SILEX Uranium Enrichment Technology
End of Year Project Update

20 December 2022

Highlights:

- **Solid progress continues with the construction of the first full-scale commercial pilot demonstration system for the SILEX uranium enrichment technology at GLE's Test Loop facility in Wilmington, North Carolina.**
- **The first full-scale laser system module developed and tested by Silex has been delivered to GLE and installed in the Test Loop and is currently being commissioned. A second laser system module is being constructed and is anticipated to be shipped to GLE around mid-CY2023.**
- **In parallel, the team in Wilmington are advancing construction and testing of pilot-scale separator and gas handling systems with the aim of completing the construction of the full commercial pilot demonstration facility around the end of CY2023.**
- **The potential acceleration of GLE's commercialisation program continues to be assessed by GLE's joint owners – Silex and Cameco, in response to changing market conditions and the emerging Triple Opportunity.**
- **The US government is currently focusing on various initiatives to support the expansion of domestic supply of nuclear fuel.**
- **GLE is anticipating a request for proposals under the US Department of Energy's US$700m High Assay Low Enriched Uranium (HALEU) Availability Program to be released in early 2023.**

Silex Systems Limited (Silex) (ASX: SLX) (OTCQX: SILXY) is pleased to provide the following update on progress being made in the SILEX uranium laser enrichment project being conducted in collaboration with exclusive licensee, US-based Global Laser Enrichment (GLE).

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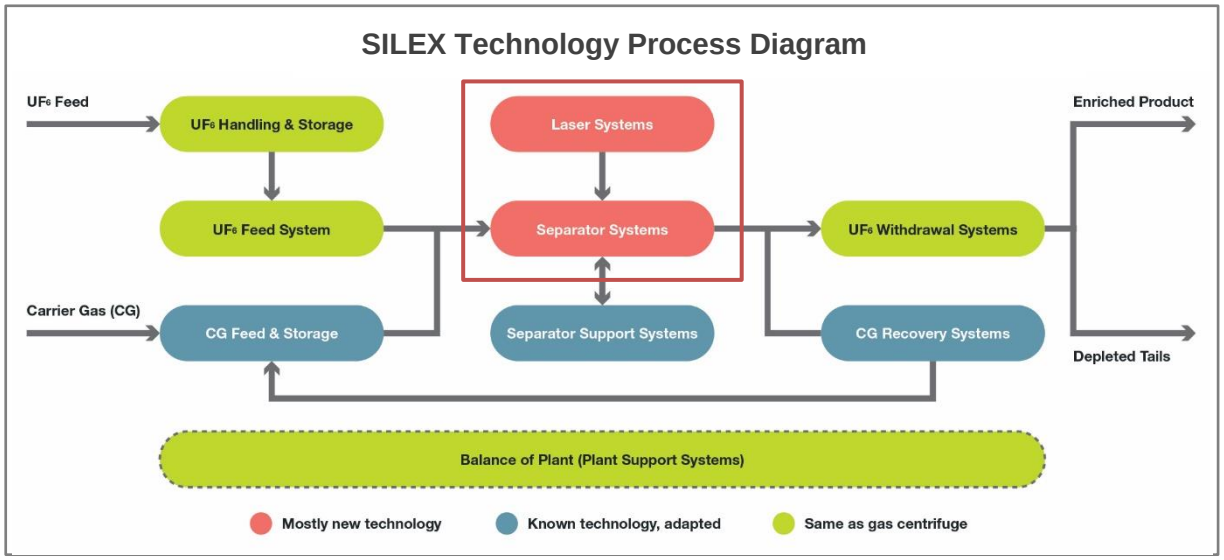
Commercial Pilot Demonstration Program:

The primary focus of the commercial pilot demonstration program being conducted jointly by Silex and GLE is the construction and testing of full-scale laser systems, separator systems and the associated gas handling equipment. At the core of the SILEX technology are the laser systems and separator systems which form the vast majority of the classified intellectual property licensed to GLE, as depicted by the red blocks shown in the diagram below. An update on progress with these key technology systems follows.



Laser Systems:

The first full-scale laser system module, designed and built at Silex's Lucas Heights laser technology development centre, was recently shipped to GLE in Wilmington following the successful completion of a rigorous eight-month test program. The laser system module has been installed in the Test Loop facility and is currently being commissioned. The commercial-scale laser system is the result of many years of development work and represents a significant leap in performance compared to the previous generation of laser technology utilised in the Test Loop.

Construction of a second identical laser system module required for the commercial pilot demonstration project is well advanced, and is expected to be shipped to the Wilmington Test Loop around mid-CY2023, subject to logistics and related scheduling.

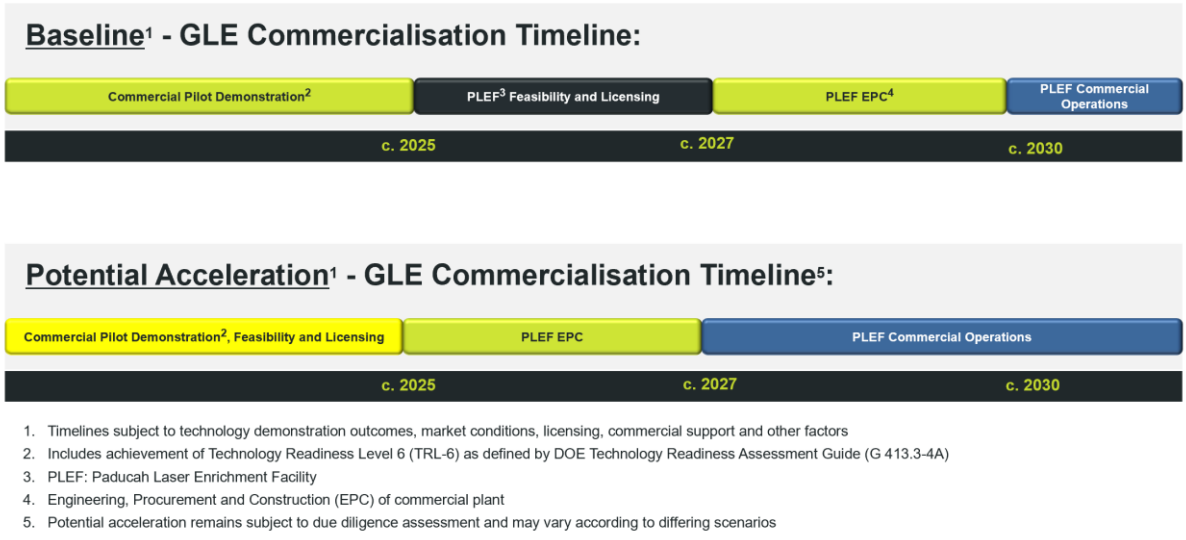
Separator Systems:

