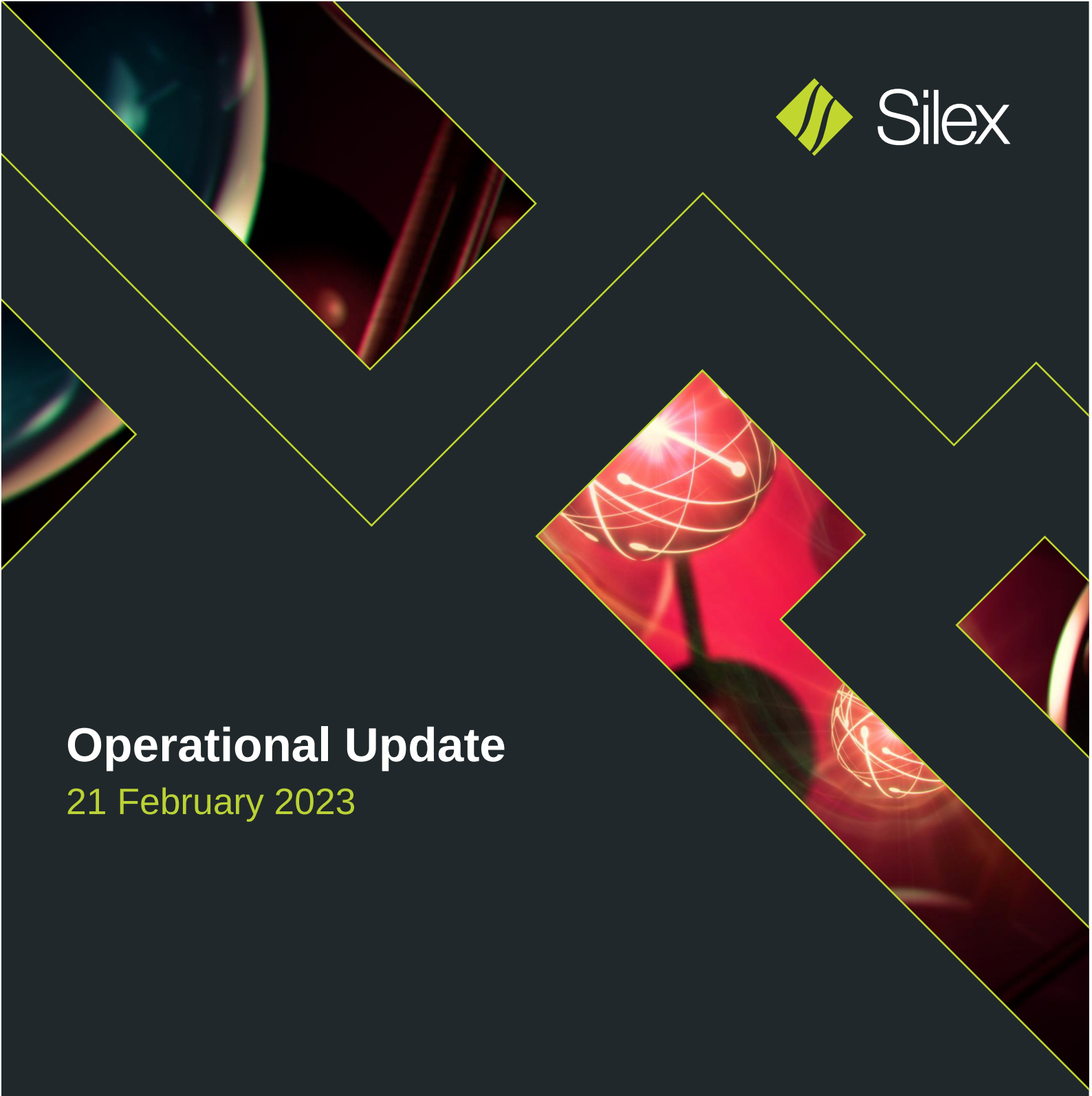

Operational Update

21 February 2023

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Recent Highlights and Progress

