

A black and white photograph of a person wearing a white lab coat and white gloves, holding a small, square microchip with a grid of pins. The person's face is not visible, and the background is a plain, light color.

A UNIQUE TECHNOLOGY COMPANY



2002 ANNUAL REPORT

## CONTENTS

p2	Managing Director/CEO's Report	p7	Company Overview	p20	Board of Directors	p21	Directors' Report	p26	Corporate Governance	p30	Financial Statements
p33	Notes to Financial Statements	p52	Directors' Declaration	p53	Independent Audit Report	p54	Shareholders' Information	p55	Glossary		

## IMPORTANT NOTICE

### Forward looking statements

Silex is a research and development company whose assets are its proprietary rights in technologies including, but not limited to, the SILEX Technology. The Company's technologies are in the development stage and have not been commercially deployed. Accordingly, the statements in this Annual Report regarding the future of the Company's technologies are forward looking and actual results could be materially different from those expressed or implied by such forward looking statements as a result of various factors. Some factors that could affect future results and commercial prospects include, but are not limited to, results from the Uranium enrichment development program, the stable isotopes program, the Silicon Isotope Superlattice program, the Translucent Photonics program, the progress of Fiberbyte Pty Ltd, the development of any alternative technologies and the demand for enriched materials including Uranium, Silicon, Carbon, Zirconium and others.

2002

“THE PAST YEAR HAS BEEN AN EXCITING AND PRODUCTIVE ONE FOR SILEX SYSTEMS LTD, WITH POSITIVE PROGRESS AND RESULTS IN ALL OF OUR PROJECTS AND BUSINESS ACTIVITIES.”



Dr M P Goldsworthy - Managing Director/CEO

## MANAGING DIRECTOR/CEO'S REPORT

### Dear Shareholders

The past year has been an exciting and productive one for Silex Systems Ltd, with positive progress and results in all of our projects and business activities. Overall, I believe we are in a much stronger position now than at the start of the year in review, and are poised to reap the benefits of our efforts in the very significant technical programs we are conducting in Australia and around the world.

Solid progress has been maintained in the development of the Company's core SILEX Technology, with both the Uranium enrichment project and the stable isotope project moving steadily towards key milestones. Indeed, since June, the Company has been able to disclose more detailed information on this progress, with positive results for both Uranium and Silicon enrichment tests raising our confidence for ultimate commercial success. As always, we temper our optimism in the knowledge that our R&D programs are at the cutting edge of science and technology, and still carry significant risk until commercial deployment can be ultimately achieved. A more detailed update on the SILEX Uranium and Silicon projects is provided below.

Steady progress has also been achieved in the Company's wafer-scale semiconductor and photonics projects, with state-of-the-art laboratories constructed and successfully commissioned for both the Silicon Isotope Superlattice (SIS) project in Tokyo, Japan, and the Translucent Photonics project in Palo Alto, USA. These laboratories are now fully operational, working towards the respective demonstration milestone for each project. Both of these technologies have significant economic potential should they be successfully commercialised, but are still at a relatively early stage of development. A more detailed description of the

technologies and the status of the associated development programs is provided in the following sections.

In September 2002, Silex announced it had acquired a controlling interest in Fiberbyte Pty Ltd (formerly Photonica Pty Ltd), an Adelaide-based start-up company with novel laser technology having applications in the optical communications industry. Fiberbyte's first range of products is now ready for market and is expected to generate revenues for the group in the 2003 calendar year. This acquisition enhances the Company's interests in the photonics/optical communications field, and is expected to achieve near-term cashflows for Silex. Details of the transaction are provided below.

The addition of wafer-scale semiconductor and photonics activities to the Company's technology portfolio is consistent with our strategy of 'adding value' to the core SILEX Technology, without detracting from our core activities. Accordingly, the Company's continued push into the semiconductor and photonics industries, whilst very significant, is also cautious and judicious.

Without exception, all the Company's activities are at the cutting edge of their respective fields, and with a reasonable measure of success, should bring exciting times in the coming years for our staff and shareholders.

### Highlights for the Year

The activities of the year in review were strongly focused on facility and equipment construction programs, culminating in commissioning of various test facilities in virtually every one of our projects. Accordingly, this is reflected in the highlights listed below. The focus moving forward has shifted to deployment of these facilities for test-

WITHOUT EXCEPTION, ALL THE COMPANY'S ACTIVITIES ARE AT THE CUTTING EDGE OF THEIR RESPECTIVE FIELDS, AND WITH A REASONABLE MEASURE OF SUCCESS, SHOULD BRING EXCITING TIMES IN THE COMING YEARS FOR OUR STAFF AND SHAREHOLDERS.

work, driving towards the achievement of various milestones and demonstration activities.

**December 2001** The custom-built Silicon Isotope Superlattice (SIS) laboratory was completed and successfully commissioned at Keio University, Tokyo.

**April 2002** Commissioning of the Uranium Enrichment Project Direct Measurement Facility was completed, with initial testing commencing soon after.

**May 2002** The custom-built Translucent Photonics laboratory was completed and commissioned in Palo Alto (Silicon Valley).

**June 2002** The Stable Isotope Project Collector Module Facility was completed and commissioned. Initially, this facility has been deployed to supplement Uranium project activities.

**August 2002** Successful fabrication of the world's first Silicon Isotope Superlattice (SIS) structure in Tokyo was achieved. This was a demonstration of fabrication capabilities only. Performance capability tests must await fabrication of SIS with a second material sample.

**September 2002** Silex acquired a controlling interest in Fiberbyte Pty Ltd (formerly Photonica), an Adelaide company developing laser-based optical communications technology. Fiberbyte's first products will go to market in 2003.