The joint GLE-Silex engineering team based at the Test Loop facility in Wilmington has been making solid progress scaling up the separator and gas handling systems required for the pilot demonstration program. Component testing is well advanced and integrated system assembly is underway. Additionally, GLE is expanding its in-house manufacturing capability and expanding the engineering and operations teams.

Commercialisation Timeline [1]:

While no decision has yet been made, Silex and Cameco continue to assess the potential to accelerate GLE's prospective commercialisation timeline. With evolving market conditions providing strong support for acceleration, any decision will be considered in light of a number of factors, including the level of support available from various government and industry initiatives.

Acceleration could involve targeting completion of the pilot demonstration program as early as mid-2024, with a view to commencing commercial operations as early as 2027, depending on market demand and other factors. This could also involve bringing forward a commercial feasibility assessment and NRC licensing activities for the proposed Paducah Laser Enrichment Facility (PLEF) project. The diagram below depicts the baseline (original) and potentially accelerated timelines for commercialisation activities:



1. Timelines subject to technology demonstration outcomes, market conditions, licensing, commercial support and other factors
2. Includes achievement of Technology Readiness Level 6 (TRL-6) as defined by DOE Technology Readiness Assessment Guide (G 413.3-4A)
3. PLEF: Paducah Laser Enrichment Facility
4. Engineering, Procurement and Construction (EPC) of commercial plant
5. Potential acceleration remains subject to due diligence assessment and may vary according to differing scenarios

GLE's initial plans are based on the deployment of the PLEF for the production of natural grade uranium (in the form of UF_6) via enrichment of US Department of Energy (DOE) - owned tails inventories under a landmark agreement signed between GLE and the DOE in 2016.

GLE is also commencing preliminary activities for the engineering design of the PLEF. In addition to hiring in-house plant and systems engineering specialists, GLE has engaged a third-party contractor to commence the front-end engineering design (FEED) for the PLEF. In addition to advancing the facility design, engineering cost model and plant economic study, GLE's efforts in 2023 will also focus on regulatory licensing and site acquisition activities for the PLEF.

Commercial Activities and Government Engagement:
GLE's commercial team is actively developing clear market paths as opportunities in the nuclear fuel supply chain unfold.

A range of commercial activities are being pursued, including building relationships with US government agencies such as the DOE and the US Nuclear regulatory Commission (NRC), along with industry stakeholders and potential customers. GLE and Silex recently announced the signing of Letters of Intent with Constellation Energy Generation and Duke Energy, two of the largest nuclear power generators in the US. These commercial relationships, along with others under discussion, will help GLE in its commercialisation efforts.

The US government is currently focusing on various initiatives to support the expansion of domestic supply of nuclear fuel, for which GLE could potentially be a key player. Among the measures in support of existing and future nuclear power generation is the recently passed Inflation Reduction Act (IRA) which includes US$700m funding for the HALEU Availability Program. Additionally, there is up to a further US$2.1bn currently under consideration by the US Congress to support the domestic supply of nuclear fuel and lessen US dependence on nuclear fuel imports, particularly from Russia.

The Triple Opportunity for GLE and the PLEF multi-purpose production plant:
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:

1) **PLEF UF_6 Production:** Production of natural grade UF_6 (with U-235 assay of 0.7%) via processing of depleted tails (U-235 assays of 0.25% to 0.5%) with the SILEX technology (the original PLEF Project) which would come in the form of already converted uranium, thereby potentially helping to alleviate UF_6 conversion supply pressure;
2) **PLEF LEU Production:** Production of low enriched uranium (LEU) (U-235 assays up to 5%) and LEU+ (assays from 5% to 10%) from natural UF_6 with separate SILEX enrichment capacity - to supply fuel for existing reactors;
3) **PLEF HALEU Production:** Production of HALEU (U-235 assays up to ~20%) via enrichment with SILEX technology to supply fuel for next generation advanced SMRs.

The PLEF opportunities are not necessarily sequential, with the potential deployment of the various opportunities to be in accordance with market conditions and contracting strategy.

The PLEF opportunities are underpinned by the GLE/DOE agreement, which provides the feedstock for the production of natural grade uranium over three decades, with the output sold into the global uranium market at an expected 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 UF_6 Production 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 UF_6 Production Project has been in planning for several years, the opportunity for GLE to produce LEU/LEU+ fuel has opened up 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, potential production of HALEU at the PLEF has become a significant opportunity as western nuclear fuel supply chains prepare for the exclusion of Russian-sourced HALEU required to fuel many advanced SMR designs. This contributed to the US Congress passing the IRA in August 2022 with US$700 million in funding support for the DOE's HALEU Availability Program. GLE will explore opportunities to participate in DOE Programs as they unfold.

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.