Operational Update

27 August 2020

Highlights for the year ended 30 June 2020:

SILEX Uranium Enrichment for Nuclear Fuel

- A binding Membership Interest Purchase Agreement (MIPA) was executed in December 2019 between Silex, GE-Hitachi Nuclear Energy (GEH) and Cameco Corporation for the restructure of SILEX technology Licensee Global Laser Enrichment LLC (GLE). The restructure will result in Silex acquiring a 51% interest in GLE and uranium producer Cameco increasing their interest from 24% to 49%, subject to US Government approval;

- The path to market for GLE and the SILEX technology is underpinned by the agreement between GLE and the US Department of Energy (DOE) (amended in June 2020) providing DOE tails inventories for the Paducah project opportunity for uranium production;

- Economic analysis of the Paducah project indicates that it may rank as a large 'Tier 1' uranium producer by today's standards with respect to the long life and low cost of the project.

Zero-Spin Silicon for Quantum Computing

- A project to develop a process for commercial production of high-purity 'Zero-Spin Silicon' using a variant of the SILEX laser isotope separation technology commenced in December 2019 in conjunction with initial customer Silicon Quantum Computing (SQC);

- Stage One of the ZS-Si project was successfully completed in June 2020;

- The project is supported by collaboration partners SQC and UNSW Sydney, and a $3 million CRC-P Federal funding grant over the term of the 3-year project.

cREO™ for 5G Handset Technology

- Silex subsidiary Translucent's cREO™ semiconductor technology was sold to global semiconductor company IQE Plc (IQE) in early 2018 under an agreement which provides royalties of at least 3% of revenues derived from its use;

- IQE continues to make progress with development of cREO™ based high frequency filters for 5G handset applications and is considering other potential routes to market.

Silex Systems Limited | ABN 69 003 372 067
LHSTC, New Illawarra Road, Lucas Heights NSW 2234
Telephone: +61 2 9704 8888 | Facsimile: +61 2 9704 8851 | Website: www.silex.com.au

Our Strategy

Silex is a platform technology company focused on the commercialisation of our innovative SILEX laser isotope separation technology across multiple markets. Fundamental to the execution of our strategy are the following principles:

- Leading the SILEX uranium enrichment technology commercialisation program through the acquisition of a 51% interest in exclusive Licensee GLE;
- Strengthening our path to market in the US through the depleted uranium tails agreement with the US DOE and the Paducah uranium production opportunity; and
- Diversifying the utility of the SILEX technology by developing alternative applications, such as the production of enriched silicon in the form of Zero-Spin Silicon – a key material required for quantum computer chip fabrication.

The SILEX Uranium Enrichment Technology Update

The SILEX technology, which is the only third-generation laser-based uranium enrichment technology under commercial development today, 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 three different forms:

- ***natural grade uranium (U_{nat}):*** via enrichment of DOE inventories of depleted tails through the Paducah commercial project (producing uranium at natural U^{235} assay of ~ 0.7%);

- ***low enriched uranium (LEU):*** for use as fuel in today's conventional nuclear power reactors (includes U^{235} product assays between 3% to 5%); and

- ***high assay LEU (HALEU):*** a customised fuel for next generation Small Modular Reactors (SMRs) currently under development (includes U^{235} product assays up to 19.9%).

Uranium production and enrichment are the two largest value drivers of the current nuclear fuel cycle, accounting for up to 70% of the value of a 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.

i) The GLE Restructure:

In December 2019 a binding MIPA between Silex, Cameco Corporation (Cameco) and GEH was executed for the joint purchase of GEH's 76% interest in GLE. Closing of the Agreement, which remains subject to US Government approval and other factors, would result in Silex acquiring a 51% interest in GLE and Cameco increasing its interest from 24% to 49%.

The application for US Government (USG) approval of the transaction was submitted to the US Nuclear Regulatory Commission (NRC) in February 2020. The process for USG approval involves a multi-staged, multi-Government agency process and includes several significant filings. US Government approval for the GLE restructure is anticipated to be received by the end of CY2020. There is a possibility that this timeline may not be met due to minor delays being experienced due to the effects of COVID-19.

The MIPA includes a number of key financial terms and provisions including the Purchasers' obligation to reimburse GEH for their respective share of funding for GLE's Wilmington activities. Accordingly, Silex has been reimbursing GEH US$170,000 per month from 1 January 2020, representing 51% of GLE's funding, and this obligation continues until closing of the MIPA or termination. During this time, Cameco have been contributing 49% of GLE's funding. After closing of the MIPA, Silex and Cameco will directly contribute the ongoing funding of GLE (in the ratio of 51:49).