**October 2002** Silex and USEC announced an Amendment Agreement to the original Development and Licence Agreement, strengthening the relationship between the two companies by more closely aligning interests, and providing a framework to help accelerate SILEX Technology development.

### Project Updates

All of the Company's R&D projects are progressing well. As mentioned above, the Company has also continued to diversify its interests into synergistic, yet independent technologies, each with significant economic potential in its own right. The current status of the Company's projects is summarised below.

#### 1. The SILEX Uranium Development Project

##### (i) Technical Progress

The Direct Measurement enrichment tests commenced late in the financial year, with the initial series of tests successfully completed in October '02. The positive results achieved in

these tests have demonstrated the macroscopic efficacy of the SILEX Process for the first time, right through to enriched product collection and analysis – a momentous step forward. There still remains several different tests to be conducted under a wide range of conditions before process efficiency can be more accurately determined. We expect to be in a position to provide further details on the outcome of the current test program early in 2003.

These tests are being conducted in a unique facility utilising equipment which has been designed and built by the Silex–USEC team over the past two years. The scale of the equipment is impressive, much larger than that used to achieve the first milestone, and is designed to measure the efficiency of the SILEX process via enriched material collection and analysis (using relatively small quantities). Once this test program has been successfully completed, the focus will turn to equipment scale-up and optimisation of enrichment performance.

##### (ii) Amendment to the Development and Licence Agreement

In October 2002, Silex and USEC announced an amendment to the Development and Licence Agreement signed in 1996. This amendment represents a significant strengthening of the Silex–USEC relationship, paving the way for closer ties and better cooperation between the two companies in the pursuit of our technical and commercial goals. The Amendment includes the following provisions:

**Project Milestones** - The Uranium enrichment project has evolved considerably since the three original milestones were laid out in 1996, to the extent that the remaining milestones needed to be restructured to better reflect the development program as it stands today. Additionally, it was considered desirable to have more frequent milestones in order to provide the market with a better flow of information regarding progress in the Uranium project (the total value of the Milestones remains unchanged). The revised Milestones are summarised below.

**Stable Isotope Project** - Previously the Uranium project and Stable Isotope Project (SIP) had been kept completely separate. Additionally, if technology was ever to be transferred from the Uranium project to the SIP, the original Development and Licence Agreement provided for a potential royalty of 3.5% of stable isotope revenues back to USEC. The Amendment Agreement simplifies these issues in a win-win manner which will enable improved cooperation

and technology transfer between the two projects, with a lower mandatory royalty set at 2%. Silex believes this is a positive outcome for the Stable Isotope Project.

**Commercial Funding Partner** - In order to provide more flexibility and efficiency on funding issues related to the future potential deployment of SILEX technology, the Amendment Agreement provides for the introduction of a plan for recruiting a third partner to commit new development funding. This important provision has the potential to accelerate deployment activities at the appropriate time.

**Royalty Structure** - In order to help attract a third party funding partner, the Amendment Agreement sets out several in-principle proposals to amend the terms of the royalty structure beneficial to all parties. This is a necessary and positive step towards ensuring the capital requirements for commercial deployment can be satisfied in the future.

**(iii) Commercial Issues**

On 18 June 2002, USEC announced an agreement with the US Department of Energy (DOE) which resolved a number of major issues affecting USEC, including the extension of its right to act as sole executive agent for Russian HEU (highly enriched Uranium). The extension was critical for USEC as this material currently provides about half of the company's revenue. Without its hold on the HEU contract (which was renegotiated to ensure an ongoing commercial margin)

USEC's ability to continue to fund the development of new technology would have been limited.

The DOE Agreement also included a commitment by USEC to develop and deploy a 1 million Separative Work Units (SWU) (expandable to 3.5 million SWU) plant using US centrifuge technology. Whilst this represents a relatively small percentage of USEC's annual sales, which are in the order of 10-12 million SWU, Australian investors appear to have interpreted this as a decision by USEC to drop the third-generation SILEX technology in favour of the second-generation centrifuge technology. The reality is that USEC is continuing to fund and support the development of SILEX.

This was confirmed by Dennis Spurgeon, USEC's Chief Operating Officer, during his speech at the World Nuclear Association in London recently. Whilst explaining the current progress of the centrifuge project, Mr Spurgeon said: **"Let's not forget about SILEX. We're continuing to invest in SILEX, a third-generation laser-based technology being developed in Australia. We have the exclusive rights to this new Uranium enrichment technology, and we will continue to fund SILEX research at a level that's commensurate with its rate of development. I should point out that it's not at the same advanced stage of development as the centrifuge technology: it's still in the research and development stage right now, whereas the US centrifuge technology is close to commercial deployment. However, we have seen some promising results."**

MILESTONE	BRIEF DESCRIPTION	US\$ VALUE
Milestone IIA:	The achievement of positive Direct Measurement results and a decision by USEC to commence Scale-up and Optimisation work.	\$500,000
Milestone IIB:	Achievement of positive Scale-up and Optimisation results and a decision by USEC to commence Test Loop design.	\$2,500,000
Milestone IIIA:	Filing of an application for a regulatory licence either from the US NRC or ARPANSA in order to construct the Test Loop in the United States or Australia respectively.	\$1,000,000
Milestone IIIB:	Receipt of licence from NRC or ARPANSA to permit the construction of the Test Loop in the United States or Australia, and a decision by USEC to commence construction of the Test Loop.	\$2,000,000
Milestone IIIC	Successful commissioning of the Test Loop and commencement of laser Uranium enrichment tests.	\$2,000,000
Milestone IIID	Successful Test Loop demonstration and decision being made by USEC to apply for licence from NRC to construct a commercial plant.	\$2,000,000
Milestone IIIE	Commencement of construction of a Commercial Plant after receipt of licence from the US NRC	\$3,000,000



The simple fact is that at the time USEC had to commit to building an enrichment plant, SILEX was not sufficiently advanced to be selected. SILEX is, however, still very much in the 'race', and if positive results continue to be achieved in the current and future programs, the SILEX technology could satisfy the balance of USEC's enrichment requirements. In July 2002, Dennis Spurgeon said: "USEC looks forward to a positive outcome of the current SILEX test program and continuing to work with SILEX towards the deployment of the industry's first third-generation technology, Uranium enrichment plant."