- Global Laser Enrichment LLC (GLE) - the jointly-controlled venture between Silex and Cameco Corporation, with 51% and 49% ownership interest respectively, is uniquely positioned to address the 'Triple Opportunity' emerging in the global nuclear fuel supply chain, which is being driven by global climate change and geopolitical issues:
    1) Production of natural grade uranium in the form of converted UF_6;
    2) Production of low enriched uranium for existing nuclear power plants; and
    3) Production of higher assay fuel for next-generation advanced SMR[1] plants;
- GLE's owners have been assessing the potential to accelerate its commercialisation timeline in order to leverage this Triple Opportunity;
- Silex and GLE are currently focused on construction of full-scale laser and separator equipment to be deployed in GLE's Test Loop facility in Wilmington, North Carolina, with the aim of completing a commercial-scale pilot (TRL-6[2]) demonstration of the SILEX uranium enrichment technology as early as 2024;
- The first commercial-scale laser system module was shipped from Silex's Lucas Heights facility to GLE's Test Loop facility in Wilmington in Q3 2022 after an eight month testing program, and has since been installed and commissioned;
- GLE's commercialisation strategy is underpinned by the planned depleted tails enrichment project (the first of the Triple Opportunity) which has the potential to become a 'Tier 1' uranium resource producing natural grade UF_6 at a rate of up to 5 million pounds U_3O_8 equivalent per year for approximately 30 years;
- GLE signed two non-binding Letters of Intent (LOI) with US utilities Constellation Energy Generation and Duke Energy, to assess areas of potential cooperation in the US nuclear fuel industry, including supporting GLE's deployment of the SILEX technology in the US and other commercial arrangements;
- In February 2022, GLE submitted a response to a Request for Information issued by the US DOE[3] for the establishment of a HALEU[4] Availability Program (i.e., the third opportunity noted above), which is funded under the Inflation Reduction Act (IRA) passed by Congress in August 2022 with a US$700m funding package. GLE will explore opportunities to participate in the Program as it unfolds;
- The Company recently completed Stage 3 enrichment testing in the Zero-Spin Silicon (ZS-Si) project, utilising the pilot demonstration facility at its Lucas Heights site. This key milestone confirmed the capability of the SILEX enrichment technology to produce high purity (~99.995%) ZS-Si and verified the path to commercial scale-up of the facility.

[1] Advanced Small Modular Reactors (SMRs) produce up to 300MWe power (20% to 30% of large conventional reactors)
[2] Technology Readiness Level 6 (TRL-6) as defined in DOE Technology Readiness Assessment Guide 'DOE G 413.3-4A'
[3] Department of Energy (DOE)
[4] High Assay Low Enriched Uranium (HALEU)

Our Strategy

We are focused on the commercialisation of our innovative SILEX laser enrichment technology across multiple markets with a priority focus on contributing to the reliable and sustainable supply of nuclear fuel for the world's clean energy needs and quantum materials for next generation quantum computing technology.

The execution of our strategy is being pursued through the following activities:

- Pursuit of the 'Triple Opportunity' emerging in the global nuclear fuel supply chain for the SILEX uranium enrichment technology through our ownership of a 51% interest in exclusive SILEX uranium technology licensee GLE;
- Developing the SILEX technology for the production of enriched silicon in the form of Zero-Spin Silicon – a key material required for silicon quantum computer chip fabrication; and
- Progressing our assessment of additional applications of the SILEX technology in the medical radioisotope industry, including potential commercial and strategic partners.

SILEX Uranium Enrichment Technology

The SILEX technology is the only third-generation laser-based uranium enrichment technology known to be under commercial development today. Subject to the successful completion of the commercialisation project, market conditions and other factors, the SILEX technology could become a major contributor to nuclear fuel production for the world's current and future nuclear reactor fleet, through the production of uranium in several different forms:

- ***natural grade uranium (U_{nat})***
- **low enriched uranium (LEU)**
- **high assay LEU (HALEU)**

Uranium production and enrichment are the two largest value drivers of the nuclear fuel cycle, accounting for nearly 80% of the value of a reactor fuel bundle. Importantly, commercialisation of the SILEX uranium enrichment technology through licensee GLE could enable the SILEX technology to become a unique, multi-purpose nuclear fuel production platform for existing and emerging nuclear power generation systems.

The 'Triple Opportunity' for GLE and the PLEF multi-purpose production plant

Two key factors are driving potential transformation of the global nuclear fuel supply chain, presenting GLE with a 'Triple Opportunity' to produce three different grades of nuclear fuel – all via the deployment of SILEX laser-based uranium enrichment technology:

1) the growing shift towards utilisation of nuclear power by many countries around the world in response to heightened concerns over global climate change;

2) the impact of the Russian invasion of Ukraine which threatens to disrupt the significant supply of Russian nuclear fuel to the US and other Western markets.

