Zero-Spin Silicon Project - Prototype Plant Start-up

30 August 2021

Highlights:

- **The recently constructed prototype demonstration facility has commenced operations and initial testing for the production of Zero-Spin Silicon (ZS-Si) is now underway using the SILEX laser isotope separation process**
- **The start-up of the facility represents the successful completion of another key project milestone in the ZS-Si Project**
- **The prototype demonstration facility will be utilised routinely over the coming months to conduct silicon enrichment tests, focussing on process characterisation, optimisation and efficiency improvements**
- **The ZS-Si Project is continuing to progress through the second stage of the project which aims to demonstrate scaled-up production of ZS-Si using the prototype facility by the end of CY2021**
- **Full Project completion will involve a third stage – industrial scale process verification in a commercial demonstration plant, with the potential production of initial commercial quantities of ZS-Si commencing by the end of CY2022**
- **ZS-Si is a key enabling material for the next generation of processor chips to power silicon quantum computers**
- **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 a key milestone in the Zero-Spin Silicon (ZS-Si) Project - the successful start-up of the recently constructed prototype demonstration facility and commencement of initial testing for the ZS-Si process. The prototype plant will be deployed routinely over the next few months to characterise, optimise and improve the efficiency of the laser isotope separation (LIS) technology for potential commercial production of high-purity ZS-Si.

The ZS-Si production technology is based on a variant of the SILEX laser isotope separation (LIS) platform technology. The start-up of the facility is the fourth 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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As part of this milestone, a customised high powered SILEX laser system was successfully integrated with a prototype process reactor and associated gas handling system. The prototype facility has now been used to conduct the first enrichment tests, the results of which confirmed the functionality of the facility to produce high purity enriched silicon in the form of ZS-Si. The operation of the prototype facility at the Company's Lucas Heights laboratories represents the first time the technology has been scaled-up outside the original uranium enrichment project.

"We have continued to make very good progress to date, meeting all Project milestones despite the headwinds created by the COVID pandemic. We remain on track with the overall goal of developing our SILEX LIS technology for the production of high-purity ZS-Si for the emerging quantum computing industry by the end of 2022," Dr Michael Goldsworthy, Silex CEO said. "The Project now moves into the next phase of work - undertaking rigorous process measurements with the facility over the coming months, characterising and optimising the process and improving the technology for efficient production of high-purity ZS-Si," he added.

Zero-Spin Silicon for Quantum Computing Processor Chips

Silex's LIS technology has the potential to efficiently produce ZS-Si in commercial quantities to provide a secure supply of this key enabling material for the emerging silicon quantum computing market. Should the Project be successfully completed, the Company is hopeful that this will lead to initial sales of ZS-Si to project partner SQC 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 several industries, including medicine, artificial intelligence, cybersecurity, and 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 production of initial commercial quantities of ZS-Si from a SILEX pilot production facility. The first stage, completed in June 2020, involved a 'proof-of-concept' demonstration of the silicon enrichment process using laboratory-scale equipment, and initial optimisation of the process.

The second stage currently underway, involves characterisation and optimisation of the LIS technology with the prototype facility, and involves two additional milestones scheduled for completion by the end of CY2021. After completion of stage two, the prototype facility will be modified to increase process throughput and incorporate any design improvements for the conduct of stage three work, which will focus on pilot production activities.

The first batches of commercial ZS-Si product are planned to 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, two of which have been received to date, as an offset against future purchases of ZS-Si produced by Silex.

Current methods for production of enriched silicon are limited and costly with only a few kilograms produced annually, mostly using gas centrifuge technology. Should the ZS-Si Project be successful, it could potentially enable Australia to establish itself as a world-leader in ZS-Si production. If the market for ZS-Si evolves, this could create a new value-added export market.

The Project remains on track to achieve its objective of utilising the SILEX LIS technology to produce enriched silicon in the form of ZS-Si with sufficiently high purity, and to potentially establish the manufacturing technology and capability to scale-up production in line with anticipated demand for ZS-Si 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 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 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 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 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 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 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; decisions made or 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.