Zero-Spin Silicon Project Completes Construction of Stage 3 Pilot Demonstration Facility

20 July 2022

Highlights:

- **The construction of a pilot demonstration facility in the Zero-Spin Silicon (ZS-Si) project has been completed – a key milestone in the third and final stage of the project**
- **The aim of the ZS-Si project is to verify the capability of the SILEX technology for commercial production of high purity ZS-Si - a key enabling material for next generation processor chips required to power silicon quantum computers**
- **Current project focus is on the commissioning of the pilot demonstration facility, with initial production testing planned to commence before the end of CY2022**
- **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 completion of the construction of a pilot demonstration facility, which is being deployed to verify commercial production capability for high-purity 'Zero-Spin Silicon' (ZS-Si) – a key enabling material for the emerging silicon quantum computing industry. The ZS-Si production technology is based on a variant of the SILEX laser isotope separation (LIS) platform technology. The construction of the pilot demonstration facility is the seventh 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).

As part of this milestone, a pilot-scale process reactor and associated gas handling system were constructed. Additionally, a customised high powered multi-laser system based on lasers used in earlier stages of the project has been installed. The integration of these sub-systems into the pilot demonstration facility at the Company's Lucas Heights laboratories represents the first time the technology has been scaled-up to pilot production level.

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

"This is a hugely important milestone for the Project, as we move towards demonstrating production of Zero-Spin Silicon at pilot scale. The importance of this project to the emerging silicon quantum computing industry cannot be overstated, with the unfolding global disruption to the main source of highly enriched silicon - being Russian centrifuge production."

"The completion of the construction of the pilot demonstration facility represents a fantastic achievement by our extremely talented scientists, engineers and technicians, and is a key step towards demonstrating the potential viability of commercial production of ZS-Si with the SILEX technology. We look forward to conducting testing with the pilot demonstration facility over the coming months and to undertaking initial production tests of ZS-Si by the end of 2022," he said.

Zero-Spin Silicon for Quantum Computing Processor Chips

Silex's LIS technology has the potential to efficiently produce ZS-Si in order to provide a secure source of supply of this key enabling material for the emerging silicon quantum computing market, with sales of initial small quantities of ZS-Si anticipated to commence in 2023.

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 thousands of times more powerful than the most advanced conventional computers in operation today, creating opportunities in numerous industries, including medicine, artificial intelligence, cybersecurity, and global financial systems. Many governments around the world and key corporates such as Intel, Google, IBM, and Microsoft are vying for leadership in Quantum Computing development.

The three-year, three-stage project is due for completion at the end of CY2022 with the planned demonstration of production for initial quantities of ZS-Si from the SILEX pilot demonstration facility. The first stage, completed in June 2020, involved a 'proof-of-concept' validation of the silicon enrichment process using laboratory-scale equipment, and initial optimisation of the process.

The second stage, completed in early 2022, involved testing and optimisation of the LIS technology with a prototype facility. Since the completion of stage two, the prototype facility has been used extensively to increase process efficiency and throughput, with improvements incorporated into stage three work - focusing on construction of the pilot demonstration facility.

The first batches of high purity ZS-Si product will be purchased by SQC under an Offtake Agreement that was executed in December 2019. The Agreement includes SQC making three annual payments of $300,000, all of which have been received, as an offset against future purchases of ZS-Si produced by Silex.

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 project be successful, it would enable Australia to establish itself as a world-leader in ZS-Si production, potentially creating a new value-added export market.

The project remains on track to achieve its objectives of utilising the SILEX LIS technology to produce highly enriched silicon in the form of ZS-Si, and to establish the manufacturing technology and capability to scale-up production as silicon-based quantum computing gains traction globally over the next decade.

Silex will retain ownership of the ZS-Si production technology and related Intellectual Property developed through the project.

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; 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 that could adversely affect the technology development programs; and the outcomes of various strategies and projects undertaken by the Company.