

# Silex

**Systems Limited** Annual Report 2000



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### Company Directory

#### Directors

Mr B.S. Patterson – Chairman  
Dr M.P. Goldsworthy – Managing Director  
Mr C.D. Wilks – Director – Corporate  
Dr C.S. Goldschmidt  
Mr M.D. Boyd  
Mr R.P. Campbell

#### Company Secretary

Mr C.D. Wilks

#### Registered Office

95 Epping Road, North Ryde, New South Wales 2113, Australia  
Ph: 61 2 9855 5555 Fax: 61 2 9878 5066

#### Business Office and Operations (for all correspondence)

Building 64, Lucas Heights Science & Technology Centre  
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Ph: 61 2 9532 1331 Fax: 61 2 9532 1332  
Postal address: PO Box 75, Menai Central, New South Wales 2234

**Website address:** [www.silex.com.au](http://www.silex.com.au)

### Share Registry

Computershare Registry Services Pty Limited  
Level 5, 115 Grenfell Street, Adelaide, South Australia 5000, Australia  
Ph: 61 8 8236 2300 Fax: 61 8 8236 2305

### Stock Exchange

Listed on the Australian Stock Exchange

### Auditors

PricewaterhouseCoopers

### Solicitors

Minter Ellison

### Bankers

Australia and New Zealand Banking Group Limited

### American Depository Receipts (ADR) Information

Silex Systems Limited has established a Level 1 ADR Program. Silex ADRs may be purchased on the Over-the-Counter "Pink Sheet" (OTC) market.

Details are as follows:

Ratio: 1 ADR = 5 ordinary shares

Symbol: SILXY

CUSIP: 827046 10 3

Exchange: OTC

Country: Australia

Industry: Technology

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#### **IMPORTANT NOTICE**

##### ***Forward Looking Statements***

Silex Systems Limited is a research and development company whose primary assets are its proprietary rights in technologies, including the SILEX Technology. The company's technologies are in the development stage and have not been commercially deployed. Accordingly, the statements in this documentation regarding the future of the company's technologies and revenues are forward looking and actual results and/or progress could be materially different from those expressed or implied by such forward looking statements as a result of various factors. Factors that could affect future results and/or progress include, but are not limited to, results from the Uranium Enrichment Program, results from the Stable Isotopes Program, the development of alternative technologies, the demand for enriched materials including uranium, silicon, carbon and zirconium, and risks associated with regulatory issues and political interference.

## Managing Director's report

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The 2000 financial year was arguably the most significant in the company's history. The most notable achievement was the successful completion of the first Milestone in the Uranium Enrichment Program, which resulted in Milestone payments of US\$5 million from our development partner USEC Inc. A possibly more significant event, however, was the decision to launch the Stable Isotopes Program, which has the potential to shape the company's future as a world leader in advanced materials technology.

At the time of listing in 1998, the company's primary focus was the successful development of the uranium enrichment application of the company's proprietary SILEX laser isotope separation technology. This application continues to progress well and may ultimately generate a substantial royalty stream from our development partner USEC. However, other potential applications of SILEX Technology, such as silicon, carbon and zirconium enrichment, are now commanding an increasing share of our attention, as the economic potential of these applications could exceed that of uranium.

It is of course still early days, and there is much work to be completed in terms of development of both technology and advanced materials applications, but the initial prospects for stable

“The achievement of the first Milestone is the most significant event in the company’s short history, and places Silex in an excellent position to build on the value of our technology through the pursuit of additional applications.”

Dr Michael Goldsworthy, Silex Managing Director – June 2000

isotopes appear to be very encouraging. The Stable Isotopes Program is now well underway, and we expect to achieve preliminary results for silicon and carbon enrichment by mid-2001.

On the corporate side, discussions continue with a number of third parties with regard to potential alliances/joint ventures for different applications of the SILEX Technology. The R&D Agreement with the Westinghouse Electric Company to pursue the zirconium enrichment application (for nuclear fuel assemblies), signed in September 2000, is the first such alliance to be completed since the original USEC Agreement. The Agreement with Westinghouse, one of the largest companies in the nuclear power industry, provides additional evidence of the potential of SILEX Technology.

Our discussions with various industry groups, which may in future use advanced isotopic materials, have also introduced us to other technologies which could be synergistic with Silex’s mission to become a leading materials technology company. These opportunities will be pursued over the coming year.

## Managing Director's report

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The chronological summary given below lists the main events and achievements for the year announced to the Australian Stock Exchange.

<b>September 1999</b>	<b>Positive results for stable isotopes study</b> Positive results are achieved in the stable isotope feasibility study.
<b>October 1999</b>	<b>President Clinton signs Silex Agreement</b> President Clinton approves the "Agreement for Co-operation between the United States of America and Australia Concerning Technology for the Separation of Isotopes of Uranium by Laser Excitation". This Agreement relates specifically to the transfer of SILEX Technology to the US, for which the President's approval was a key step.
<b>January 2000</b>	<b>First Milestone successfully achieved</b> The first Milestone of the Uranium Enrichment Program is successfully passed, and a payment of US\$2.5 million from USEC follows.
<b>February 2000</b>	<b>Silex launches Stable Isotopes Program</b> Silex launches the Stable Isotopes Program to develop new applications for SILEX Technology. The program is aimed at accelerating the commercialisation of such applications, in particular silicon and carbon for use in the semiconductor industry, carbon and oxygen for use in the medical diagnostics industry, and zirconium for use in the nuclear power industry.
<b>April 2000</b>	<b>Positive results in Silicon-28 tests</b> Preliminary results from studies co-funded by Silex and Isonics, and conducted at Massachusetts Institute of Technology (MIT) Lincoln Laboratories, indicate that the use of enriched Silicon-28 wafers in semiconductor devices may provide electronic benefits beyond the already known effects of enhanced thermal conductivity.
<b>May 2000</b>	<b>Agreement for Co-operation comes into force</b> On 24 May 2000 the Agreement for Co-operation between the United States and Australia relating to the SILEX Technology came into force after sitting before the US Congress for 90 days, triggering the payment of the second half of the first Milestone payment of a further US\$2.5 million. This was paid by USEC on 27 June.
<b>June 2000</b>	<b>Silex wins Technology Award</b> Silex Systems Limited wins the 2000 Australian Technology Award for Excellence in the Development of Technology from the Engineering/Manufacturing Sector. The Australian Technology Awards are regarded as the premier forum for the recognition of excellence in the development of Australian Technology.

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<b>August 2000</b>	<b>Silex acquires Swiss laser technology</b> Silex acquired the worldwide rights to a laser technology developed by the Laboratory of Molecular Chemical Physics at the Ecole Polytechnique Federale de Lausanne (EPFL) in Switzerland. The technology is initially being developed to enrich carbon. The agreement includes a research alliance which should assist Silex in expediting its Stable Isotopes Program.
<b>September 2000</b>	<b>Silex signs Agreement with Westinghouse</b> Silex signed an Agreement with the Westinghouse Electric Company of the United States to investigate the feasibility of separating zirconium isotopes using the SILEX Process. The use of enriched zirconium in fuel tubing for nuclear power reactors has the potential to improve overall power reactor economics.

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These and other events highlight the company's commitment to expanding activities in two key areas:

- (i) Maximising the commercial potential of SILEX Technology to produce high-value advanced (isotopic) materials for industry, including:
  - the nuclear power industry
  - the semiconductor industry
  - the medical diagnostics industry.
- (ii) Building links with key participants in the abovementioned industries and, where appropriate, acquire strategic interests in allied technologies which may potentially utilise isotopic materials produced by SILEX Technology.

Great strides have been made in each of these directions during the year, and we believe this momentum will continue in the future.

In closing, I would like to take this opportunity to thank the entire Silex team for their tireless dedication to the development of the company and its technology. We look forward to a continuation of the success of recent years.



Dr M.P. Goldsworthy  
Managing Director

## Company overview

### **Mission**

To become a world leader in advanced isotopic materials and laser technology, through exploitation of the core SILEX Technology.

### **Historical Background**

- 1988** Silex Systems Limited (Silex) was established as a research subsidiary of Sonic Healthcare Limited, an Australian publicly listed company.
- 1990** Silex began researching the isotope separation ideas of the co-inventors Dr Michael Goldsworthy and Dr Horst Struve.
- 1992** The unique principles of the SILEX (Separation of Isotopes by Laser EXcitation) Process were established.
- 1994** "Proof of Principle" demonstration of the SILEX Process was achieved at the company's laboratories at Lucas Heights, south of Sydney. SILEX is in principle a generic or core technology, and has a number of potential applications. The largest existing market is Uranium Enrichment (at US\$3.5 billion p.a.), and this application therefore became the initial focus of the company.
- 1996** Silex was divested from Sonic through an allocation of shares to all Sonic shareholders. As a separate focused entity, Silex immediately set out to form an alliance with a participant in the uranium enrichment industry. By late November in 1996, an agreement for the development and licensing of SILEX Technology (exclusively for uranium), was reached with the United States Enrichment Corporation (USEC Inc). USEC is the largest supplier of enrichment services in the world with over 35% of the market.
- 1998** Silex listed on the Australian Stock Exchange on 7 May 1998. In November 1998, the company commenced a feasibility study on the application of the SILEX Technology to silicon and carbon, for potential use in the semiconductor and medical diagnostics industries.
- 2000**
- The first Milestone of the Uranium Enrichment Program is successfully achieved, triggering a Milestone payment of US\$2.5 million from USEC.
  - An Agreement for Co-operation between the United States and Australian Governments is signed, paving the way for continued development of the SILEX Technology for uranium enrichment, and facilitating its future transfer to the US. This triggered a second Milestone payment of US\$2.5 million from USEC.
  - The results of feasibility studies for the application of SILEX Technology to silicon and carbon enrichment are positive. In light of these results, the Stable Isotopes Program is launched to accelerate the development of these applications.
  - Silex wins the 2000 Australian Technology Award for Excellence in the Development of Technology from the Engineering/Manufacturing Sector.

