Zero-Spin Silicon Project Achieves Target Enrichment Objectives

15 December 2022

Highlights:

- **Zero-Spin Silicon (ZS-Si) project achieves target enrichment objectives during extensive Stage 3 enrichment testing with the pilot demonstration facility at the Company's Lucas Heights technology centre**
- **Testing has confirmed the production of ZS-Si in the form of enriched silicon-28 at target purity of ~99.995%, and verified production scalability using a variant of the SILEX laser enrichment technology**
- **Ultra-high purity ZS-Si is a critical enabling material for the fabrication of next generation quantum processor chips, which will drive quantum computers and open new frontiers in artificial intelligence, cybersecurity and other fields**
- **Silex has commenced planning for the scale-up of the demonstration facility to produce first commercial quantities of ZS-Si and to provide a path to a secure and resilient supply chain free of prior dependence on Russian-sourced material**
- **Ongoing Stage 3 tests are focused on optimising throughput and economics of the process and are anticipated to be completed early in CY2023**
- **The project is supported by collaboration partners SQC and UNSW, with funding from the Federal Government's Cooperative Research Centres Projects**

Silex Systems Limited (Silex) (ASX: SLX) (OTCQX: SILXY) is pleased to announce the successful achievement of target enrichment objectives in the ZS-Si project at the Company's Lucas Heights technology centre in Sydney. The results were achieved during extensive Stage 3 testing using the Company's proprietary ZS-Si pilot demonstration facility, which is based on a variant of the SILEX laser isotope separation (LIS) platform technology. Testing with the pilot facility is ongoing with a focus on optimisation of throughput and process economics, as part of the tenth and final milestone in the ZS-Si project, which is being undertaken in conjunction with project partners Silicon Quantum Computing Pty Ltd (SQC) and UNSW Sydney (UNSW).

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

"The achievement of these key results from silicon enrichment testing with the pilot demonstration facility is an outstanding accomplishment for the ZS-Si project team, and marks a major milestone in the commercialisation of the SILEX laser enrichment technology. As we move into the final period of testing, the focus is on optimisation and maximising the economic potential of the ZS-Si production technology."

"The importance of success in this project to the emerging silicon quantum computing industry has become critical in light of the unfolding global disruption to the main source of enriched silicon, being Russian centrifuge production. We look forward to transitioning our efforts into scaling-up the pilot production facility for production of initial commercial quantities in CY2023," he added.

The achievement of the enrichment target purity for the project – of ~99.995% enriched ZS-Si – is already approximately 10 times purer than what has been widely used in silicon quantum computing demonstrations to date. The remaining tests will optimise the throughput and product yield for the process before plans for scaling the facility for commercial production of ZS-Si are finalised. Silex will retain ownership of the ZS-Si production technology and related Intellectual Property associated with the project.

Zero-Spin Silicon for Quantum Computing Processor Chips:

Silex's LIS technology has the potential to efficiently produce ZS-Si and provide a secure supply of high-purity enriched silicon - a critical enabling material for the emerging silicon quantum computing market. The first batches of commercial ZS-Si product may be purchased by SQC under an Offtake Agreement that was executed in December 2019.

ZS-Si is a unique form of isotopically enriched silicon required for the fabrication of next-generation processor chips which will power silicon-based quantum computers. Quantum computers are expected to be dramatically more powerful than the most advanced conventional computers in operation today and may be able to address currently intractable problems, creating new opportunities across industries, including advanced medicine, artificial intelligence, cybersecurity and global financial systems. Many governments around the world and big tech corporates, such as Intel, Google, IBM, and Microsoft, are vying for leadership in Quantum Computing development. SQC believes its proprietary 'atom qubits in silicon' technology has key attributes that make it the most likely to win the race to build a scalable quantum processor.

Current methods for production of enriched silicon are very limited and costly (even for lower purity material) with only a few kilograms produced annually world-wide, mostly using gas centrifuge technology. Should the ZS-Si technology be successfully commercialised, it would enable Australia to establish itself as a world-leader in ZS-Si production, potentially creating a new value-added export market.

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 project; 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.