Western nuclear fuel markets have become highly dependent on Russian nuclear fuel supply, as summarised in the table below. This has created urgency in establishing alternative supply sources to replace Russian sourced fuel in the medium to long term.

The Influence of Russian Nuclear Fuel Supply

	Russian Share of Global Production Capacity[1]	EU Nuclear Fuel Supplied by Russia[2]	US Nuclear Fuel Supplied by Russia[1,3]
Uranium (U_3O_8)	~14%	~20%	~14%
Conversion	~27%	~24%	~18%
Enrichment (SWU)	~45%	~31%	~20%

1. WNA and UxC various sources 2022
2. Euratom Supply Agency Annual Report 2021
3. EIA, 2021 Uranium Marketing Annual Report, May 2022

*GLE could be very well positioned to help address the emerging nuclear fuel supply chain issues with the unique potential to produce all three grades of nuclear fuel required for current and future nuclear power plants – described as the '**Triple Opportunity'**.*

The Triple Opportunity could involve the following activities at the Paducah Laser Enrichment Facility (PLEF) multi-purpose production plant, which are not necessarily sequential. The potential deployment of the various opportunities will depend on market conditions and contracting strategy:

1) **PLEF UF_6 Production:** Production of natural grade UF_6 (with U-235 assay of 0.7%) via processing of depleted tails (U-235 assays of 0.25% to 0.5%) with the SILEX technology (the original PLEF Project) provided in the form of already converted uranium, thereby potentially helping to alleviate UF_6 conversion supply pressure;

2) **PLEF LEU Production:** Production of low enriched uranium (LEU) (U-235 assays up to 5%) and LEU+ (assays from 5% to 10%) from natural UF_6 with separate SILEX enrichment capacity – to supply fuel for existing reactors;

3) **PLEF HALEU Production:** Production of HALEU (U-235 assays up to ~20%) via enrichment with SILEX technology to supply fuel for next generation advanced reactors including SMRs.

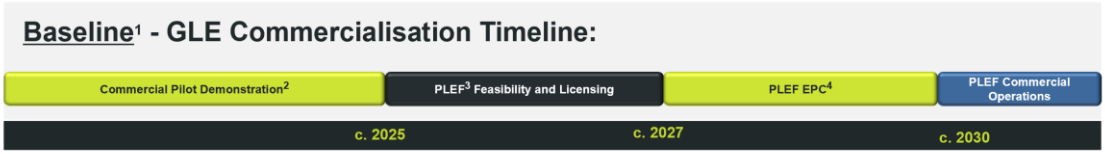
The PLEF opportunities are underpinned by the GLE/DOE agreement, which provides the feedstock for the production of natural grade uranium over three decades, with the output sold into the global uranium market at an expected production rate equivalent to a uranium mine producing an annual output of up to 5 million pounds of uranium oxide, which would rank in the top 10 of today's uranium mines by production volume. Preliminary analysis by Silex of the PLEF UF_6 Production Project indicates it could rank equal to a 'Tier 1' uranium project based on current estimates of the long-life and low cost of production.

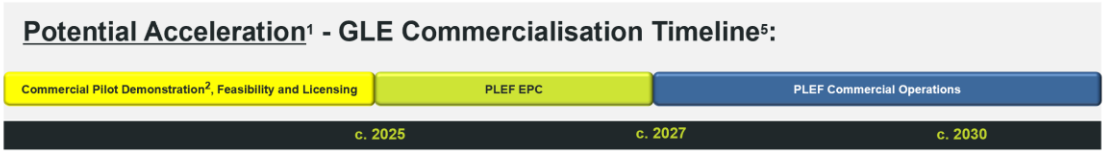
While the PLEF UF_6 Production Project has been in planning for several years, the opportunity for GLE to produce LEU/LEU+ fuel has opened up as a result of the geopolitical issues triggered by Russia's invasion of Ukraine and the possibility of disruption to the supply of Russian-sourced nuclear fuel. Similarly, potential production of HALEU at the PLEF has become a significant opportunity as Western nuclear fuel supply chains prepare for the exclusion of Russian-sourced HALEU required to fuel many advanced reactor designs, including SMRs. This contributed to the US Congress passing the IRA in August 2022 with US$700 million in funding support for the DOE's HALEU Availability Program. GLE will explore opportunities to participate in DOE Programs as they unfold.