## 2. The SILEX Stable Isotope Project

The Stable Isotope Project, which aims to explore the potential of applying the SILEX isotope separation technology to other materials, in particular Silicon, Carbon, Oxygen and Zirconium, has achieved further positive results recently with the diagnostic experimental system known as the Mini Module Facility. The major focus to date has been Silicon enrichment.

The Silicon Mini Module tests are now nearing successful completion, with two industry-compatible Silicon compounds identified and tested for future development with the SILEX Process. This project will soon move on to the Collector Module facility which, as the name suggests, will separate and collect small samples of enriched Silicon isotopes. The tests in the Collector Module will enable us to determine the efficiency of the SILEX Process for Silicon enrichment, and complete preliminary economic studies. If process viability is successfully demonstrated at this level of development, the Silicon project will progress to a Pilot Plant Stage prior to commercial deployment.

As previously disclosed, we are in discussions with a leading Silicon wafer manufacturer with a view to forming a collaborative R&D effort to investigate the benefits of utilising Si-28 wafers for semiconductor device fabrication. These discussions are proceeding positively, albeit slowly.

The main target applications for enriched stable isotopes produced with the SILEX technology including Silicon, Carbon and Zirconium, are discussed in greater detail in the Company Overview section.

## 3. Silicon Isotope Superlattice (SIS)

In October 2000 Silex acquired the rights to SIS patent applications from the Advanced Semiconductor Materials

Group led by Professor Kohei Itoh at Keio University in Tokyo, Japan. In principle, SIS, which must be manufactured from isotopically pure Silicon, has the potential to enable Silicon to perform at significantly higher frequencies by increasing its electronic mobility. If this can be demonstrated with economic feasibility, SIS-based semiconductor devices could result, operating at much greater speeds than today's best microprocessors.

As a potential application of enriched Silicon, the SIS technology is very synergistic with Silex's focus on creating advanced materials and devices for the semiconductor and optical communication industries.

Since the SILEX Technology is not yet at a stage where it can produce Silicon-28 and Silicon-30 isotopes in sufficient quantities, it has been necessary to source costly material produced overseas by the relatively inefficient centrifuge separation process. The first batch of Silicon-30, whilst successfully enriched, did not meet the dopant impurity specifications, a vital pre-requisite for producing SIS wafers. A second batch, which we expect to meet specifications, was received by Professor Itoh at the time of this report, and is being prepared for acceptance tests.

Whilst waiting for the second Silicon-30 batch, Professor Itoh utilised the original batch to successfully build the world's first Silicon Isotope Superlattice structure. Testing of the superlattice structure will continue over the coming months. This first SIS structure is not expected to show any improvements in electron mobility because of the unacceptable levels of dopant impurities, however, this work is very important because it has demonstrated that we have the capability to fabricate the necessary SIS structures. Full electron mobility tests with the second batch of SIS material are now expected to be completed in the first quarter of 2003.

## 4. Translucent Photonics

In April 2001 SILEX reached agreement with United States-based semiconductor start-up Translucent Photonics, Inc. (Translucent), to fund the development of an invention in the field of photonic semiconductor technology known as Planar Lightwave Circuits (PLCs). The agreement involves the funding of a US\$5 million development program in return for a 30% equity interest in Translucent, and an option to move to 55% upon successful completion of the demonstration program.

The construction and commissioning of Translucent's state-of-the-art photonics laboratory was completed in May 2002. The facility is now being used to build Silicon PLC structures which, in due course, will be tested for photonic capability. The program is progressing as planned, although the demonstration milestone is now most likely to be reached in the first quarter of 2003, a few months behind the original schedule. If this is successful, it is anticipated that the first commercial devices could be manufactured within the following 12 months.

The Translucent PLC has enormous commercial potential because it aims to push low-cost Silicon into the photonics arena (optical communications technology) for the first time, delivering significant cost and performance benefits. If successful, Translucent PLCs are expected to have broad application in the very substantial photonics/semiconductor markets.

## 5. Fiberbyte

In September 2002, the Company exercised an option to acquire a 51% interest in Photonica Pty Ltd, an innovative Adelaide-based optical communications/photonics company. In October, the Board resolved to change the company's name to Fiberbyte Pty Ltd. The transaction follows a restructuring of the initial Agreement whereby the \$5.25M cash investment will now proceed in four tranches over the next three years, with each tranche geared to a performance milestone. This effectively reduces the overall risks of the investment to Silex. Sales of Fiberbyte's unique technology are expected to commence next year. The restructure of the transaction followed the completion of an extensive Due Diligence assessment of the Fiberbyte opportunity. The results of our Due Diligence highlighted the following key factors:

- **Market Conditions**

As is well known, the photonics/optical communications industry has been depressed for the past two years. Since May however, the decline in market conditions has sharply accelerated, changing the medium-term outlook for recovery. Most analysts believe a market recovery in this industry is now a year further away, and that the markets will be smaller for some time. We have, accordingly, adjusted our revenue forecasts for Fiberbyte Fiber Optic Test Equipment downwards to approximately \$25M in the next four to five years.

- **Laser Technology Options**

A complete review of the laser-based fibre-optic test equipment technology sector has been undertaken, resulting in a much better focus for product development and business strategy. We have identified an additional product line with significantly better differentiation and cost benefits, which will now undergo accelerated development.

