



**Silex**  
Systems Limited

## **Zero-Spin Silicon Project**

### **Stage 3 Enrichment Testing Commences**

**19 September 2022**

#### **Highlights:**

- **Silicon enrichment testing has commenced in the third and final stage of the Zero-Spin Silicon (ZS-Si) project after the commissioning of a pilot demonstration facility at the Company's Lucas Heights technology centre**
- **ZS-Si is a form of very high purity enriched silicon – a key enabling material for the fabrication of next generation quantum processor chips which will drive ultra-powerful silicon quantum computers**
- **The aim of the ZS-Si project is to demonstrate commercial production capability using a variant of the SILEX laser technology, and to provide a path to a secure and resilient supply chain free of dependence on Russian-sourced material**
- **The enrichment and initial production tests are anticipated to be completed by 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 commencement of silicon enrichment testing utilising the recently commissioned pilot demonstration facility at the Company's Lucas Heights technology centre in Sydney. The ZS-Si production technology is based on a variant of the SILEX laser isotope separation (LIS) platform technology. Commencement of testing with the pilot facility is the eighth 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).

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

"The commencement of enrichment testing with the pilot demonstration facility marks a critical phase in the Zero-Spin Silicon project, as we move towards verifying scalable production of quantum-grade enriched silicon. The importance of success in this project to the emerging silicon quantum computing industry has never been higher, in light of the unfolding global disruption to the main source of enriched silicon, being Russian centrifuge production. We look forward to progressing testing with the pilot facility over the coming months."

The enrichment testing now underway will determine the potential viability of commercial production of ZS-Si with the SILEX technology. A key focus will be to achieve improvements in process efficiency and yield, utilising a customised high powered multi-laser system, a pilot-scale process reactor and the associated gas handling system. Laser enrichment testing and process optimisation is expected to continue through the remainder of CY2022.

The project remains on track to achieve its objectives of utilising a variant of 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.

### **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 key enabling material for the emerging silicon quantum computing market. If the project is successfully completed, Silex will be in good position to scale-up production from the Stage 3 facility with the aim of producing initial quantities of ZS-Si for sale in 2023.

The first batches of commercial ZS-Si product may 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.

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.

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.

***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](http://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.