“Although SILEX is still at an early stage of development, the results of the research look promising for an economically attractive future enrichment technology.”

Bill Bennett – USEC’s Vice President of Advanced Technology – January 2000

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- Silex secures the rights to a Swiss laser technology, and establishes a research alliance with the developers, Ecole Polytechnique Federale de Lausanne, one of the leading research institutes in this field.
- A research agreement is signed with Westinghouse Electric Company to investigate the application of SILEX Technology to the enrichment of zirconium. Enriched zirconium has the potential to improve the economics of nuclear power reactors.

#### **Corporate Strategy**

Silex’s corporate strategy is based on the following principles:

- Develop a diverse range of commercial applications for the company’s SILEX Technology, with a focus on nuclear, semiconductor and medical diagnostic applications.
- Acquire rights to technologies which are synergistic with, or add value to the “core” SILEX Technology.
- Establish strategic alliances with potential users of SILEX Technology, and/or the isotopic materials produced by it. Alliances already in place include:
  - (i) Uranium: USEC (United States Enrichment Corporation).
  - (ii) Zirconium: Westinghouse Electric Company.

Other potential alliances are in the early stages of discussion. Commercialisation strategies could involve either royalty or supply arrangements with partners or clients.

#### **The SILEX Technology**

The SILEX Technology is a unique laser-based process which has the potential to efficiently separate the isotopes of various elements. By separating isotopes, materials with a different isotopic composition to the naturally occurring element are created. These “new” materials can exhibit unique properties and behaviour, and provide added commercial value. In the case of uranium, the composition of the U-235 isotope is increased from 0.7% in its natural state to 4-5% in the enriched state. Enrichment is necessary for the uranium to work effectively in a nuclear power reactor. Similarly, by enriching silicon, an ultra-pure form of silicon can be created which has unique properties that can potentially be exploited by the semiconductor industry (see below).

Whilst there are other much less efficient, mechanical methods of enriching materials, the laser-based SILEX Process has a number of advantages, including:

- SILEX is an extremely low energy process.
- SILEX is based on relatively simple and practical separation modules.
- SILEX is a modular technology providing versatility in deployment.
- SILEX is expected to have significantly lower overall power consumption and capital costs.

## Company overview

### Primary Applications of the SILEX Technology

#### *Nuclear Applications*

- Uranium

To date, the company's primary focus has been on the uranium enrichment application of the technology. Uranium enrichment is the key step in the production of fuel for the global nuclear power industry, which currently provides approximately 18% of the world's electricity, a figure which is likely to increase with continuing economic development in Asia and the growing environmental problems associated with the use of fossil fuels.

Enrichment is a technically difficult process, which constitutes a major component of nuclear fuel costs (approximately 30% of the total fixed costs). Enrichment involves increasing the concentration of the "active" U-235 isotope from 0.7% in natural uranium to approximately 4-5%. The work required to perform enrichment is measured in Separative Work Units (SWUs).

Silex's uranium development partner, USEC, is currently the world's largest supplier of enrichment services with over 35% of the market (the total market is currently US\$3.5 billion p.a.). USEC's production, however, is primarily reliant on gas diffusion technology, which is over 45 years old and relatively inefficient. USEC's Agreement with Silex is aimed at developing an efficient low cost technology to replace the diffusion plants.

The Agreement gives USEC an exclusive licence to use the technology for uranium enrichment only. In return, the Agreement sets out the conditions under which USEC funds the development program and pays Milestone payments and royalties. The main commercial terms of the Agreement are as follows:

- A US\$7.5 million fee for exclusive rights to uranium enrichment was paid by USEC to Silex in November 1996.
- USEC funds the entire development program, including the cost of Pilot and Commercial Plants.
- Three Milestone payments totaling US\$18 million are to be paid upon achievement of technical targets. The first of these, for successfully completing the Pilot Module Program, was paid in January and June 2000 (US\$5 million).
- US\$15 million in fees (3 x \$5 million p.a.) will be paid to Silex during the construction of a commercial plant, assuming USEC ultimately decides to deploy SILEX.
- A royalty of 5%-8.75% of gross revenue derived from the technology will be paid to Silex. (The rate varies depending on the relativity between costs and revenues.)  
If all USEC revenues are derived from SILEX, the annual royalty could be in the order of US\$100 million p.a.

“Our initiative with silicon enrichment for the semiconductor industry has provided the company with some exciting commercial opportunities, which may potentially enhance the value of the core SILEX Technology.”

Michael Goldsworthy – September 2000

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In order to facilitate the joint Silex-USEC development program for uranium enrichment, an Agreement for Co-operation between the United States and Australia relating to the SILEX Technology had to be implemented. This Agreement came into force in May 2000 after being approved by President Clinton and sitting before the US Congress for 90 days.

- Zirconium

In September 2000, Silex signed an agreement with the Westinghouse Electric Company of the US, to conduct a feasibility study on separating zirconium isotopes using the SILEX Process.

Westinghouse is one of the largest producers of “nuclear grade” zirconium, which is used (in its natural form) to make fuel tubing for nuclear power reactors around the world. Use of enriched zirconium has the potential to improve overall power reactor economics. As yet, there is no technology available which can economically enrich zirconium. At this stage, it is too early to determine the technical and commercial potential of the SILEX Process in this application. However, if the western world’s nuclear grade zirconium requirements were successfully converted to enriched product, it is estimated that the incremental value of zirconium enrichment could be in excess of US\$100 million p.a.

The Agreement provides for an 18-month Feasibility Study, which will assess the technical feasibility and economic benefit of using the SILEX Process for Zirconium enrichment. The study will involve a series of laboratory tests and process modelling. The work, which forms part of the company’s Stable Isotopes Program, has already commenced, with test apparatus currently under construction.

Westinghouse and Silex will share the costs of the study, which are expected to be modest. If the results of the study are favourable, terms for further development will be negotiated. The Agreement specifically excludes any transfer of Intellectual Property or rights to the SILEX Process and/or Technology.

Westinghouse Electric Company is one of the largest participants in the commercial nuclear power industry, providing fuel, services, technology and equipment to utility and industrial customers worldwide. Approximately 50% of the nuclear power plants in operation today use Westinghouse technology.

#### **Semiconductor Applications**

- Silicon

Semiconductor devices, which are integral to all computer and electronic systems, are generally made from silicon (Si). Today’s computer chips and electronic devices are reaching the limits of performance, dictated by technical barriers inherent in natural silicon material, principally speed limitations and heat build-up. In recent years, increasing interest has been shown in semiconductors which have been made from isotopically enriched silicon.

## Company overview

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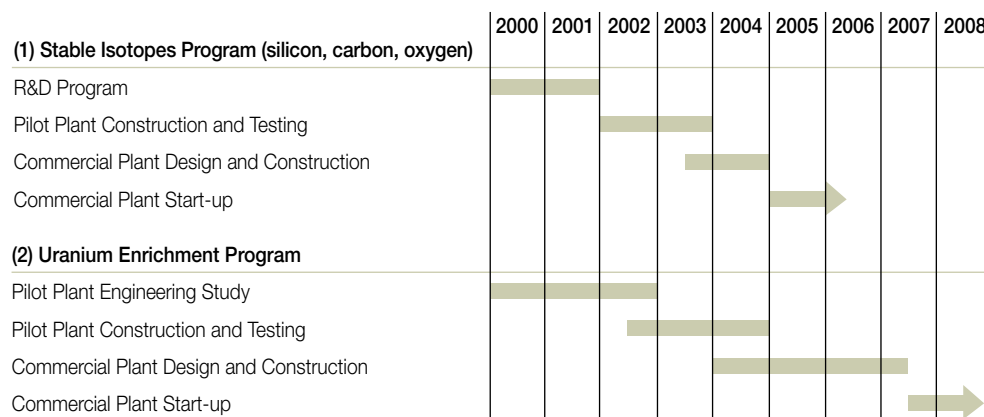
The use of isotopically enriched silicon has been shown to offer potential technical advantages in several areas including the following:

- If silicon wafers used in today's computer chips were made with enriched rather than natural silicon, thermal conductivity could be significantly increased, thereby providing better heat dissipation out of the computer chip and alleviating heat build-up problems. Recent published results of laboratory tests verify increases of up to 60% in the thermal conductivity of enriched Silicon-28. In a typical computer chip, this may translate to a drop in operating temperature of 30-40°C – potentially providing improved microprocessor performance. This development is in its infancy, but is commanding increasing interest from the semiconductor industry.
- A new generation of semiconductor devices, based on a recent invention called the “Silicon Isotope Superlattice” (SIS), may have the potential to dramatically lift the performance of silicon semiconductors, thereby giving them a new lease of life at a time when the future of natural silicon semiconductors appears to be limited (eg, the looming failure of “Moore's Law” – the semiconductor industry's measure of progress). In an example of the possible technical benefits, SIS devices which are made with highly enriched silicon could potentially increase microprocessor speeds from today's limit of around 1GHz (1,000MHz) to around 100GHz in a relatively short quantum leap! However, it must be emphasised that this development is in its infancy, and is subject to the usual technical and commercial risks associated with research projects of this kind.
- Looking further into the future, the advent of the “Quantum Computer”, which potentially promises previously unimaginable computer power and performance from extremely small devices, depends entirely for its future development and use on the availability of isotopically pure Silicon-28. Significant Government and University R&D programs are already underway to develop the Quantum Computer, and these programs alone will create a demand for enriched Silicon-28, well before the technology could potentially be commercially implemented.