Commercialisation Timeline

Silex and Cameco have been assessing the potential to accelerate GLE's prospective commercialisation timeline. With evolving market conditions providing strong support for acceleration, any decision will be considered in light of a number of factors, including the level of support available from various government and industry initiatives.

Acceleration could involve targeting completion of the pilot demonstration program as early as mid-2024, with a view to commencing commercial operations as early as 2027, depending on market demand and other factors. This could also involve bringing forward a commercial feasibility assessment and NRC licensing activities for the proposed PLEF project. The diagram below depicts the baseline (original) and potentially accelerated timelines for commercialisation activities:





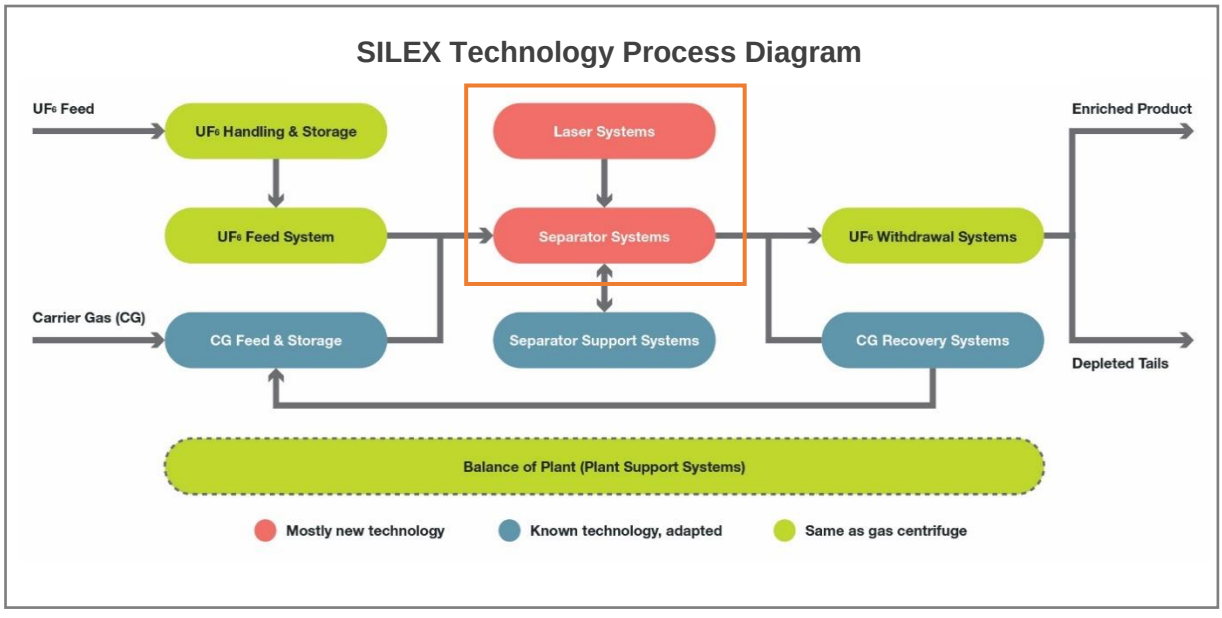
1. Timelines subject to technology demonstration outcomes, market conditions, licensing, commercial support and other factors
2. Includes achievement of Technology Readiness Level 6 (TRL-6) as defined by DOE Technology Readiness Assessment Guide (G 413.3-4A)
3. PLEF: Paducah Laser Enrichment Facility
4. Engineering, Procurement and Construction (EPC) of commercial plant
5. Potential acceleration remains subject to due diligence assessment and may vary according to differing scenarios

GLE has also commenced preliminary activities for the engineering design of the PLEF. In addition to hiring in-house plant and systems engineering specialists, GLE has engaged a third-party contractor to commence the front-end engineering design (FEED) for the PLEF. In addition to advancing the facility design, engineering cost model and plant economic study, GLE's efforts in 2023 will also focus on regulatory licensing and site acquisition activities for the PLEF.

Commercial-Scale Pilot Demonstration Program

The primary focus of the commercial-scale pilot demonstration program being conducted jointly by Silex and GLE is the construction and testing of full-scale laser systems, separator systems and the associated gas handling equipment. Construction and integration of the pilot-scale equipment is currently on track to be completed around the end of CY2023. After integration and commissioning, the full SILEX technology pilot demonstration facility is expected to be put into service as early as 2024.