- **Passive Optical Transceiver**

The Due Diligence effort also highlighted the key development issues for the Passive Optical Transceiver technology over which Fiberbyte holds Patent Protection. We have subsequently concluded that a further Due Diligence effort is required to assess the prospects for this exciting technology in more detail, particularly with respect to potential competing technologies such as Wireless and VCSEL laser technology.

## Concluding Remarks

To maintain our positive progress, we continue to rely on the tireless dedication of the team we have built at Silex, and the teams working in Translucent (US), SIS (Tokyo) and Fiberbyte (Adelaide). These teams are, without doubt, among the most talented and dedicated in the world, as evidenced by their outstanding achievements to date. I would like to take this opportunity to thank every member of our respective teams for their superb efforts over the past year.

Whilst we are now arguably stronger than ever, with approximately \$40M cash in the bank, almost zero burn rate, and solid progress in all our technology programs, it is unfortunate we have been so harshly treated by the equity markets on the back of a misinterpretation of the facts regarding our relationship with Uranium Project partner USEC (the deteriorating state of the equity markets has compounded this situation). However, not only is the Uranium Project making excellent progress, but as mentioned above, Silex and USEC have strengthened our relationship by making positive changes to the Development and Licence Agreement which will bring the two companies closer together.

In summary, it has been a positive year for Silex in all of its activities. We now look forward to the remainder of the year and beyond, in which time we hope to bring you project updates and news of success in achieving various milestones in our exciting technology programs.



Dr M P Goldsworthy  
Managing Director/CEO

# COMPANY OVERVIEW AND THE SILEX STRATEGY



## Mission

To become a world leader in isotopically engineered materials and related wafer-scale semiconductor and photonics technologies.

## 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 per annum), 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 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, currently with approximately one-third of the market.

**1998** Silex listed on the Australian Stock Exchange on 7 May 1998.

### 2000

- The first milestone of the Uranium enrichment program was successfully achieved, triggering a milestone payment of US\$2.5 million from USEC.

- An Agreement for Cooperation between the United States and Australian Governments was signed, paving the way for continued development of the SILEX Technology for Uranium enrichment, and facilitating its future transfer to the United States. This triggered the second half of the first milestone payment, a further US\$2.5 million.
- The Stable Isotopes Program was launched to accelerate the development of the SILEX Technology for application to Silicon and Carbon enrichment.
- Silex won the 2000 Australian Technology Award for excellence in the Manufacturing and Engineering sector.
- Silex secured the rights to a Swiss laser technology for Carbon isotope separation, and established a research alliance with the developers, École Polytechnique Fédérale de Lausanne (EPFL), one of the leading research institutes in this field.
- Silex secured a START Grant from the Australian Government to fund 50% of the SILEX Stable Isotope Program.
- A research agreement was 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.
- Silex raised \$36 million to assist in funding the development of the Company's technology portfolio. Nine million shares were placed with institutional investors to raise the capital.

### 2001

- Silex acquired the rights to patent applications for Silicon Isotope Superlattice (SIS) technology from Keio University in Tokyo. The technology has the potential to utilise Silicon isotopes to enhance the performance of semiconductors.
- Silex moved further into the semiconductor technology field with the acquisition of a 30% interest in California

## SILEX'S URANIUM PROJECT IS MAKING EXCELLENT PROGRESS, AND HAS BEEN ENHANCED FURTHER BY RECENT CHANGES TO THE SILEX-USEC AGREEMENT WHICH WILL BRING THE TWO COMPANIES CLOSER TOGETHER.

based Translucent Photonics, Inc. Translucent is developing a planar lightwave circuit technology, potentially enabling Silicon to play a major role in the photonics/optical communications industry.

- The SILEX Technology was officially "Classified" by the United States and Australian Governments. The implications of classification relate mainly to security protocols.

### 2002

- Silex acquired a controlling interest in Fiberbyte Pty Ltd (formerly Photonica), a laser-based optical communications company in Adelaide. Fiberbyte's initial product line is ready for market and expected to generate revenues in 2003.
- Silex and USEC announced an Amendment to the Development and Licence Agreement, strengthening the relationship between the two companies by more closely aligning interests and project activities.

Updates on the current status of the Company's technology programs are set out in the Managing Director's Report.

### Corporate Strategy

Silex's corporate strategy is based on the following objectives:

- To develop a diverse range of commercial applications for the Company's core SILEX Technology, with a focus on nuclear, semiconductor and medical diagnostic materials.
- To acquire rights to and develop wafer-scale technologies in the semiconductor/photonics industries which are synergistic with, or add value to the core SILEX Technology.
- To establish strategic alliances with potential users of the Company's technologies in order to reduce development costs and shorten the commercialisation timelines.

### 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 can be created. These 'new' materials can exhibit unique properties and behavior, 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 approximately 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 the following:

- SILEX is an extremely low-energy process.
- SILEX is based on relatively simple and practical separation techniques.
- SILEX is a modular technology providing versatility in deployment.
- SILEX is expected to have relatively low operating and capital costs.



## SILEX

Making advanced materials with state-of-the-art laser technology

## PRIMARY APPLICATIONS OF THE SILEX TECHNOLOGY

URANIUM



SILICON



ZIRCONIUM



## Nuclear Applications

### Uranium

Historically, 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 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 approximately one-third of the market (total market currently US\$3.5 billion per annum). Half of USEC's production is reliant on Gas Diffusion technology, which is over 45 years old, relatively inefficient and costly. USEC's Agreement with Silex is aimed at developing an efficient low cost technology to replace the diffusion plant. The other half of USEC's production is derived from blended down Russian highly enriched Uranium derived from weapons warheads. This material will only be available for the short to medium term.

Our amended Agreement with USEC provides 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.

- Milestone payments (refer to the CEO's Report) totalling 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 per annum) 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).