Several research and commercial organisations around the world have been investigating these and other phenomena for a number of years, but without an economic source of enriched material. The SILEX Process may be able to provide this source. One of the major objectives of the Stable Isotopes Program is to determine the technical and commercial feasibility for silicon enrichment with SILEX Technology.

- Carbon

Synthetic diamond heat spreaders and heat sinks, made today from natural carbon, are also used extensively in the semiconductor industry. Published research results show that synthetic diamond made from enriched carbon (>99.9% C-12) also exhibits significantly



Note: \* These target dates are indicative only, and are subject to the outcomes of the respective research and development programs

improved thermal conductivity. The potential for SILEX Technology to produce enriched C-12 is also being investigated. The “by-product” from this application (Carbon-13) is already used extensively in bio-medical applications, and could therefore add value to a SILEX carbon isotope separation venture.

**Medical Diagnostic Applications**

The isotopes of primary commercial interest are carbon and oxygen. These and other isotopes form the basic materials used for bio-medical and in-vivo diagnostic procedures, including detection of cancer and organ disease. For example, modest sized markets already exist for Carbon-13 (“urea breath test”) and Oxygen-18 (raw material for PET imaging used in hospitals), but there is consensus within industry that these markets could rapidly grow if a more economic source of production could be found. These isotopes are currently produced via relatively expensive conventional cryogenic distillation technology. The feasibility of producing Carbon-13 and Oxygen-18 with SILEX Technology is a major focus of the Stable Isotopes Program currently underway.

**Development Program – Resources and Timing**

**Resources**

The development team for the Uranium Enrichment Program has grown significantly over the last year with efforts now underway on four continents. A total of around 50 scientists and technicians are currently involved with the project.

A dedicated team for the Stable Isotopes Program has also now been established, with separate laboratories and equipment at its disposal. This effort is complemented by the resources of the Ecole Polytechnique Federale de Lausanne (EPFL) Laser Isotope Separation Laboratory, which is focusing on the carbon applications. The Stable Isotopes Program will be funded by Silex, with contributions from Westinghouse Electric Company (zirconium application), and potentially the Federal Government (50% of costs related to silicon, carbon etc), providing the company’s R&D Grant application is successful.

**Timing**

The timing of research and development programs is always difficult to assess, owing to the uncertain nature of research work and results. However, our indicative timetable at the time of writing this report is set out in the chart above. This timetable is liable to change at any time, as the research programs and results unfold, and should not be relied upon for any reason other than as indicative information relevant at the time of this report.

Note that the commencement of commercial production of stable isotopes could start as early as 2005, with uranium production in 2007. The differences in timing relate to issues of scale, statutory and security regulations and technical complexity. In both cases, the potential for success or otherwise in each program should be known sometime earlier, probably in late 2001, when the decision to move to Pilot Plant Construction is anticipated.

## Directors' report



**Mr Barry Patterson**  
Chairman  
ASMM MIMM FAICD

**Dr Michael Goldsworthy**  
Managing Director  
BSc (Hons) MSc PhD FAIP

**Mr Christopher Wilks**  
BComm ASA FCIS FCIM FAICD

Your Directors present their report on Silex Systems Limited (Silex) for the year ended 30 June 2000.

### 1. Directors

The following persons were Directors of Silex Systems Limited during the whole of the financial year and up to the date of this report:

Mr B. Patterson – Chairman  
Dr M. Goldsworthy – Managing Director  
Mr C. Wilks – Director – Corporate  
Dr C. Goldschmidt  
Mr M. Boyd  
Mr P. Campbell

### 2. Principal Activities of the Economic Entity

The principal activity of the economic entity during the course of the financial year was the research and development and commercialisation of the laser isotope separation technology known as "SILEX".

### 3. Dividends

No dividend payment has been recommended or declared by the Board.

### 4. Review of Operations

#### *Trading Results*

The company's operating profit for the year was \$4,929,836 (1999 loss \$280,725) after allowing for an income tax expense of \$2,863,204 (1999 benefit \$149,005).

### 5. Earnings per Share

	2000 Cents	1999 Cents
Basic earnings per share	4.7	(0.3)
Diluted earnings per share	4.0	(0.2)

### 6. Significant Changes in the State of Affairs

There have been no significant changes to the company's state of affairs during the year.

### 7. Events Subsequent to Balance Date

Since the end of the financial year, the Directors are not aware of any matters or circumstances which are not otherwise dealt with in the financial statements that have significantly or may significantly affect the operations of the economic entity, the results of those operations or the state of affairs of the economic entity in subsequent financial years.

### 8. Likely Developments and Expected Results of Operations

#### *Uranium Enrichment Program*

The company is currently in the prototyping/engineering design stage of the Uranium Enrichment Program. The current program will extend beyond the 2000-2001 financial year and therefore no Milestones are expected to be received this financial year. At the time of this report, the program is generally progressing well with all development costs being reimbursed by USEC, the company's development partner for the uranium project.



**Mr Michael Boyd**  
BComm ACA ASIA FAICD

**Dr Colin Goldschmidt**  
MB BCh FRCPA FAICD

**Mr Peter Campbell**  
FCA FTIA MAICD

***Stable Isotopes Program***

This program, which aims to assess the feasibility of using the SILEX Technology to enrich other elements such as silicon, carbon, zirconium and oxygen commenced in February 2000. The program is projected to cost approximately \$4.7 million over the next three years. The program will be funded out of the company's own cash reserves, with potential for support from relevant industry partners and the Australian Government. The company has applied for a "START Grant" (Department of Industry, Science and Resources) which, if successful, will fund 50% of the costs of this program. Our arrangements with the Westinghouse Electric Company include a research funding contribution to explore the potential of using SILEX to enrich zirconium. This will form part of the Stable Isotopes Program. The company is confident that the other applications of SILEX Technology will lead to significant commercial opportunities in a number of markets.

**9. Share Options**

***Shares Under Option***

Unissued ordinary shares of Silex Systems Limited under option at the date of this report are as follows:

<b>Number of Options</b>	<b>Issue Price of Shares</b>	<b>Expiry Date</b>
8,750,000	5 cents	27 June 2001
1,250,000	5 cents	29 July 2001
1,000,000	5 cents	3 March 2002
6,250,000	5 cents	29 January 2003
40,000	49 cents	9 June 2003
160,000	\$1.94	15 March 2004
195,000	\$1.65	4 June 2005
<b>17,645,000</b>		

The terms and conditions of the options on issue are discussed in Note 13 of the financial statements.

No option holder has any right under the options to participate in any other share issue of the company or of any other entity.

***Shares Issued on the Exercise of Options***

A total of 410,000 ordinary shares of Silex Systems Limited were issued during the year ended 30 June 2000 following the exercise of options. No shares were issued between year end and the date of this report.

The amounts paid on those shares were:

400,000	@	5 cents
10,000	@	49 cents
<u>410,000</u>		

No amounts are unpaid on any of the shares.

## Directors' report

### 10. Directors' and Executives' Emoluments

Executive remuneration and other terms of employment are reviewed annually by the Board having regard to performance against goals set at the start of the year, relevant comparative information and independent expert advice. As well as a base salary, remuneration packages include superannuation, performance-related bonuses and fringe benefits. Executives are also eligible to participate in the Silex Employee Share Option Plan.

Remuneration packages are set at levels that are intended to attract and retain executives capable of managing the entity's operations.

Remuneration of non-executive Directors is determined by the Board within the maximum amount approved by the shareholders from time to time.

Details of the nature and amount of each element of the emoluments of each Director of Silex Systems Limited are set out in the following tables.

#### *Non-executive Directors of Silex Systems Limited*

Name	Director's Fees \$	Superannuation \$	Total \$
B.S. Patterson (Chairman)	40,000	2,800	42,800
M.D. Boyd	40,000	2,800	42,800
R.P. Campbell	40,000	2,800	42,800
C.S. Goldschmidt	40,000	2,800	42,800

#### *Executive Directors of Silex Systems Limited*

Name	Base Salary/ Consulting		Motor Vehicle	Director's Fees	Superannuation	Total
	Fees \$	\$				
Dr M. Goldsworthy (Managing Director)	293,615	32,833	–	–	7,067	333,515
Mr C. Wilks (Director – Corporate)	85,010	–	–	–	–	85,010

C.D. Wilks' remuneration is paid for consulting services provided by a company in which he has a beneficial entitlement.

#### *Other Executives of the Entity*

There are no officers, other than the Executive Directors noted above, who are involved in, concerned in, or who take part in, the management of the affairs of Silex Systems Limited.

There were no options issued during the year to any Director or Executive noted above.

The total of Directors' interests in shares and options is set out below in paragraph 11.