Silex and Cameco have also negotiated terms for an option for Cameco to purchase from Silex at fair market value, an additional 26% interest in GLE, potentially increasing their interest to 75% (subject to USG approvals). Silex is pleased that Cameco, as one of the world's leading uranium and nuclear fuel suppliers, remains involved in GLE and is seeking an increased ownership level.

ii) The Paducah 'Tier 1' Uranium Production Project:

The Paducah commercial project opportunity is an ideal path to market for the SILEX technology. The opportunity would allow for the initial commercial deployment of the technology on a smaller scale and at a lower cost, representing a lower risk path to market for the Company and all stakeholders. Underpinning the opportunity is the 2016 Sales Agreement between GLE and the US DOE which provides GLE access to large stockpiles of depleted uranium tails inventories owned by the DOE. The agreement was amended in June 2020 involving changes to certain provisions and timelines which re-aligns the agreement to current market conditions.

The Paducah commercial project opportunity will involve GLE constructing the proposed 'Paducah Laser Enrichment Facility' (PLEF) utilising the SILEX technology to enrich the DOE tails material which has been stored in the form of depleted uranium hexafluoride (UF_6 - containing U^{235} assays of between 0.25% to 0.4%). Subject to completion of the technology commercialisation project, regulatory approvals and prevailing market conditions, it is anticipated the PLEF will commence commercial operations to produce natural grade uranium from the late 2020's.

Tails enrichment at the PLEF would continue over several decades, resulting in the production of natural grade uranium which could then be sold into the global uranium market at a production rate of around 2,000 metric tons of natural uranium per year (in the form of UF_6). This is equivalent to a uranium mine producing an annual output of around 5.2 million pounds of uranium oxide, which would rank in the top ten of today's uranium mines by production volume. When combined with the anticipated long project life and low production costs, the Paducah Project will potentially qualify as a 'Tier 1' uranium resource. In addition, the uranium produced by the PLEF will include the added value of already being converted into UF_6 for further enrichment to LEU. Should LEU also be produced at an expanded PLEF facility, this would mean GLE could potentially become a significant player in the first three steps of the nuclear fuel cycle, as illustrated in Figure 1 below.

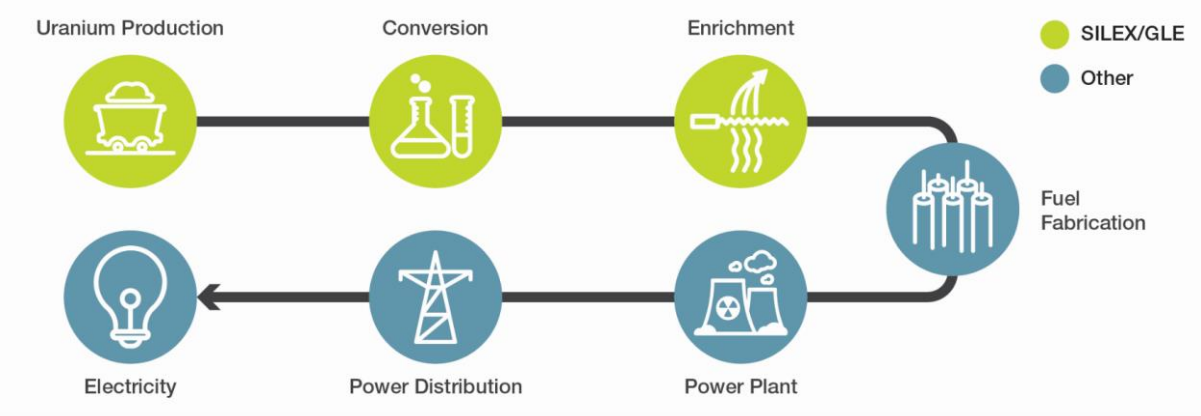

FIGURE 1: Nuclear Fuel Cycle

The market value of conversion from uranium oxide to UF_6 has increased over recent months with the spot price currently around US$20 per kg of UF_6 produced. The uranium price has also improved over the last year and is currently around US$32 per pound (UxC Nuclear Fuel Price Indicators, 1 August 2020). Additionally, the market for enrichment has improved steadily over the last year. At current market prices, the total annual value of these three steps in the nuclear fuel cycle have increased from a low of US$6 billion in 2017 to around US$9 billion today.

iii) Project Update – TRL-6 Demonstration:

In parallel with the GLE restructure activities, a focused operational effort has continued on the technology commercialisation program at both the Silex, Sydney and GLE, Wilmington, North Carolina project sites. Laser system development activities in Sydney include design upgrades and optimisation for the prototype commercial-scale laser systems. Activities in Wilmington include the scaling-up of enrichment process equipment and preparation of the Test Loop facility for the installation of prototype production equipment which will be utilised for a full-scale demonstration of uranium enrichment under commercial-like conditions. This demonstration is formerly defined in DOE terminology as a *'Technology Readiness Level - 6'* (TRL-6) demonstration[1].