In order to facilitate the joint Silex–USEC development program for Uranium enrichment, an Agreement for Cooperation 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 United States President Clinton and sitting before the United States Congress for 90 days. In June 2001, the SILEX Technology was officially Classified by the United States and Australian Governments, bringing the project formally under the security and regulatory protocols of each country.

### Zirconium

In September 2000, 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.

Westinghouse is one of the largest producers of "nuclear grade" Zirconium, which is used (in its natural form) to make fuel cladding 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 per annum.



The Agreement provides for a Feasibility Study which will assess the technical feasibility and economic benefit of using the SILEX Process for Zirconium enrichment. The Study, which involves a series of laboratory tests and process modelling, forms part of the Company's Stable Isotopes Program, and is expected to be completed by mid 2003. 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 could be made from isotopically enriched Silicon in order to alleviate these problems. 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. Published results of laboratory tests report increases of up to 60% in the thermal conductivity of enriched Silicon-28 at room temperature. In a typical computer chip, this may translate to a drop in operating temperature of ~30°C, potentially providing improved microprocessor

performance. This development is in its infancy, but is commanding increasing interest from the semiconductor industry.

- A recent invention called the "Silicon Isotope Superlattice" (SIS) may have the potential to significantly 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. Specifically, SIS devices (which must be made with highly enriched Silicon) could potentially increase microprocessor speeds by a factor of two to three. 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 (see also Semiconductor Technologies below).
- Looking further into the future, the advent of the "Quantum Computer", which potentially promises unprecedented 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 consideration of an economic source of enriched Silicon. To date, no economically viable source of enriched Silicon has emerged. 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 used extensively in the semiconductor industry. Published research results report



DEDICATED TEAM OF PROFESSIONALS





Silex has an exceptionally talented and dedicated team of scientists, engineers and technicians, developing unique technologies in four continents





that synthetic diamond made from enriched Carbon (>99.9% C-12) exhibits significantly improved thermal conductivity. The potential for SILEX Technology to produce enriched C-12 is also being investigated. The 'by-product' from this application (C-13) is already used extensively in medical diagnostic applications (see below), and could therefore add value to a SILEX Carbon isotope separation venture if successfully undertaken.

Whilst SILEX Technology has good prospects for separating Carbon isotopes, the work to date on this element has largely been undertaken by our development partners at École Polytechnique Fédérale de Lausanne (EPFL) in Switzerland using their proprietary Carbon technique. Preliminary results achieved by EPFL are positive and studies are continuing to determine the most economic approach to scaling the technology.

### Medical Diagnostic Applications

The isotopes of primary commercial interest for medical diagnostics are Carbon and Oxygen. These and other isotopes form the basic materials used for biomedical and in-vivo diagnostic procedures, including detection of cancer and organ disease. For example, modest sized markets already exist for C-13 ('urea breath test') and O-18 (raw material for PET imagers used in hospitals), but there is consensus within industry that these markets could increase if a more economic source of production could be implemented. These isotopes are currently produced via relatively expensive conventional cryogenic distillation technology. The feasibility of producing C-13 and O-18 with SILEX Technology is one focus of the Stable Isotope Program currently underway.

### Semiconductor and Photonics Technologies

#### Silicon Isotope Superlattice

In October 2000, Silex secured the rights to Patent applications for the Silicon Isotope Superlattice (SIS) technology being developed at Keio University in Tokyo. As described above, the technology aims to improve the

performance of semiconductors by increasing the electron speed in specially fabricated layers of enriched Silicon. A state-of-the-art laboratory has been established at Keio University to produce prototype SIS wafers, the first batch of which are expected to be available for testing in early 2003. Silex makes a small contribution to the project which is largely funded by Japanese Government research grants.

#### Translucent Photonics

In April 2001, Silex reached agreement with United States-based semiconductor start-up Translucent Photonics, Inc. (Translucent) to fund the development of an invention in the field of photonic semiconductor technology known as Planar Lightwave Circuits (PLCs). The agreement involves the funding of a US\$5 million development program in return for a 30% interest in Translucent, and an option to move to 55% upon successful completion of the demonstration program.

The Translucent PLC has significant commercial potential because it aims to push low-cost Silicon into the photonics arena (optical communications technology) for the first time, delivering significant cost and performance benefits. If successful, Translucent PLCs are expected to have broad application in the photonics semiconductor market, currently worth several US billion dollars per annum.

The 18-month development program being conducted in a custom-built, state-of-the-art laboratory in Palo Alto, is now well advanced with prototype devices expected to be available for testing in the first half of calendar 2003.

#### Fiberbyte

In September 2002, the company exercised an option to acquire a 51% in Photonica Pty Ltd, an innovative Adelaide-based optical communications/photonics company. In October, the Board resolved to change the company's name to Fiberbyte Pty Ltd. The transaction follows a restructuring of the initial Agreement such that the \$5.25M cash investment will now proceed in four tranches over the next three years, with each tranche geared to a performance milestone. This effectively reduces the overall risks of the investment to Silex.

## IF SUCCESSFUL, TRANSLUCENT PLCs ARE EXPECTED TO HAVE BROAD APPLICATION IN THE PHOTONICS/SEMICONDUCTOR MARKET, CURRENTLY WORTH SEVERAL BILLION US DOLLARS PER ANNUM.

Fiberbyte's technologies, for which several Patent applications have been filed, fall into two categories:

### (i) Fiber Optic Test Equipment:

Photonica has developed a new class of Fiber Optic Test Equipment (FOTE) which was successfully launched at the world Optical Fiber Communications Convention (OFC 2002) held in Anaheim, California in March this year. Photonica's FOTE systems combine novel semiconductor laser technology with a revolutionary computer backplane architecture to provide a new platform for industrial FOTE systems. This new platform offers levels of technical superiority and enormous flexibility compared to the relatively inflexible systems currently utilised by market competitors.