### 11. Information on Directors

#### (a) Directors' Profiles

##### **Mr Barry Patterson**

ASMM, MIMM, FAICD

(Chairman) (non-executive)

Mr Patterson is director of a number of Australian public companies and a major shareholder in Silex through his interest in Polly Pty Ltd. Mr Patterson is a mining engineer by training and has had many years experience in the establishment and management of public mining companies in Australia. He is currently also the chairman of Sonic Healthcare Limited.

**Dr Michael Goldsworthy**

BSc (Hons), MSc, PhD, FAIP

(Managing Director) (executive)

Dr Goldsworthy received his PhD in Physics from The University of New South Wales in 1988. Prior to joining Silex Systems Limited in the same year, Dr Goldsworthy was a member of the University's academic staff and was involved in a number of laser-associated research projects. Dr Goldsworthy is the founder of the company, and has been the driving force behind the SILEX project.

**Mr Christopher Wilks**

BComm, ASA, FCIS, FCIM, FAICD

(Director – Corporate) (executive)

Mr Wilks is responsible for finance matters and the corporate development of Silex Systems. He has held a number of directorial positions with Australian public companies and has a background in investment banking. He is currently also a director of Sonic Healthcare Limited.

**Mr Michael Boyd**

BComm, ACA, ASIA, FAICD

(non-executive)

Mr Boyd is a chartered accountant by training, and has a number of business interests in Western Australia. He is Chairman of the Audit Committee and is also a Director of both Sonic Healthcare Limited and Lifecare Health Limited and the chairman of Foundation Healthcare Limited.

**Dr Colin Goldschmidt**

MB BCh, FRCPA, FAICD

(non-executive)

Dr Goldschmidt is the Managing Director of Sonic Healthcare Limited, an Australian Top 100 company, the former parent company of Silex Systems Limited. He has been a non-executive Director of Silex since 1993.

**Mr Peter Campbell**

FCA, FTIA, MAICD

(non-executive)

Mr Campbell is the principal of R.P. Campbell and Associates, Chartered Accountants. He is the Chairman of Lifecare Health Limited and a non-executive director of Sonic Healthcare Limited. He is also a member of the Silex Systems Limited Audit Committee.

(b) Directors' Interests in Shares and Options as at 12 September 2000

Director's Name	Class of Shares	No. of Shares	Share Options
B.S. Patterson	Ordinary	5,607,398	1,250,000
M.P. Goldsworthy	Ordinary	229,533	6,750,000
C.D. Wilks	Ordinary	999,023	2,500,000
M.D. Boyd	Ordinary	3,334	1,250,000
C.S. Goldschmidt	Ordinary	2,004,280	1,250,000
R.P. Campbell	Ordinary	104,823	1,250,000

## Directors' report

### 12. Meetings

The number of Directors' meetings held during the financial year and the number of meetings attended by each director are set out in the following table.

Director's Name	Directors' Meetings		Audit Committee Meetings	
	Number Held	Number Attended	Number Held	Number Attended
B.S. Patterson	8	8	–	–
M.P. Goldsworthy	8	8	–	–
C.S. Goldschmidt	8	8	–	–
M.D. Boyd	8	8	2	2
C.D. Wilks	8	8	2	2
R.P. Campbell	8	7	2	2

### 13. Indemnification and Insurance of Directors

During the financial year, the company entered into agreements to indemnify all Directors of the company named in paragraph 1 of this report and current and former Directors of the company against all liabilities to persons (other than the company or related body corporate) which arise out of the performance of their normal duties as Director or Executive Officer unless the liability relates to conduct involving lack of good faith. The company has agreed to indemnify the Directors and Executive Officers against all costs and expenses incurred in defending an action that falls within the scope of the indemnity and any resulting payments.

The Directors' and Officers' liability insurance provides cover against all costs and expenses involved in defending legal actions and any resulting payments arising from a liability to persons (other than the company) incurred in their position as a Director or Executive Officer unless the conduct involves a wilful breach of duty or an improper use of inside information or position to gain advantage. The insurance policy does not allow disclosure of the nature of the liabilities insured against or the premium paid under the policy.

### 14. Environmental Regulation

The company is subject to the environmental and health and safety regulations applicable to tenants of the Lucas Heights Science and Technology Centre. The company is also bound by the rules and regulations set out in the Australian Radiation Protection and Nuclear Safety Act, 1998.

To the best of the Directors' knowledge, all environmental and health and safety regulatory requirements have been met and there have been no claims made during the financial year.

### 15. Auditors

PricewaterhouseCoopers continues in office in accordance with section 327 of the Corporations Law.

This report is made in accordance with a resolution of the Directors.



Dr M.P. Goldsworthy  
Managing Director

Sydney, 27 September 2000



Mr C.D. Wilks  
Director



## Profit and loss statements for the year ended 30 June 2000

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	<b>Note</b>	<b>2000</b> <b>\$</b>	<b>1999</b> <b>\$</b>
Revenue from Operating Activities	2	15,500,440	3,636,922
Revenue from Outside the Operating Activities	2	664,190	541,298
Total Revenue		<u>16,164,630</u>	<u>4,178,220</u>
Operating Profit/(Loss) before Income Tax	2	7,793,040	(429,730)
Income Tax (Expense)/Benefit Attributable to Operating Profit/(Loss)	3	(2,863,204)	149,005
Operating Profit/(Loss) after Income Tax		<u>4,929,836</u>	<u>(280,725)</u>
Retained Profits at the Beginning of the Financial Year		2,961,784	3,242,509
Retained Profits at the End of the Financial Year		<u>7,891,620</u>	<u>2,961,784</u>
Earnings per Share (cents)	21	<u>4.7</u>	<u>(0.3)</u>

The above profit and loss statements should be read in conjunction with the accompanying notes.

	Note	2000 \$	1999 \$
<b>Current Assets</b>			
Cash	22	1,886,793	736,943
Investments	4	16,782,594	9,790,129
Receivables	5	1,258,357	1,149,634
Other	6	8,415	8,049
Total Current Assets		19,936,159	11,684,755
<b>Non-current Assets</b>			
Property, plant and equipment	7	234,865	183,066
Intangibles	8	100,000	108,000
Other	6	115,016	274,679
Total Non-current Assets		449,881	565,745
Total Assets		20,386,040	12,250,500
<b>Current Liabilities</b>			
Provisions	9	326,216	187,912
Payables	10	797,418	583,773
Other liabilities	11	60,477	12,718
Tax liabilities	12	2,718,507	–
Total Current Liabilities		3,902,618	784,403
<b>Non-current Liabilities</b>			
Provisions	9	86,287	49,326
Other liabilities	11	78,396	37,802
Tax liabilities	12	28,521	43,487
Total Non-current Liabilities		193,204	130,615
Total Liabilities		4,095,822	915,018
Net Assets		16,290,218	11,335,482
<b>Shareholders' Equity</b>			
Share capital	13	8,398,598	8,373,698
Retained profits		7,891,620	2,961,784
Total Shareholders' Equity		16,290,218	11,335,482

The above balance sheets should be read in conjunction with the accompanying notes.

## Statements of cash flows for the year ended 30 June 2000

	Note	2000 \$	1999 \$
<b>Cash Flows from Operating Activities</b>			
Interest received		639,852	439,353
Receipts from customers		15,416,042	3,125,438
Payments to suppliers and employees		(7,910,405)	(4,032,906)
Interest and other costs of finance paid		(4,340)	(5,111)
Income tax refunded/(paid)		–	18,008
Net cash (outflow)/inflow from operating activities	22	8,141,149	(455,218)
<b>Cash Flows from Investing Activities</b>			
Proceeds from sale of property, plant and equipment		–	14,020
Payments for property, plant and equipment		(8,361)	(10,800)
Net cash inflow/(outflow) from investing activities		(8,361)	3,220
<b>Cash Flows from Financing Activities</b>			
Proceeds from issue of shares		24,900	124,977
Principal repayments under finance leases		(15,373)	(29,664)
Net cash inflow from financing activities		9,527	95,313
Net (decrease)/increase in cash held		8,142,315	(356,685)
Cash at the beginning of the financial year		10,527,072	10,883,757
<b>Cash at the End of the Financial Year</b>	22	18,669,387	10,527,072

The above statements of cash flows should be read in conjunction with the accompanying notes.

## 1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

This general purpose financial report has been prepared in accordance with Accounting Standards, other authoritative pronouncements of the Australian Accounting Standards Board, Urgent Issues Group Consensus Views and the Corporations Law. It is prepared in accordance with the historical cost convention.

The company has not adopted a policy of revaluing its non-current assets on a regular basis. Non-current assets are revalued from time to time as considered appropriate by the Directors and are not stated at amounts in excess of their recoverable amounts. Except where stated recoverable amounts are not determined using discounted cash flows. The Directors have not revalued the SILEX Technology. Unless otherwise stated, the accounting policies adopted are consistent with those of the previous year. Comparative information is reclassified where appropriate to enhance comparability.

### (a) Cash

For the purposes of the statement of cash flows, cash includes amounts which are readily convertible to cash on hand and are subject to an insignificant risk of change in value, net of outstanding bank overdrafts. Bank bills are included as they generally have a maturity date of three months.

### (b) Foreign Currency

Transactions denominated in a foreign currency are converted at the exchange rate at the date of the transaction. Foreign currency receivables and payables at balance date are translated at exchange rates at balance date. Exchange gains and losses are brought to account in determining the profit or loss for the year.