Despite various headwinds, good progress continues to be made in the technology engineering-scale up program. The TRL-6 demonstration, which is currently scheduled for completion in the 2025 timeframe, includes economic validation of the technology and is the key step before a decision can be made to proceed with the development of the Paducah uranium production project.

Achieving a successful TRL-6 demonstration largely completes the de-risking of a new technology introduction (NTI) program, and generally enables project financing activities to commence. For example, completing the TRL-6 demonstration would allow GLE to consider an application for a DOE loan guarantee facility administered by the DOE Loan Programs Office (LPO). The LPO's US$10.9 billion Advanced Nuclear Energy Projects Loan Guarantee Program (energy.gov/lpo) includes potential financing for innovative front-end nuclear technology, including new enrichment technology – such as the PLEF. Any future decision by GLE on accessing this program would naturally consider many variables and prevailing conditions in the nuclear fuel and capital markets.

iv) Nuclear Power Outlook:

The merits of nuclear power as potentially the largest stable source of low-carbon base load electricity in a carbon-constrained world is being embraced with renewed interest. There are many countries which have prioritised government policy initiatives relating to climate change and energy security, stating that nuclear power should form a meaningful part of their energy mix in the future. Furthermore, the importance of stable electricity grids and the economic burden of excessive reliance on variable renewable sources are becoming better understood, as illustrated in studies cited in a recent OECD publication[2].

[1] Basic technology research starts with the TRL-1 level and progresses through technology validation phases (TRL – 2 & 3) and engineering scale-up phases (TRL- 4 & 5) to full-scale TRL- 6 pilot demonstration

[2] OECD-NEA Policy Brief: 'Nuclear Power and the cost-effective decarbonisation of electricity systems', June 2020

Nuclear power capacity globally is increasing, not only as a result of new reactor construction but also as a result of operating lifetime extensions and capacity increases for existing nuclear reactors. According to the World Nuclear Association (world-nuclear.org) there are currently 439 operable nuclear reactors today, and 56 nuclear reactors under construction. China is the fastest growing nuclear energy market, with 47 reactors in operation, 12 reactors under construction and a pipeline of over 200 proposed reactors for construction. The US is the world's largest producer of nuclear power, with 95 operable reactors accounting for more than 30% of worldwide nuclear electricity generation.

Over the past year, the signs of recovery in the markets for nuclear fuel have become evident, including uranium, conversion and enrichment. Whilst the short-term demand for uranium and enrichment remains soft, market prices continue to trend upwards. As outlined above, the long-term value proposition for nuclear energy and its fuel markets is positive with significant growth forecasted in nuclear power generation around the world.

In addition, there is the potential for commercialisation over the next decade of next-generation SMRs, which may offer significant advantages over large conventional nuclear power reactors. SMRs have the potential to be cheaper and simpler to construct, and as a production platform for base load electricity generation, may compete favourably with intermittent distributed generation such as solar and wind. There are currently numerous SMR development programs advancing around the world, with several designs requiring higher assay fuels (HALEU). With the advantages of lower capital costs and greater flexibility of the SILEX technology, GLE could be well placed to address this emerging nuclear fuel market in the coming years.

The Zero-Spin Silicon Project

In December 2019 Silex launched a new 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 required for the fabrication of next generation processor chips which will power silicon-based quantum computers. Silex's LIS technology has the potential to efficiently produce ZS-Si to provide a secure supply of this material for project partner and initial customer SQC, in support of its world-leading efforts to commercialise silicon-based quantum computing technology in conjunction with UNSW.

Quantum computers are expected to be thousands of 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.

The three-year ZS-Si project, which was awarded a $3 million Federal Government funding grant from the CRC-P in February 2020, is due for completion at the end of CY2022. The first stage of the three-stage project was successfully completed in June 2020, establishing 'proof-of-concept' for the silicon LIS process. The second stage of the project involves the design, construction and operation of scaled-up prototype equipment with the objective of verifying the scalability of the silicon LIS technology and the underlying economics of the process. The third stage will culminate with the planned production of initial commercial quantities of ZS-Si from a SILEX pilot production facility, leading to a full economic assessment of the ZS-Si business case. Silex will retain ownership of the ZS-Si production technology and related Intellectual Property developed through the project.