FOTE systems are an essential component of the global fibre optics communications industry, and are used routinely by fiber optic technology developers, equipment installers, and optical network telecom operators. The initial product lines currently being marketed by Fiberbyte target the DWDM network test equipment sector. Additional products which are under development will have the potential to target other sectors of this substantial market.

### (ii) Optical Communications Network Technology

Photonica has also invented a novel 'Optical Modem Technology' called a "Passive Optical Transceiver" (POT). If successfully developed, this invention has the potential to play an important role in future optical communications networks. Applications include 'Fiber-to-the-Home' (FTTH) networks, Metropolitan CWDM networks, Wide Area Networks (WANs) and Local Area Networks (LANs). A development program will be pursued at a later date if the results of a technical due diligence study currently underway are positive.

We believe the Fiberbyte opportunity, now structured at lower risk and on a slightly longer start-up time line, will prove to be an important and commercially attractive investment for Silex in the medium term and beyond.

## Development Programs – Resources, Funding and Timing

### Resources

#### Uranium Program

A team of approximately 35 scientists and technicians has constructed a new test facility at Lucas Heights (south of Sydney). This facility will be utilised over the next 12 months as part of the Pilot Plant Engineering Study. The Uranium development program is fully funded by our Uranium project partner USEC, Inc.

#### Stable Isotope Program (SIP)

A separate team of eight scientists in Australia and four scientists in Switzerland (EPFL) have been working on the SIP, with the Australian team focused on Silicon and Zirconium and the Swiss team on Carbon. This program is funded 50% through a Federal Government START Grant, a contribution from Westinghouse Electric Company (for Zirconium), and the balance by Silex.

#### Silicon Isotope Superlattice (SIS)

A state-of-the-art laboratory for SIS testing has been built and commissioned at Keio University in Tokyo. A team of four scientists is working on this project which is funded largely through Japanese Grants with some additional support from Silex.

#### Translucent

Four scientists and technicians are conducting the Translucent technology program in Palo Alto, California. Funding of US\$5 million (contributed to earn Silex's 30% interest in the Company), is expected to be sufficient to cover the costs of the feasibility demonstration program.

#### Fiberbyte

The Fiberbyte team includes four scientists, seven engineers and technicians, and three administration staff. The \$5.25M cash provided by Silex will be progressively used by Fiberbyte principally to ramp up its manufacturing capability and distribute its product range in the target world markets. Silex believes this funding will be sufficient to take Photonica to positive cash flow in the next two to three years.

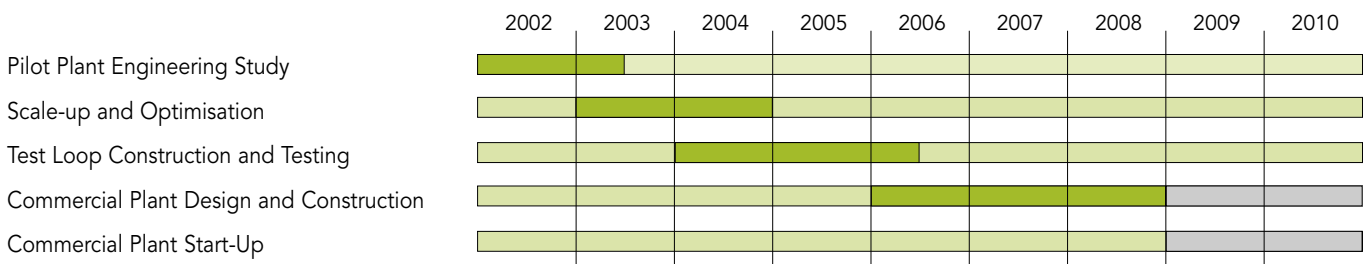
# RESEARCH AND DEVELOPMENT TIMELINES

# Research and Development Timelines

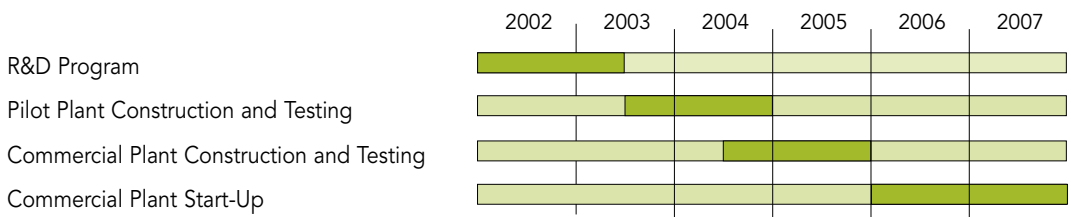
The timing of research and development programs is always difficult to assess, owing to the uncertain nature of research and development. However, our indicative timetables for the various projects currently underway at the time of writing this report are set out below. These timetables are liable to 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.