### (c) Depreciation and Amortisation of Property, Plant and Equipment

Property, plant and equipment are depreciated over their estimated useful lives, being between three and seven years, using the straight line method.

Pursuant to the company's agreement with USEC, the cost of property, plant and equipment used by the company in connection with research and development is paid for by USEC. The cost of such equipment is not reflected in the financial statements.

### (d) Leased Assets

Where property, plant and equipment is acquired by means of finance leases which effectively transfer to the economic entity substantially all the risks and benefits incidental to ownership, the present value of the minimum lease payments, including any guaranteed residual values, is recognised as an asset at the beginning of the lease term and amortised on a straight line basis over the expected useful life of the leased asset. A corresponding liability is also established and each lease payment is allocated between the liability and finance charge.

Operating lease payments, where the lessor effectively retains substantially all of the risks and benefits of ownership of the leased items, are included in the determination of the operating profit in equal instalments over the lease term.

### (e) Research and Development Costs

Research and development costs incurred by Silex for the development of the SILEX Technology are reimbursed by USEC in accordance with the company's agreement. Accordingly, the research and development costs and reimbursements received have been charged to the operating profit before income tax in accordance with generally accepted accounting principles.

### (f) Investments

Bank Bills have been acquired at a discount to face value. The bills are carried at cost and the discount is recognised as interest received in each period at the rate that is implicit in the transaction.

### (g) Receivables and Creditors

Accounts receivable are generally settled within 60 days and are carried at amounts due. A provision is raised for any doubtful debts based on a review of all outstanding amounts at balance date. Bad debts are written off in the year in which they are identified.

Trade creditors, including accruals not yet billed, are recognised when the company becomes obliged to make future payments as a result of a purchase of assets or services. Trade creditors are generally settled within 45 days. Receivables and creditors are interest free.

**(h) Year 2000 Software Modification Costs**

Costs relating to the modification of computer software for Year 2000 compatibility have been charged as expenses when incurred.

**(i) Income Tax**

The liability method of tax effect accounting has been adopted in the preparation of these financial statements. Income tax expense is calculated on operating profit adjusted for permanent differences between taxable and accounting income.

**(j) Provision for Employee Entitlements**

Provision is made for employee entitlement benefits accumulated as a result of employees rendering services up to the reporting date. These benefits include wages and salaries, annual leave and long service leave.

Liabilities arising in respect of wages and salaries, annual leave and any other employee entitlements expected to be settled within 12 months of the reporting date are measured at their nominal amounts. All other employee entitlement liabilities are measured at the present value of the estimated future cash outflows to be made in respect of services provided by employees up to the reporting date.

Employee entitlement expenses arising in respect of the following categories:

- wages and salaries, non-monetary benefits, annual leave, long service leave and other leave entitlement; and
- other types of employee entitlements

are charged against profits on a net basis in their respective categories.

**(k) Earnings per Share**

Basic earnings per share is determined by dividing the operating profit after tax attributable to members of the company by the weighted average number of ordinary shares outstanding during the financial year.

Diluted earnings per share adjusts the figures used in the determination of basic earnings per share by taking into account any reduction in earnings per share that will probably arise from the exercise of options outstanding during the financial year.

**(l) Goods and Services Tax Systems Changes**

Costs incurred to update existing systems to deal with the GST are charged as expenses as incurred.

**(m) Superannuation Commitments**

The company contributes to an employee superannuation fund. Employee contributions are based on a percentage of their gross salary. Employees are entitled to benefits on retirement, disability or death. The contributions are charged to the profit and loss when incurred.

**(n) Share Issue Expenses**

Share issue expenses are written off directly against the equity instruments to which the costs relate.

**(o) Intangibles**

Certain patent acquisition costs have been deferred to future periods to the extent that they are expected to be recoverable beyond any reasonable doubt. These deferred costs are being amortised on a straight line basis over a period of 20 years.

**(p) Revenue Recognition**

Amounts disclosed as revenue are net of returns trade allowances and duties and taxes paid. Revenue is recognised for reimbursements of research and development costs at the time those costs are incurred.

	2000 \$	1999 \$
<b>2. OPERATING PROFIT/(LOSS)</b>		
<b>(i) Revenue</b>		
Revenue from operating activities	7,273,952	3,636,922
Recoverable project costs	8,226,488	–
Milestone payments received	15,500,440	3,636,922
<b>Revenue from Outside the Operating Activities</b>		
Interest revenue	649,185	526,598
Foreign currency exchange gain	8,260	–
Export Development Grant	6,745	–
Proceeds on sale of disposal of property, plant and equipment	–	14,020
Other income	–	680
	664,190	541,298
Total Revenue	16,164,630	4,178,220
<b>(ii) Net Gains and Expenses</b>		
The operating profit/(loss) before income tax includes the following specific net gains and expenses:		
<b>Net Gains:</b>		
Net gain on disposal of plant and equipment	–	1,175
Net foreign exchange gain	8,260	–
<b>Expenses:</b>		
Amortisation of intellectual property	8,000	8,000
Amortisation of plant and equipment under lease	24,092	26,187
Interest and finance charges paid/payable on finance leases	4,340	5,111
Depreciation of plant and equipment	36,196	102,395
Rental expense relating to operating leases	85,343	80,826
Provision for employee entitlements	175,264	103,755
Research and development expenditure	5,676,457	2,409,116
Net foreign exchange loss	–	84,774

	2000 \$	1999 \$
<b>3. INCOME TAX</b>		
<b>(a) The Income Tax Expense for the Financial Year differs from the amount calculated on the Profit. The differences are reconciled as follows:</b>		
Profit before income tax expense	7,793,040	(429,730)
Income tax calculated @ 36%	2,805,494	(154,703)
Tax effect of permanent differences:		
Amortisation of intellectual property	2,880	2,880
Sundry items	7,052	2,818
Income tax adjusted for permanent differences	2,815,426	(149,005)
Net adjustment to deferred income tax liabilities and assets to reflect the decrease in company tax rate to 34%/30%	47,778	–
Income tax expense/(benefit)	2,863,204	(149,005)

**Adjustment to Deferred Income Tax Balances**

Legislation reducing the company tax rate from 36% to 34% in respect of the 2000-2001 income tax year and then to 30% from the 2001-2002 income tax year was announced on 21 September 1999 and received Royal Assent on 10 December 1999. As a consequence, deferred tax balances which are expected to reverse in the 2000-2001 or later income tax year have been remeasured using the appropriate new rates, depending on the timing of their reversal.

**(b) Future Income Tax Benefits**

No part of the future tax benefit shown in Note 6 is attributable to tax losses. The Directors estimate that the potential future income tax benefit at 30 June 2000 in respect of tax losses not brought to account is \$Nil (1999 \$178,987).

**4. INVESTMENTS (CURRENT)**

Bank bills	16,782,594	9,790,129
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**(i) Significant Terms and Conditions**

Bank bill investments with a face value of \$16,782,594 (1999 \$9,790,129) mature at various dates over the three months (1999 five months) following balance date. The weighted average interest rate is 6.26% (1999 5.06%).

Income not received at year end is brought to account as accrued income.

**(ii) Net Fair Values**

The investment in the bank bills is valued at cost. The Directors consider that the net fair value of the investment at year end to be \$16,782,594 (1999 \$9,790,129) based on their assessment of its estimated realisable value.

	Note	2000 \$	1999 \$
<b>5. RECEIVABLES (CURRENT)</b>			
Other debtors		614,838	621,310
Accrued income		643,519	528,324
		1,258,357	1,149,634
<b>(i) Credit Risk</b>			
Other debtors above include an amount owing by USEC of \$567,768 (1999 \$619,480). The remainder are amounts generally arising from transactions outside the usual operating activities of the company.			
<b>(ii) Net Fair Values</b>			
The Directors consider the carrying amount of other debtors approximate their net fair values.			
<b>6. OTHER ASSETS</b>			
<b>Current</b>			
Prepayments		8,415	8,049
<b>Non-current</b>			
Future income tax benefit	3(b)	115,016	274,679
<b>7. PROPERTY, PLANT AND EQUIPMENT</b>			
Plant and equipment			
At cost		520,262	511,816
Less accumulated depreciation		(406,535)	(370,339)
		113,727	141,477
Plant and equipment under lease			
At cost		167,333	63,693
Less accumulated amortisation		(46,195)	(22,104)
		121,138	41,589
		234,865	183,066
<b>8. INTANGIBLES</b>			
Intellectual property		160,001	160,001
Provision for amortisation		(60,001)	(52,001)
		100,000	108,000

## Notes to and forming part of the financial statements for the year ended 30 June 2000

	Note	2000 \$	1999 \$
<b>9. PROVISIONS</b>			
<b>Current</b>			
Provision for employee entitlements		326,216	187,912
<b>Non-current</b>			
Provision for employee entitlements		86,287	49,326
<b>10. PAYABLES</b>			
Trade creditors		797,418	583,773
<b>Net Fair Value</b>			
The Directors consider that the carrying amounts of trade creditors approximate their net fair values.			
<b>11. OTHER LIABILITIES</b>			
<b>Current</b>			
Lease liabilities	15	60,477	12,718
<b>Non-current</b>			
Lease liabilities	15	78,396	37,802
<b>Net Fair Value</b>			
The Directors consider that the carrying amounts of lease liabilities approximate their net fair values.			
Lease liabilities are effectively secured as the rights to the leased asset revert to the lessor in the event of default.			
<b>12. TAX LIABILITIES</b>			
<b>Current</b>			
Income tax liability		2,718,507	–
<b>Non-current</b>			
Deferred income tax liability		28,521	43,487
<b>13. SHARE CAPITAL</b>			
<b>(i) Paid up capital</b>			
103,581,240 ordinary shares (1999 103,171,240 ordinary shares)		8,398,598	8,373,698