The first commercial quantities of ZS-Si produced from the pilot facility will be purchased by SQC under an Offtake Agreement executed in December 2019, which includes SQC making three annual payments of $300,000 as an offset against future purchases of ZS-Si produced by Silex. The first $300,000 payment was received in December 2019. Furthermore, SQC signed a Subscription Agreement with Silex which resulted in SQC acquiring 2.3 million fully paid ordinary shares in the capital of Silex through a $900,000 private placement completed in January 2020, bringing the total value of the transaction with SQC to $1.8 million.

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 a world-leader in ZS-Si production, potentially creating a new value-added export market. As the ZS-Si project moves towards completion, Silex will engage with other potential customers, including several of the world's largest computer chip manufacturers who are also developing quantum computing technology.

The cREO™ Semiconductor Technology

Silex subsidiary Translucent's cREO™ technology was purchased by UK-based IQE Plc (AIM: IQE) in early 2018 in accordance with a 2015 License and Assignment Agreement between Translucent and IQE. As a result, a payment of US$5 million was received by Translucent in September 2018 (in IQE stock). In addition, a perpetual royalty of at least 3% will be payable to Translucent on the sale of any IQE products that utilise the cREO™ technology. Minimum annual royalties commenced being paid during the year, with the first minimum royalty payment of US$400,000 for the year ended CY2019 received in March 2020.

IQE is the global leader in the design and manufacture of advanced semiconductor wafer products used in many of today's advanced semiconductor devices, and is a key player in the emerging 5G wireless technologies market. IQE continues to make progress with development of cREO™ based high frequency filters for 5G handset applications and is considering other potential routes to market for the cREO™ technology.

COVID-19 Update

The COVID-19 global pandemic has created significant uncertainty and challenges across the world. At Silex, we continue to conduct operations with extreme caution and heightened concern for the safety and wellbeing of our team. Whilst there remains considerable risk and uncertainty with regard to COVID-19, we will continue to implement workplans and safety measures to ensure that our operations can continue to the fullest extent possible under evolving circumstances.

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:

Michael Goldsworthy
CEO/Managing Director
T +61 2 9704 8888
E investor.relations@silex.com.au

Julie Ducie
CFO/Company Secretary
T +61 2 9704 8888
E investor.relations@silex.com.au

About Silicon Quantum Computing Pty Ltd:

Silicon Quantum Computing Pty Ltd (SQC), is an Australian private company at the forefront of global efforts to build a commercial-scale silicon-based quantum computer and bring quantum computing (QC) to market. SQC was formed in May 2017 by the Commonwealth of Australia, UNSW Sydney (UNSW), Telstra Corporation Limited, the Commonwealth Bank and the State of New South Wales, and funded with AUD$82.8 million, to acquire a portfolio of world leading, silicon QC intellectual property (IP) developed at the Centre of Excellence for Quantum Computation and Communications Technology (CQC2T). Since May 2017, leveraging the CQC2T IP and its own developed QC IP, SQC has been pursuing a program to build a quantum processor in silicon by assembling a world class team of quantum scientists, engineers and technicians, acquiring specialist equipment and moving into laboratory space at UNSW. In addition to its core processor technology development program, SQC is executing a strategy to ensure it can manufacture the full quantum computer.

About UNSW:

UNSW is one of the leading research-intensive universities in Australia with more than 6,000 staff and world class research infrastructure. It hosts the ARC Centre of Excellence that is world-leading in silicon-based quantum computing. UNSW's Faculty of Science consists of nine schools with more than 400 staff and 700 researchers delivering world class research and innovation. UNSW scientists from the School of Physics and the School of Chemistry will assist SQC to provide the subject knowledge around quantum-material demands, testing of qubit coherence properties in the enriched silicon material and contribute to the general knowledge of quantum applications of isotopically enriched silicon.

About IQE Plc:

IQE is the leading global supplier of advanced compound semiconductor wafers and materials solutions that enable a diverse range of applications across:

- handset devices
- global telecoms infrastructure
- connected devices
- 3D sensing

As a scaled global epitaxy wafer manufacturer, IQE is uniquely positioned in this market which has high barriers to entry. IQE supplies the whole market and is agnostic to the winners and losers at chip and OEM level. By leveraging the Group's intellectual property portfolio including know-how and patents, it produces epitaxial wafers of superior quality, yield and unit economics.

IQE is headquartered in Cardiff UK, with c. 650 employees across nine manufacturing locations in the UK, US, Taiwan and Singapore, and is listed on the AIM Stock Exchange in London.

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 in various advanced semiconductor products. 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.