At the core of the SILEX technology are the laser systems and separator systems which form the vast majority of the classified intellectual property licensed to GLE, as depicted by the red blocks shown in the diagram below:



An update on progress with these key technology systems follows:

Laser Systems

The first full-scale laser system module, designed and built at Silex's Lucas Heights laser technology development centre, was recently shipped to GLE in Wilmington following the successful completion of a rigorous eight-month test program. The laser system module has been installed in the Test Loop facility and has been commissioned. The commercial-scale laser system is the result of many years of development work and represents a significant leap in performance compared to the previous generation of laser technology used in the Test Loop.

Construction of a second, identical laser system module required for the pilot demonstration project is well advanced, and the system is expected to be shipped to the Wilmington Test Loop around mid-CY2023, subject to logistics and related scheduling.

Separator Systems

The joint GLE-Silex engineering team based at the Test Loop facility in Wilmington has been making solid progress scaling up the separator and gas handling systems required for the pilot demonstration program. Component testing is well advanced and integrated system assembly is underway. Additionally, GLE is expanding its in-house manufacturing capability and expanding the engineering and operations teams.

*Successful completion of the pilot demonstration project would result in the technology reaching **TRL-6 level – a key milestone in the de-risking of the technology** before the focus turns to the construction of the first commercial SILEX uranium enrichment plant.*

Nuclear Fuel Market Update

Many countries have prioritised government policy initiatives relating to tackling climate change and ensuring energy security, stating that nuclear power should form a meaningful part of their energy mix in the future. The demand for carbon-free base load nuclear power is now being witnessed in various forms, with short and medium term demand emanating from reactor life extensions and the delay or reversal of reactor retirements and in the longer-term from planned new reactor build programs.

The global nuclear fuel markets for uranium, conversion services and uranium enrichment services, continued to tighten in 2022 as climate change issues contributed to the turning of public sentiment back in favour of nuclear power. This, coupled with growing energy security concerns and geopolitical repositioning in Western energy markets has resulted in a return to strong growth in demand for nuclear fuel.

Following the Russian invasion of Ukraine in February 2022, nuclear fuel markets continued to tighten. As a result of the global nuclear industry's dependence on Russian supply, uranium enrichment term contract prices increased substantially from around US$70/SWU to over US$135/SWU during 2022, as utilities sought to secure fuel supplies under the growing threat of sanctions on Russian sourced enriched nuclear fuel.

The term price of uranium has also increased significantly in recent years from a low of US$30 per pound in 2016 to ~US$50 per pound today. Likewise, term conversion prices have increased from ~US$12/kg to ~US$25/kg in the same period.

In addition to the traditional fuel markets that provide LEU for today's reactor fleet, there is significant supply risk in the emerging market for HALEU fuel, required for next generation advanced reactors, including SMRs. With no HALEU production capability available anywhere in the West in the short term, some SMR developers were planning to purchase Russian-sourced HALEU over the next decade or longer. This has given rise to some urgency around the world to establish HALEU production capability as soon as possible. The abovementioned HALEU Availability Program, being planned by the US DOE is the most relevant to GLE.

In summary, we believe Western nuclear fuel markets will undergo a fundamental realignment over the next 12 to 24 months towards a more resilient and sustainable footing, with the aim of becoming less dependent on, or free of, reliance on Russian and other State-Owned nuclear fuel suppliers. We believe this realignment could endure for decades, given the renewed focus on long term energy security.

*We believe **SILEX technology - the only third-generation laser enrichment technology being commercialised today**, could help make nuclear power a more efficient and cost-effective solution for resilient and sustainable carbon-free base load electricity generation.*

Zero-Spin Silicon for Quantum Computing Processor Chips

In late 2019, Silex launched a R&D project in conjunction with project partners Silicon Quantum Computing Pty Ltd (SQC) and UNSW Sydney (UNSW), 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.

ZS-Si is a unique form of isotopically enriched silicon, which is a key enabling material for the fabrication of next generation processor chips that will power silicon-based quantum computers. Until recently, most of the world's supply of enriched silicon came from Russia, produced with conventional centrifuge technology. The Russian invasion of Ukraine has disrupted this source of supply, which has given rise to some urgency in establishing alternative supply. Silex anticipates that, with successful completion of the ZS-Si project, it can provide a secure and resilient alternative source of enriched silicon to users around the world.