**13. SHARE CAPITAL (continued)**

**(ii) Movements in issued and paid up ordinary share capital of the company during the past two years were as follows:**

Date	Detail	Number of Shares	Issue Price (Cents)	\$
05.08.98	Options exercised	200,000	0.05	10,000
18.11.98	Options exercised	170,000	0.05	8,500
31.12.98	Share issue expenses	–	–	(31,023)
22.03.99	Options exercised	100,000	0.05	5,000
12.04.99	Options exercised	400,000	0.05	20,000
24.06.99	Options exercised	150,000	0.65	97,500
24.06.99	Options exercised	300,000	0.05	15,000
30.06.99	Balance	103,171,240		8,373,698
20.06.00	Options exercised	400,000	0.05	20,000
20.06.00	Options exercised	10,000	0.49	4,900
30.06.00	Balance	103,581,240		8,398,598

**(iii) The following options to take up ordinary shares in the capital of the company remain outstanding at balance date:**

- 14,350,000 options which were issued free of charge on the following terms and conditions:
    - Each option entitles the holder of the option to subscribe for one share at 5 cents per share.
    - Each option expires five years after the date of its grant.
    - The Directors must issue and allot shares within 10 days of the receipt by them of a notice of exercise of options and receipt of the exercise price for those options.
    - If the company reorganises (including consolidates, subdivides, reduces, or returns) its capital, the number of options or the exercise price of the options or both will be reorganised (as appropriate) in a manner permitted or required by the Listing Rules which will not result in any additional benefits being conferred on the option holders which are not conferred on shareholders but in all other respects the terms of the exercise of options will remain unchanged.
    - Option holders may only participate in issues of securities to shareholders if the option has been exercised and a share has been allotted in respect of the option before the date for determining entitlements to the issue.
  - Two parcels each of 2,500,000 options (5,000,000 in total) were issued on the above terms and conditions and with the following additional conditions:
    - 1,250,000 options of each parcel may be exercised following receipt by the company of the first Milestone payment pursuant to Clause 5.3 of the USEC Agreements.
    - The remaining 1,250,000 options in each parcel can only be exercised following receipt by the company of the second Milestone payment pursuant to Clause 5.3 of the USEC Agreements.
  - 70,000 options with an exercise price of 49 cents were issued pursuant to the Silex Employee Share Option Plan on 10 June 1998.
  - 160,000 options with an exercise price of \$1.94 were issued to staff pursuant to the Silex Employee Option Plan on 13 March 1999.
  - A further 195,000 options with an exercise price of \$1.65 were issued to staff pursuant to the Silex Employee Option Plan on 5 June 2000.
- 19,775,000 options remain on issue at year end.

## Notes to and forming part of the financial statements for the year ended 30 June 2000

	Note	2000 \$	1999 \$
<b>14. FRANKING ACCOUNT BALANCE</b>			
Franking credits available for the subsequent financial year		8,512,827	3,679,926

The above amount represents the balance of the franking accounts at the end of the year adjusted for franking credits that will arise from the payment of the current tax liability and franking credits that may be prevented from being distributed in subsequent financial years.

The balances of the franking accounts disclosed above are based on a tax rate of 36%. Legislation was introduced into Parliament in December 1999, which deals with the implications for franking accounts of the company tax rate change from 36% to 34% for the 2000-2001 income tax year. The legislation requires companies to convert their existing Class C franking account balances from an underlying tax rate of 36% to an underlying tax rate of 34% on 1 July 2000. Should the legislation be enacted and the above accounts be converted, the balances of the franking accounts will increase accordingly and all franking debits and credits arising after 1 July 2000 (including those relating to dividends) will be entered into the converted franking account using the new rate of 34%.

### 15. CAPITAL AND LEASING COMMITMENTS

#### Finance Leases

Commitments in relation to finance leases payable are as follows:

Not later than one year		70,902	16,025
Later than one year but not later than two years		86,848	40,167
Minimum lease payments		157,750	56,192
Deduct future finance charges not provided for in the financial statements		(18,877)	(5,672)
Total lease liability		138,873	50,520
Consisting of: Current	11	60,477	12,718
Non-current	11	78,396	37,802
		138,873	50,520

The weighted average interest rate implicit in the leases is 8.5% (1999 7.1%).

#### Operating Lease Commitments

Payable as follows:

Not later than one year		35,000	13,677
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## 16. DIRECTORS' REMUNERATION

Income paid or payable, or otherwise made available to the Directors in connection with the management of affairs of the company

2000 \$	1999 \$
589,726	548,065

The number of company Directors whose total income from the company was within the following bands:

	2000	1999
\$ 40,000 – \$ 40,999	4	4
\$ 80,000 – \$89,999	1	–
\$100,000 – \$109,999	–	1
\$270,000 – \$279,999	–	1
\$330,000 – \$339,999	1	–

### Directors' Benefits

Mr Christopher Wilks has a beneficial interest in a company (Evinlow Pty Ltd) which provided managerial and administrative services to the company. The charges levied were on a commercial basis. The charges are included in the Directors' remuneration detailed above.

Details of options granted to and exercised by Directors are set out in Note 18. For the purposes of calculating the remuneration of Directors, share options are measured at the date of the exercise or sale of the options.

## 17. REMUNERATION OF EXECUTIVES

Remuneration received, or due and receivable by executive officers (including Directors) whose total remuneration exceeds \$100,000 from the company

2000 \$	1999 \$
333,515	377,565

The numbers of executive officers (including Directors) whose remuneration from the company was within the specified bands are as follows:

	2000	1999
\$100,000 – \$109,000	–	1
\$270,000 – \$279,999	–	1
\$330,000 – \$339,999	1	–

## 18. OTHER RELATED PARTY DISCLOSURES

(i) Directors were appointed as follows:

Director	Date Appointed
Mr B.S. Patterson	17 February 1992
Dr M.P. Goldsworthy	17 February 1992
Dr C.S. Goldschmidt	17 February 1992
Mr M.B. Boyd	8 May 1996
Mr C.D. Wilks	9 December 1988
Mr R.P. Campbell	30 July 1996

Directors' remuneration during the year has been disclosed in Note 16.

### (ii) Share Option Transactions with Directors and their Related Entities

The aggregate number of shares and share options held by Directors of the company and their Director-related entities at 30 June 2000 were:

Director	Options Issued During the Year Ended 30 June 2000	Total Number of Options Held (Over Ordinary Shares)	Fully Paid Ordinary Shares Held
Mr B. Patterson or related company	–	1,250,000	5,607,398
Dr M. Goldsworthy or related company	–	6,750,000	229,533
Dr C. Goldschmidt or related company	–	1,250,000	2,204,280
Mr M. Boyd or related company	–	1,250,000	3,334
Mr C. Wilks or related company	–	2,500,000	999,023
Mr P. Campbell or related company	–	1,250,000	104,823

The aggregate number of shares of Silex Systems Limited disposed of by Directors of the company or their Director-related entities during the financial year were 861,065 (1999 1,348,635). There were no shares acquired and no options granted to, or exercised by, Directors of Silex Systems Limited or their Director-related entities during the year.

### (iii) Transactions with Director-related Entities

The company was charged an administration fee of \$42,000 (1999 \$25,000) by Douglass Hanly Moir Pathology Pty Ltd, a controlled entity of Sonic Healthcare Limited. Sonic Healthcare Limited is an entity related to Mr Boyd through his substantial shareholding in Sonic Healthcare Limited.

The transactions were based on commercial terms and conditions and at market values.

### (iv) Transactions with Director-related Entities

A Director, Mr Peter Campbell, was previously a partner in the firm of Stapleton Partners Chartered Accountants. Stapleton Partners provided accounting services to Silex Systems Limited on normal terms and conditions during the previous financial year. No accounting services have been provided in this financial year (1999 \$56,566).