## SILEX Technology

### URANIUM ENRICHMENT PROGRAM

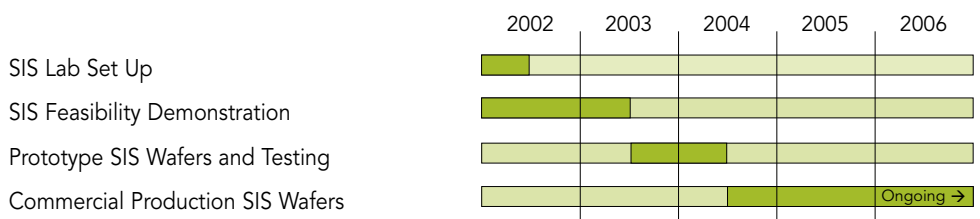


### STABLE ISOTOPE PROGRAM

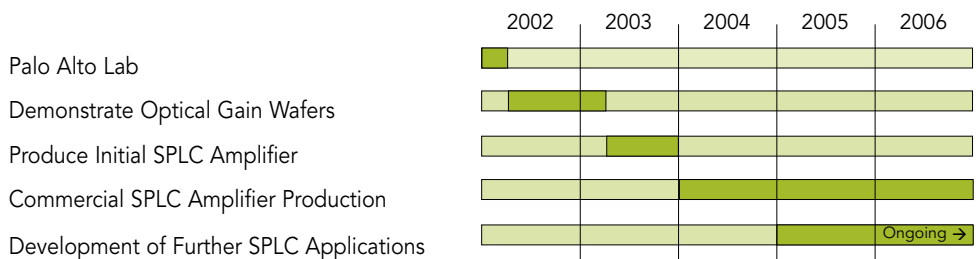


## Semiconductor Technology

### SIS DEVELOPMENT PROGRAM



### TRANSLUCENT DEVELOPMENT PROGRAM



**Note:** These dates are indicative only and are subject to the outcomes of activities in the respective research and development programs

# Board of Directors



**Mr Barry Patterson** ASMM MIMM FAICD  
Chairman (Non-executive Director)

Mr Patterson has experience as a Director of a number of Australian public companies and is a major shareholder in Silex through his interest in Polly Pty Ltd. Mr Patterson is a mining engineer by trade 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/CEO (Executive Director)

Dr Goldsworthy received his PhD in Physics from The University of New South Wales. Prior to starting with Silex Systems Limited in 1988, 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, and the establishment of the Company's extensive activities in semiconductor and photonics technologies.



**Mr Christopher Wilks** BComm ASA FCIS FCIM FAICD  
(Director – Corporate) (Executive Director)

Mr Wilks is responsible for financial oversight and corporate development of Silex. He has held a number of directorial positions with Australian public companies and has a background in investment banking. He is currently a Director of Sonic Healthcare Limited, and is also a member of the Silex Audit Committee.



**Dr Colin Goldschmidt** MB BCh FRCPA FAICD  
(Non-executive Director)

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, and became a member of the Silex Audit Committee on 11 September 2002.



**Mr Peter Campbell** FCA FTIA MAICD  
(Non-executive Director)

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 Audit Committee.

# DIRECTORS' REPORT

Your directors present their report on Silex Systems Limited (Silex or the Company) for the year ended 30 June 2002.

## 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 S Patterson – Chairman  
Dr M P Goldsworthy – Managing Director/CEO  
Mr C D Wilks – Director – Corporate  
Dr C S Goldschmidt  
Mr R P Campbell

## 2. Principal activities

The principal activity of the Company during the course of the financial year was the research and development of the laser isotope separation technology known as 'SILEX'. In addition, the Company has expanded its interests into wafer-scale semiconductor and photonics technologies which are synergistic with SILEX such as the Silicon Isotope Superlattice (SIS) and Silicon Planar Lightwave Circuits (SPLCs).

## 3. Employee numbers

During the year the Company employed on average 27 (2001: 23) employees on a full-time basis.

## 4. Dividend

No dividend payments were made during the year. No dividend has been recommended or declared by the Board.

## 5. Review of operations and activities

### Trading Results

The Company's operating loss for the year was \$660,791 (2001: loss \$38,664) after allowing for an income tax expense of \$92,164 (2001: \$71,082).

The increased loss is mainly due to the \$689,794 (2001: nil) equity accounted loss from Translucent Photonics Inc.'s (Translucent) research expenditures. Silex acquired a 30% interest (with an option to increase to 55%) in Translucent in April 2001. Translucent is a Photonics research company based in Palo Alto, USA.

Total revenue is down on last year mainly due to reduced recoverable costs on the Uranium project as the project moved from a construction phase to a testing phase.

The research and development ("R&D") costs for the Uranium enrichment application of the SILEX technology are reimbursed by USEC under the terms of the License and Development Agreement.

R&D costs incurred during the period on the SILEX Silicon and Carbon Enrichment program have been partly reimbursed by an Ausindustry R&D Start Grant.

During the period, a support fee from Westinghouse Electric Corporation was received to contribute to the costs incurred in conducting a feasibility study of the application of the SILEX process to the separation of Zirconium isotopes.

Interest income has been used to fund Silex's contribution to the various non-Uranium projects, resulting in the Company's cash reserves remaining almost unchanged at \$41,067,183 (2001: \$41,387,699) at year's end.

## 6. Earnings per share

	2002 Cents	2001 Cents
Basic earnings per share	(0.5)	nil
Diluted earnings per share	(0.5)	nil

Basic and diluted earnings per share for year ended 30 June 2001 were nil, owing to the small loss of \$38,664.

## 7. Significant changes in state of affairs

In May 2002 the Company secured an option to acquire 51% of Fiberbyte Pty Ltd (formerly Photonica Pty Ltd), an innovative optical communications/photonics company based in Adelaide. The Agreement also provides for Silex to increase its interest in Fiberbyte up to 90% within a three to five year timeframe. Fiberbyte's technologies fall into two categories: fiber optic test equipment and optical communications network technology.

# DIRECTORS' REPORT

## 8. Events subsequent to balance date

On 24 September 2002 the Company acquired a 51% controlling interest in Fiberbyte for an initial cash consideration of \$1,600,000 plus the issue of 172,414 fully paid Silex shares. In addition, the Company will grant (over three years) up to 1,500,000 options to Fiberbyte staff out of the Employee Share Option Plan. \$3,650,000 additional cash will be paid over the next two-and-a-half years provided certain performance milestones are achieved. This brings the potential total cash outlay to \$5,250,000. Of the initial \$1,600,000, \$750,000 was advanced prior to 30 June 2002.