*The three-year, three-stage ZS-Si project has progressed rapidly and has **successfully completed all target milestones**, including production of small quantities of ultra-high purity ZS-Si from the SILEX pilot demonstration facility.*

Stages 1 and 2 – Completed early 2022

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 further optimisation of the LIS technology using a purpose-built prototype facility. The Stage 2 enrichment testing confirmed production of small quantities of ZS-Si enriched to 99.95% in the Si-28 isotope.

Stage 3: Demonstrated ZS-Si production at commercial pilot scale – Completed

The third stage of the project passed a key milestone in December 2022 with the achievement of target enrichment objectives using the pilot demonstration facility constructed at the Company's Lucas Heights facility. Tests utilising a variant of the SILEX laser enrichment technology have confirmed the production of ZS-Si in the form of enriched silicon-28 at target purity of ~99.995%, and verified production scalability. At the time of writing, Stage 3 tests are being finalised with a focus on optimising throughput and economics while the final project reporting matters are being addressed.

ZS-Si Project – Next Steps

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 to silicon quantum chip developers around the world. The first batches of high purity ZS-Si product are expected be purchased by SQC under an Offtake Agreement that was executed in December 2019. SQC and UNSW Sydney remain key project sponsors as we scale to initial commercial production in 2023. Silex will retain ownership of the ZS-Si production technology and related Intellectual Property developed through the project.

Quantum Computing and ZS-Si Outlook

Quantum computers are expected to be many times more powerful than the most advanced of today's conventional computers, opening new frontiers and opportunities in many industries, including medicine, artificial intelligence, cybersecurity and global financial systems. Many countries around the world are investing heavily in the development of quantum computing technology, with governments and key corporates (such as Intel, IBM, Google, Microsoft and others) vying for leadership in this emerging strategic industry. 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 limited and costly with only small quantities 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 as anticipated, this could create a **new value-added export market for Australia**. As the ZS-Si demonstration facility is scaled for commercial production, Silex aims to engage with other potential customers, including major semiconductor companies.*

Corporate

The Company appointed Dr Geordie Graetz as Chief Commercial Officer in November 2022. Geordie has a strong background in international business development, project management, government and industry relations, and public policy with significant experience in the nuclear industry. Over the last decade, Geordie has become an authority on the global nuclear industry across its full spectrum of activities, including a deep knowledge of the nuclear fuel cycle and front-end issues, nuclear reactor technologies and projects, and back-end issues, including used fuel management and radioactive waste disposal. He is well placed to support the key commercial elements of the next phase of business development and growth for Silex.

Silex was pleased to be recently named second overall in the 2023 OTCQX® Best 50, a ranking of top performing companies traded on the OTCQX Best Market for 2022. The OTCQX Best 50 is an annual ranking of the top 50 U.S. and international companies traded on the OTCQX market. The ranking is calculated based on an equal weighting of one year total return and average daily dollar volume growth in the previous calendar year. Silex was also pleased to be included in the Solactive Global Uranium and Nuclear Components Total Return Index, which also triggered inclusion into the Global X Uranium Exchange Traded Fund (ETF) (NYSE: URA) as a non-pure-play uranium stock, effective 1 February 2023 (US time). The Global X Uranium ETF provides investors with access to a range of companies that are involved in the global market for uranium mining and the production of nuclear technology components. The Global X Uranium ETF is the largest uranium ETF in the world, with total assets under management of US$1.62 billion.

Financial Overview

As of 31 December 2022, the Company had net assets of ~$44.5m, including ~$34.2m in cash and term deposits, ~$5.8m in third party listed company shares, and receivables of ~$4.6m. For the half-year, the Company's net cash outflows were $8.3m, primarily resulting from the increase in GLE funding in support of its intensified development and commercialisation activities associated with the SILEX technology.

Workplace Health and Safety

The health, safety and well-being of our people is paramount. We have a constant focus on the health, safety and well-being of our team members across all sites and we reported no lost time injuries or reportable incidents on our project sites during the last year. During the half-year, whilst there were some interruptions and uncertainty associated with the ongoing COVID-19 pandemic, full-time operations were maintained at all times.

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 very 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 Report 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 Report 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 Report. 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; whether IQE's commercialisation program for cREO® is resumed, the results from the program and the market opportunities 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.