Aggregate amounts payable to Director-related entities at balance date:

	2000 \$	1999 \$
Evinlow Pty Ltd	7,580	–
Douglass Hanly Moir Pathology Pty Ltd	184,288	4,167

## 19. AUDITORS' REMUNERATION

Amounts due and receivable by auditors are as follows:

Auditing the financial report	13,500	12,000
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**20. INDUSTRY AND GEOGRAPHICAL SEGMENTS**

The company operates in the research and development industry predominantly in Australia

	<b>2000</b>	<b>1999</b>
<b>21. EARNINGS PER SHARE</b>		
Basic Earnings per Share (cents per share)	4.7	(0.3)
Diluted Earnings per Share (cents per share)	4.0	(0.2)
Weighted average number of ordinary shares on issue used in the calculation of basic earnings per share:		
Ordinary shares	103,182,473	102,257,213

	<b>2000</b>	<b>1999</b>
	<b>\$</b>	<b>\$</b>
<b>22. STATEMENTS OF CASH FLOWS</b>		
(i) Cash	1,886,793	736,943
Investments	16,782,594	9,790,129
Cash at bank and on hand	18,669,387	10,527,072
(ii) Reconciliation of net cash provided by operating activities		
to operating loss after income tax	4,929,836	(280,725)
Operating (loss)/profit after income tax depreciation	36,196	102,395
Gain on sale of plant and equipment	-	(1,175)
Amortisation of intangibles	8,000	8,000
Amortisation of leased assets	24,092	26,187
(Increase)/Decrease in prepayments	(366)	2,723
Decrease/(Increase) in receivables	6,472	(61,897)
(Increase) in accrued income	(115,195)	(450,267)
Decrease/(Increase) in future income tax benefit	159,663	(160,258)
Increase in provision for income tax	2,718,507	18,008
(Decrease)/Increase in deferred income tax liability	(14,966)	11,253
Increase in trade creditors	213,645	226,783
Increase in provision for employee entitlement	175,265	103,755
Net cash provided by operating activities	8,141,149	(455,218)

- (iii) During the year Silex acquired plant and equipment with an aggregate fair value of \$103,640 (1999 \$Nil) by means of finance leases. These acquisitions are not reflected in the statement of cash flows.

**23. AMOUNTS RECEIVABLE AND PAYABLE DENOMINATED IN FOREIGN CURRENCIES**

Current US dollars receivable not effectively hedged	567,768	619,480
Current US dollars payable not effectively hedged	452,873	3,482

## 24. FINANCIAL INSTRUMENTS DISCLOSURES

### (i) Interest Rate Risk

The company's exposure to interest rate risk, and the effective interest rates on financial instruments at balance date are:

	Note	Floating Interest Rate \$	Fixed Interest Rate Maturities 1 Year or Less \$	1 to 5 Years \$	Non- interest Bearing \$	Total \$
<b>30 June 2000</b>						
Assets						
Cash	22	1,886,793	–	–	–	1,886,793
Investments	4	–	16,782,594	–	–	16,782,594
Receivables	5	–	–	–	1,258,357	1,258,357
Total financial assets		1,886,793	16,782,594	–	1,258,357	19,927,744
Weighted average interest rate		5.1%	5.55%			
Liabilities						
Trade creditors	10	–	–	–	797,418	797,418
Lease liabilities	11	–	60,477	78,396	–	138,873
Total financial liabilities		–	60,477	78,396	797,418	936,291
Weighted average interest rate			6.26%	6.26%		
Net financial assets/(liabilities)		1,886,793	16,722,117	(78,396)	460,939	18,991,453
<b>30 June 1999</b>						
Assets						
Cash	22	736,943	–	–	–	736,943
Investments	4	–	9,790,129	–	–	9,790,129
Receivables	5	–	–	–	1,149,634	1,149,634
Total financial assets		736,943	9,790,129	–	1,149,634	11,676,706
Weighted average interest rate		3.8%	5.1%			
Liabilities						
Trade creditors	10	–	–	–	583,773	583,773
Lease liabilities	11	–	12,718	37,802	–	50,520
Total financial liabilities		–	12,718	37,802	583,773	634,293
Weighted average interest rate			8.5%	7.1%		
Net financial assets/(liabilities)		736,943	9,777,411	(37,802)	565,861	11,042,413

### (ii) All Financial Assets are Unsecured

The carrying amounts of financial assets in the company's balance sheet represents the company's maximum exposure to credit risk in relation to these assets.

### (iii) Net Fair Value of Financial Assets and Liabilities

The net fair value of cash, cash equivalents, non-interest bearing monetary assets and financial liabilities of the company approximates their carrying value.

The net fair value of other monetary financial assets is discussed in Note 5.

This statement outlines the main Corporate Governance practices that were in place throughout the financial year, unless otherwise stated. These practices are dealt with under the following headlines: Board of Directors and its Committees, Identifying and Managing Business Risks and the Role of Shareholders.

## 1. BOARD OF DIRECTORS AND ITS COMMITTEES

The Board is responsible for the overall Corporate Governance of the economic entity, including the strategic direction, establishing goals for management and monitoring the achievement of these goals. To give further effect, it has established an Audit Committee to assist in the execution of its responsibilities.

### Composition of the Board

The Directors of the company in office at the date of this statement are:

Name	Age	Position	Expertise
Dr M. Goldsworthy	42	Managing Director	Physicist and Co-inventor of the SILEX Technology
Mr C. Wilks	42	Director of Finance and Corporate Development	Investment Banking, Finance and Company Management
Mr M. Boyd	35	Non-executive Director	Finance and Accounting, Company Management
Dr C. Goldschmidt	46	Non-executive Director	Company Management
Mr B. Patterson	59	Non-executive Director	Company Management
Mr P. Campbell	55	Non-executive Director	Finance and Accounting, Computing and Company Management

### Independent Professional Advice

Each Director has the right to seek independent professional advice at the economic entity's expense. However, prior approval of the Chairman is required, which is not unreasonably withheld.

### Audit Committee

The role of the Audit Committee is to advise on the establishment and maintenance of a framework of internal control and appropriate ethical standards for the management of the economic entity.

It also gives the Board of Directors additional assurance regarding the quality and reliability of financial information prepared for use by the Board in determining policies or for inclusion in financial statements.

The members of the Audit Committee are:

- Mr Michael Boyd (Chairman)
- Mr Peter Campbell
- Mr Christopher Wilks

The external auditors and the Managing Director are invited to Audit Committee meetings at the discretion of the Committee.

The responsibilities of the Audit Committee include:

- reviewing external audit reports to ensure that where major deficiencies or breakdowns in controls or procedures have been identified appropriate and prompt remedial action is taken by management;
- liaising with the external auditors and ensuring that the statutory audits are conducted in an effective manner;
- reviewing internal controls and recommending enhancements;
- monitoring compliance with Corporations Law, Stock Exchange Listing Rules and any matters outstanding with auditors, Australian Taxation Office, Australian Securities and Investments Commission (ASIC), Australian Stock Exchange (ASX) and financial institutions;
- reviewing reports on any major defalcations, frauds and thefts from the company; and
- improving the quality of the accounting function.

The Audit Committee reviews the performance of the external auditors on an annual basis and meets with them during the year as follows:

***Audit Planning***

- to discuss the external audit plan;
- to discuss any significant problems that may be foreseen;
- to discuss the impact of any proposed changes in accounting policies on the financial statements;
- to review the nature and impact of any changes in accounting policies adopted by the economic entity during the year; and
- to review the fees proposed for the audit work to be performed.

***Half-year and Annual Reporting***

- to review the results and findings of the audit, the adequacy of financial and operating controls, and to monitor the implementation of any recommendations made; and
- to review the draft financial statements and the audit report and to make the necessary recommendation to the Board for the approval of the financial statements.

***As Required***

To organise, review and report on any special reviews or investigations deemed necessary by the Board.

**2. IDENTIFYING AND MANAGING BUSINESS RISKS**

The Board regularly monitors the operational and financial performance of the company against predetermined budgets, schedules and other key performance measures. Appropriate risk management strategies are developed to mitigate all identified risks of the business.

**3. THE ROLE OF SHAREHOLDERS**

The Board of Directors aims to ensure that the shareholders are informed of all major developments affecting the economic entity's state of affairs. Information is communicated to shareholders as follows:

- the annual report is distributed to all shareholders (unless a shareholder has specifically requested not to receive the document). The Board ensures that the annual report includes relevant information about the operations of the company during the year, changes in the state of affairs of the company and details of future developments, in addition to the other disclosures required by the Corporations Law;
- proposed major changes in the company, which may impact on share ownership rights, are submitted to a vote of shareholders.

The Board encourages full participation of shareholders at the Annual General Meeting to ensure a high level of accountability and identification with the company's strategy and goals. Important issues are presented to the shareholders as single resolutions.

The shareholders are responsible for voting on the appointment of Directors.

The Directors declare that the financial statements and notes set out on pages 18 to 32:

- (a) comply with Accounting Standards, the Corporations Regulations and other mandatory professional reporting requirements; and
- (b) give a true and fair view of the company's financial position as at 30 June 2000 and of its performance, as represented by the results of its operations and its cash flows, for the financial year ended on that date.

In the Directors' opinion:

- (a) the financial statements and notes are in accordance with the Corporations Law; and
- (b) there are reasonable grounds to believe that the company will be able to pay its debts as and when they become due and payable.

This declaration is made in accordance with a resolution of the Directors.



Dr M.P. Goldsworthy  
Managing Director



Mr C.D. Wilks  
Director

Dated in Sydney, 27 September 2000

## Independent audit report



PricewaterhouseCoopers  
Securities Ltd  
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Holder of dealer's licence No 1120

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### Scope

We have audited the financial report of Silex Systems Limited (the company) for the financial year ended 30 June 2000 as set out on pages 18 to 32 together with the Directors' Declaration. The company's Directors are responsible for the financial report. We have conducted an independent audit of the financial report in order to express an opinion on it to the members of the company.

Our audit has been conducted in accordance with Australian Auditing Standards to provide reasonable assurance as to whether the financial report is free of material misstatement. Our procedures included examination, on a test basis, of evidence supporting the amounts and other disclosures in the financial report, and the evaluation of accounting policies and significant accounting estimates. These procedures have been undertaken to form an opinion as to whether, in all material respects, the financial report is presented fairly in accordance with Accounting Standards, other mandatory professional reporting requirements and the Corporations Law in Australia so as to present a view which is consistent with our understanding of the company's financial position, and performance as represented by the results of its operations and its cash flows.

