



Silex
Systems Limited

Zero-Spin Silicon Project Completes Key Milestone

19 January 2021

Highlights:

- **Successfully completed a key milestone to validate commercial synthesis of feed material for the Zero-Spin Silicon (ZS-Si) laser enrichment process**
- **Represents an important milestone in the second stage of the project involving design, construction and operation of scaled-up prototype equipment for ZS-Si**
- **ZS-Si is a key enabling material for the next generation of processor chips to power silicon quantum computers**
- **Project completion involves the commissioning and operation of a ZS-Si pilot production facility by the end of CY2022**
- **Project 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 completion of another key milestone in its project to develop a process for the commercial production of high-purity 'Zero-Spin Silicon' (ZS-Si), using a variant of the SILEX laser isotope separation (LIS) technology. This project is being undertaken in conjunction with project partners Silicon Quantum Computing Pty Ltd (SQC) and UNSW Sydney (UNSW).

The Silex LIS technology has the potential to produce ZS-Si efficiently and at scale to provide a secure supply of this key enabling material for the emerging silicon quantum computing market with initial sales targeted in 2023.

The three-year project is scheduled to be completed at the end of CY2022 with the commissioning of a commercial pilot production plant, from which the initial output will be sold to SQC under a previously announced offtake agreement.

Dr Michael Goldsworthy, Silex CEO said: "We launched this project in December 2019, as part of our strategy to commercialise the SILEX technology across multiple markets. We are currently targeting two key global industries with our core SILEX technology, being the nuclear fuel industry and the emerging quantum computing industry."

"This milestone represents an important achievement in the ZS-Si project, to develop a scalable and cost-effective technique to synthesize chemically pure feed material for the ZS-Si laser enrichment process."

“There are no reports currently of the feed material being used in any other field and it is not commercially available, which we anticipate will further strengthen the project IP,” he added.

The work involved optimising the synthesis process for the feed material, to validate that it can be safely scaled-up to meet industrial production levels, while at the same time ensuring chemical purity and acceptable costs.

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 of the project, currently underway, involves the design, construction, and operation of scaled-up prototype equipment, including for the feed material synthesis as announced today, with the objective of validating the silicon LIS technology and scalability of the process. The second stage includes several more separate milestones due for completion by late CY2021.

The first batches of ZS-Si product will be purchased by SQC under an Offtake Agreement that was executed in December 2019, which 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 very limited and costly (even for lower purity material) with only a few kilograms produced annually, mostly using gas centrifuge technology.

Should the ZS-Si project be successful, it would enable Australia to establish itself as the world-leader in ZS-Si production, creating a new value-added export market. The project is also supported by a \$3 million Federal Government funding grant from the CRC-P which was awarded in February 2020.

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 establish the manufacturing technology and capability to scale-up production as silicon-based quantum computing gains traction globally during 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 was licensed exclusively in 2006 to GE-Hitachi Global Laser Enrichment LLC (GLE) in the USA for application to uranium enrichment. GLE has been undergoing a restructure for a number of years after GE-Hitachi disclosed it was seeking to exit the venture. In view of the time the GLE restructure has taken to date and the dependency of the closing of the restructure on obtaining US Government approvals, combined with the continuing depressed nuclear fuel market conditions, plans for commercial deployment of the SILEX technology have been significantly delayed, and remain at risk.

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 at risk. The future of the SILEX technology is therefore highly uncertain and any plans for commercial deployment are speculative.

Silex also 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 filter applications. The outcome of IQE's commercialisation program is also highly 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 patterns, 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 uncertainty including concerning the COVID-19 pandemic; the outcome of the GLE restructure including obtaining US Government approvals; 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; and the outcomes of various strategies and projects undertaken by the Company.