third-generation laser uranium enrichment company in the world.**
- **During the latter stages of the test program, an independent review of the laser system module was conducted on-site by a specialist US engineering contractor (sponsored by Cameco) resulting in a positive assessment.**
- **The laser system module is currently being de-commissioned and packed in preparation for transport to GLE's Test Loop facility in the US, and is expected to be installed by the end of CY2022, subject to transport scheduling.**

Silex Systems Limited (Silex) (ASX: SLX) (OTCQX: SILXY) is pleased to announce the completion of a key milestone in the SILEX uranium laser enrichment project being conducted in collaboration with exclusive licensee, US-based Global Laser Enrichment (GLE).

The milestone involves the successful completion of a rigorous eight-month test program of the first module of full-scale laser technology required for GLE's commercial pilot demonstration project being conducted in Wilmington, North Carolina. The full-scale laser system module was designed, built and tested at Silex's Lucas Heights laser technology development centre by the Company's laser engineering team.

Michael Goldsworthy, Silex's CEO/Managing Director said:

"This is a pivotal milestone for the SILEX uranium enrichment technology which demonstrates the ability of our laser systems to operate reliably at commercial-scale for extended periods. We congratulate our very talented and hard-working laser engineering team who have succeeded in the design, development and demonstration of this unique, cutting-edge laser technology which will be utilised by GLE under the SILEX uranium enrichment technology license agreement."

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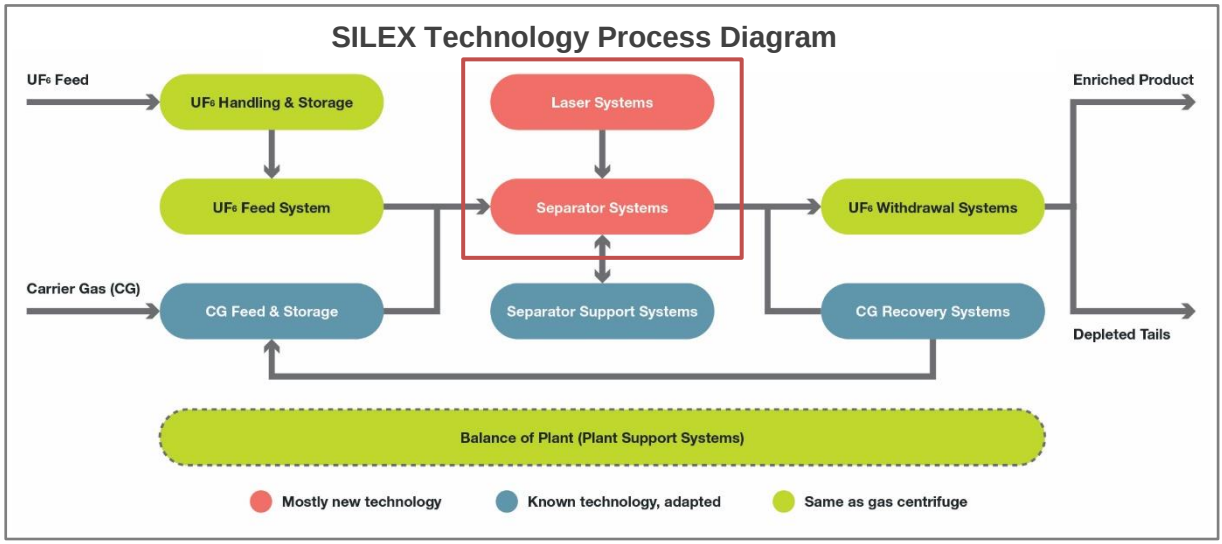
The laser system module testing milestone is the culmination of many years of world-leading laser technology development activities at Silex and represents one of two critical SILEX technology components that form the heart of the SILEX uranium enrichment technology. As shown in red in the figure below, the other component consists of the SILEX Separator Systems, which are currently being scaled up at GLE's Test Loop facility.