The audit opinion expressed in this report has been formed on the above basis.

### Audit Opinion

In our opinion, the financial report of the company is in accordance with:

- (a) the Corporations Law, including:
  - (i) giving a true and fair view of the company's financial position as at 30 June 2000 and of its performance for the financial year ended on that date; and
  - (ii) complying with Accounting Standards and the Corporations Regulations; and
- (b) other mandatory professional reporting requirements.

A handwritten signature in blue ink that reads "D.S. Wiadrowski". To the left of the signature is the PricewaterhouseCoopers logo in a light blue color.

PricewaterhouseCoopers  
Chartered Accountants

D.S. Wiadrowski  
Partner

Sydney, 27 September 2000

**1. INFORMATION RELATING TO SHAREHOLDERS****(a) Distribution Schedule**

Number of Holders	Ordinary Shares
1 – 1,000	1,690
1,001 – 5,000	2,769
5,001 – 10,000	655
10,001 – 100,000	492
100,000 and over	67
Total number of holders of each class of security	5,673
Voting Rights – on a show of hands	1/member
– on a poll	1/share
Percentage of total holding held by the twenty largest holders	66.28%

**Substantial Shareholders**

Substantial Shareholders	Ordinary Shares
National Australia Trustees Limited	34,445,095
Polly Pty Ltd	5,607,398

## Shareholders' information

### (b) Names of Twenty Largest Holders of each Security as at 12 September 2000

Name	Number of Securities	Percentage Held
National Australia Trustees Limited	34,445,095	32.58%
Polly Pty Ltd	5,607,398	5.30%
AMP Life Limited	4,990,737	4.72%
Quintal Pty Ltd	4,034,835	3.82%
Throvena Pty Ltd	3,079,800	2.91%
Chase Manhattan Nominees Limited	2,746,081	2.60%
Mr Horst Struve	2,108,082	1.99%
Hamlac Pty Ltd	2,004,280	1.90%
National Nominees Limited	1,558,157	1.47%
Bow Lane Nominees Pty Ltd	1,400,000	1.32%
Dalran Pty Ltd (A/c The Smith Family Trust)	1,308,100	1.24%
Commonwealth Custodial	1,160,342	1.10%
Perpetual Trustees Nominees Limited	968,826	0.92%
Dr Andrew Yang Ooi Tan	855,565	0.81%
Hapday Holdings Pty Limited	805,620	0.76%
AMP Nominees Pty Ltd	707,111	0.71%
Mr Elia Castronova	640,765	0.61%
Invia Custodian Pty Ltd	605,000	0.57%
UBS Warburg Private Clients Nominees Pty Ltd	505,947	0.48%
Matrix Investments Pty Ltd (Matrix Holdings Account)	500,000	0.47%
	70,031,741	66.28%

### 2. VENDOR SECURITIES

There are no vendor securities.

### 3. INTEREST OF DIRECTORS IN SECURITIES

	Ordinary Shares	Interest Held
Mr B.S. Patterson	5,607,398	Beneficially
Dr M. Goldsworthy	229,533	Personally/Beneficially
Mr C.D. Wilks	999,023	Personally/Beneficially
Mr M.D. Boyd	3,334	Beneficially
Dr C. Goldschmidt	2,004,280	Beneficially
Mr R.P. Campbell	104,823	Beneficially

**Isotopes**

Most of the chemical elements, as found in nature, consist of two or more isotopes of the element. Although the chemical properties of all isotopes of a given element are broadly identical, there are pronounced differences in the physical properties.

These differences tend to be of significance, and can have technical and/or commercial applications where the nuclear properties of the element come into play. A common example is the use of illuminated “Exit” signs employing tritium, an isotope of hydrogen. The lightest and most common hydrogen isotope does not have those properties which enable tritium to be used in this way.

**Stable vs Unstable Isotopes**

Isotopes are found naturally in two forms: stable – which do not change over time; and unstable – which because of imbalances in nuclear structure, decay over time to form a different atomic species. Uranium and thorium are the two main examples of naturally occurring unstable isotopes. Other unstable isotopes not occurring naturally can be made artificially in nuclear physics laboratories. Unstable isotopes are also known as radioactive or radio-isotopes. In practical terms, isotopes other than uranium and thorium are known as stable isotopes, including those of silicon, carbon, nitrogen, zirconium and others.

**Lasers and Isotope Separation**

Lasers can produce monochromatic (ie, single frequency) light. Depending on the particular type of laser, this light may occur either in the visible or the non-visible (ultra-violet and infra-red) regions of the spectrum. When combined with the ability of certain chemical elements and compounds to be receptive to specific visible or non-visible light (ie, particular frequencies of electromagnetic radiation), it has been found possible to cause certain physical (and chemical) reactions to take place, and hence to create selective effects on particular target species.

In laser isotope separation processes such as SILEX, special tunable lasers are developed which are capable of producing highly monochromatic radiation which can be absorbed by only one of the isotope species, leaving the other isotopes unaffected. The absorption of the laser radiation causes physical or chemical changes to take place, rendering a new state or compound of the target isotope which can now be easily separated from the unaffected isotope species. The changed or affected isotope species becomes enriched in the desired isotope (the “product stream”) and the unaffected species therefore becomes depleted in that isotope (the “tails stream”).

**Semiconductors**

A material whose electrical conductivity is midway between an insulator and a conductor is called a semiconductor. Because of this property, it is possible to manipulate and control small electrical currents in micro-scale semiconductor devices by creating slight changes in the properties of the semiconductor material (such as “carrier doping”). Silicon and germanium are the most widely used semiconductors, with silicon dominating today’s semiconductor industry because of its low cost and ease of handling.

Semiconductor materials are used to build solid state electronic components, the most basic being the diode, which is the “building block” for more complex components such as the transistor. With modern fabrication techniques, it is possible to build a complex electronic subassembly in which many components are fabricated on a single semiconductor substrate or “chip” (usually made of silicon). This complex subassembly is called an integrated circuit, which in its most advanced form, using very large scale integration (VLSI) technology, is the basis of the modern microprocessor, or computer chip.

Most of today’s computer chip structures are dominated by a variety of doped silicon materials and lithographically etched aluminium/metal connectors. However, silicon/metal technology is reaching the limits of performance, and for some years now, there has been a trend towards the use of more expensive compound semiconductor materials such as gallium arsenide (GaAs) and indium phosphide (InP). Compound semiconductors have much faster electrical conductivity or mobility, and can furthermore be utilised to fabricate photo-diodes which can absorb or emit light. The use of light (optical) signals instead of electrical signals can provide a quantum leap in semiconductor performance, however, the conversion from conventional electronic to opto-electronic semiconductor systems is still in its infancy.

## Glossary

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### Uranium

Uranium minerals are abundant in the earth's crust and may be found in many parts of the world. Commercially exploitable deposits, however, are less widely distributed, with Australia and Canada possessing many such uranium deposits, amounting to over 40% of the world's known low-cost reserves.

The mined product is traded as yellowcake, which is around 98% pure uranium oxide ( $U_3O_8$ ), processed from mineral concentrates at the mine site.

### What is Uranium Enrichment and How is it Used?

Most of the world's nuclear power stations use uranium in the enriched form, which involves physical processing to change the relative concentration of the isotopes found in the natural uranium mineral. The two principal isotopes are uranium-235 (or U-235) and U-238; in nature these occur as 0.7% and 99.3% respectively of the total uranium element present.

For use in Light Water Reactors (LWRs), a U-235 concentration of 3-5% is required, and this is achieved through physical separation or enrichment on a commercial scale. There are only two enrichment processes in use overseas at present; these are the diffusion and centrifuge processes. In both cases the feedstock is another chemical form of uranium, the compound uranium hexafluoride ( $UF_6$ ).

The initial chemical processing which changes  $U_3O_8$  into  $UF_6$  takes place in a conversion plant.

Enrichment plants have two output streams, the enriched uranium product itself, and depleted uranium, commonly known as tails. In both cases the uranium remains in the chemical form of  $UF_6$ . The work performed by an enrichment plant in changing the concentrations of the isotopes is measured by a factor called the Separative Work Unit (SWU). The SWU is explained below.

The enriched uranium thereafter undergoes further chemical processing until it becomes ceramic grade  $UO_2$  pellets for incorporation into the reactor fuel.

### The Separative Work Unit (SWU)

The production capacity of enrichment plants cannot be conveniently measured in terms of the "throughput" of uranium, due to several variable and interrelated factors such as the degree of separation or enrichment (product assay) and the extent of depletion (tails assay). For this reason, enrichment plant capacity is measured in "separative work units" (SWU), which combines all these factors to provide a measure of the work being performed by the enrichment plant as the uranium passes through it.

SWUs are expressed in either kilogram or ton units. About 120,000Kgs SWU are required to enrich the annual fuel loading for a typical large (1000MWe) nuclear reactor – (equivalent to a typical coal fired power station). The capacity of a typical large gaseous diffusion plant is around 10 million SWU/year, while gas centrifugal plants may be built in modules ranging from 200,000-1,000,000 SWU/year. Worldwide uranium demand and nuclear reactor fuel requirements translate into a requirement for uranium enrichment separative work services in the range 35-38 million SWU/year over the next 10 years.





**Silex Systems Limited**