As part of the performance validation process, an independent review of the laser system module was conducted on-site at Lucas Heights by a specialist US engineering contractor (sponsored by Cameco) with a positive assessment resulting. The test program included a heavy focus on reliability of the laser system module performance, which is supported by industrial-level automated control systems developed in-house. Construction of additional identical laser system modules required for the commercial pilot demonstration project is advancing, with all modules scheduled to be shipped to Wilmington by the end of 2023.

GLE is planning to complete the commercial pilot demonstration project by the mid-2020's, after which a feasibility assessment will be conducted for the proposed Paducah Laser Enrichment Facility (PLEF). GLE hopes to deploy the PLEF for the production of natural grade uranium (in the form of UF_6) in the late 2020's via enrichment of DOE[1]-owned tails inventories under a landmark agreement signed between GLE and the DOE in 2016. GLE's shareholders, Silex and Cameco, are currently assessing the potential acceleration of this timeline, with a view to commencing commercial operations as early as 2027, depending on market demand and other factors.

[1] US Department of Energy

The Triple Opportunity for GLE and the SILEX Uranium Enrichment Technology:

The SILEX technology is the only third-generation laser-based uranium enrichment technology under commercial development today. Subject to the successful completion of the commercialisation project, market conditions and other factors, the SILEX technology could enable GLE to become a major contributor to nuclear fuel production for the world's current and future nuclear reactor fleets, through the production of uranium in three different forms at a PLEF multi-purpose production plant:

PLEF I: Production of natural grade UF_6 via tails processing with the SILEX technology (the original PLEF Project) which will also help alleviate UF_6 conversion supply pressure;

PLEF II: Production of LEU and LEU+ from natural UF_6 via an extension of the PLEF with additional SILEX enrichment capacity to supply fuel for existing reactors;

PLEF III: Production of HALEU via additional capacity of SILEX technology to supply fuel for next generation advanced SMRs.

Production of natural grade uranium at the PLEF I would continue over three decades, with the output sold into the global uranium market at a production rate equivalent to a uranium mine producing an annual output of up to 5 million pounds of uranium oxide, which would rank in the top ten of today's uranium mines by production volume. Preliminary analysis by Silex of the PLEF I project indicates it could rank equal to a 'Tier 1' uranium project based on current estimates of the long-life and low cost of production.

While the PLEF I tails enrichment project has been in planning for several years, the opportunity for GLE to produce LEU/LEU+ fuel (in PLEF II) has opened up only recently as a result of the geopolitical issues triggered by Russia's invasion of Ukraine and the possibility of disruption to the supply of Russian-sourced nuclear fuel. Similarly, production of HALEU (in PLEF III) has become an emergent issue as western nuclear fuel supply chains prepare for the exclusion of Russian-sourced HALEU for advanced SMRs. This contributed to the US Congress passing the Inflation Reduction Act in August 2022, which includes US$700 million in funding support for the DOE's HALEU Availability Program, among other measures in support of existing and future nuclear power generation. GLE will explore opportunities to participate in the DOE Program as it unfolds.

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 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 technology commercialisation 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 nuclear fuel market conditions and therefore remains subject to associated risks.

Silex is also at various stages of development of 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®' through its 100% ownership of subsidiary Translucent Inc. The cREO® technology developed by Translucent has been acquired by IQE Plc based in the UK. IQE has paused the development of the cREO® technology until a commercial opportunity arises. The future of IQE's development program for cREO® is 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 as applied to uranium enrichment and Zero-Spin Silicon production, 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 trends, government policies 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 and social uncertainty, including in relation to the impacts of the COVID-19 pandemic; geopolitical risks, in particular relating to Russia's invasion of Ukraine and tensions between China and Taiwan which may impact global supply chains among other risks; uncertainties related to the effects of climate change and mitigation efforts; 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; actions taken by the Company's commercialisation partners and other stakeholders that could adversely affect the technology development programs and commercialisation strategies; and the outcomes of various strategies and projects undertaken by the Company.