Except for the new acquisition noted above, 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 Company, the results of its operations or the state of the Company in subsequent years.

## 9. Likely developments and expected results of operations

### Uranium Enrichment Program

The Company is currently conducting the "Direct Measurement" program, which involves enrichment testing with significantly larger scale equipment than was used in the previous Pilot Module stage. During the past two years, equipment for this program has been designed, built and commissioned. We expect the testing and optimisation stage of this program, which commenced in April 2002, to continue over the balance of calendar 2002. The timing of the next milestone will depend on the outcome of these tests and the strategy adopted for the next development stage, which is the scale-up of equipment to plant level, and process optimisation. The subsequent Test Loop program involves the operation and testing of plant scale equipment, and is expected to be the final step before committing to the deployment of a commercial SILEX plant.

### Stable Isotope Program

The Stable Isotope Program, which aims to assess the feasibility of using the SILEX Technology to enrich additional elements such as Silicon, Carbon, Zirconium and Oxygen, commenced in February 2000. Since then, the program, which is funded 50% by a Federal Government START Grant and 50% by Silex, has made significant advances. Tests with the Mini Module Facility have been successful in identifying a suitable compound for Silicon isotope separation. Whilst these and other results suggest that SILEX can effectively enrich several of these elements, the economics of the process are yet to be determined for each individual element. A new isotope separation demonstration facility called the Collector Module was commissioned in June 2002. The purpose of this facility is to demonstrate full macroscopic separation of stable isotopes, and to more accurately assess process efficiency and preliminary cost estimates. Preliminary enrichment results are expected to be available by the end of this year for Silicon.

### Silicon Isotope Superlattice (SIS)

In October 2000, Silex secured the rights to SIS semiconductor technology from Professor Itoh and Keio University in Japan. The SIS utilises isotopically pure Silicon in a unique configuration which aims to increase electron mobility, and therefore the speed of semiconductor devices. Production of isotopically pure Silicon, a material not commercially available today, is one potential application of the SILEX Technology being developed in the Stable Isotope Program. The SIS development program is progressing in a purpose-built laboratory at Keio University in Tokyo. In August 2002, the group successfully fabricated the world's first SIS structure – a key milestone for the project. Early results on technical feasibility for enhanced electron mobility are expected late this year, or early 2003.

### Translucent Investment

In April 2001, Silex acquired a 30% interest in Translucent Photonics Inc., a United States-based research and development company. Translucent is developing a photonic semiconductor technology known as Planar Lightwave Circuits, which may have significant commercial potential in the multi-billion-dollar photonics/optical communications industry. A dedicated laboratory has been built and commissioned on schedule. Preliminary results from this potentially revolutionary technology are expected in late 2002/early 2003.

### Fiberbyte Investment

In September 2002, Silex acquired a 51% controlling interest in Fiberbyte, an innovative Adelaide-based optical communications/photonics company. Since February this year, Silex undertook and completed an exhaustive Due Diligence assessment of the Fiberbyte opportunity. The results of our Due Diligence, including an assessment of the significantly deteriorating market conditions during 2002, led to the re-negotiation of the Purchase Agreement to incorporate a four-stage, two-and-a-half-year investment structure, with funding tranches leveraged against performance milestones. This structure significantly decreases the risks to Silex, ensuring additional funds are only made after performance milestones are met. The total cash investment will remain the same (\$5,250,000) if Fiberbyte achieves all the milestones and successfully executes its Business Plan.

Sales of initial products in Fiberbyte's technology portfolio are expected to commence in 2003. We believe the Fiberbyte opportunity, now structured at lower risk and on a slightly longer start-up time line, will prove to be an important and commercially attractive investment for Silex in the medium term and beyond.

# DIRECTORS' REPORT

## 10. Share options

### Shares under option

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

Number of options	Issue price of shares	Expiry date
5,000,000	5 cents	28th January 2003
135,000	194 cents	16th March 2004
195,000	165 cents	4th June 2005
50,000	321 cents	16th July 2005
50,000	322 cents	27th August 2005
10,000	323 cents	2nd October 2005
60,000	350 cents	12th November 2005
1,690,000	402 cents	19th April 2006
610,000	73 cents	13th August 2007
7,800,000		

The terms and conditions of the options on issue are discussed in Note 16 of the financial statements. No option holder has any right under the option to participate in any other share issue of the Company or of any other entity. Between balance date and the date of this report 610,000 options were granted and these are included above.

### Shares issued on the exercise of options

A total of 2,265,000 ordinary shares of Silex Systems Limited were issued during the year ended 30 June 2002 following the exercise of options.

The amounts paid to exercise the options were:

\$2,250,000 @ 5 cents
\$10,000 @ 49 cents
\$5,000 @ 194 cents
<hr/>
\$2,265,000

Between balance date and the date of this report, no options were exercised.

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

Details for 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	Directors' fees \$	Superannuation \$	Total \$
B S Patterson (Chairman)	40,000	3,200	43,200
R P Campbell	40,000	3,200	43,200
C S Goldschmidt	40,000	3,200	43,200

# DIRECTORS' REPORT

## Executive Directors of Silex Systems Limited

Name	Base salary and consulting fees \$	Motor vehicle \$	Superannuation \$	Total \$
Dr M P Goldsworthy (Managing Director/CEO)	359,654	40,057	8,949	408,660
Mr C D Wilks (Director – Corporate)	95,970	–	3,199	99,169

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

No options were issued to Directors during the year. No bonuses were paid to Directors during the year.

## Other executives of the Company

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.

## 12. Information on Directors

### (a) Directors' profiles

#### Mr Barry Patterson

ASMM, MIMM, FAICD (Chairman) (non-executive)

Mr Patterson has experience as a Director of a number of Australian public companies and is a major shareholder in Silex through his interest in Polly Pty Ltd. Mr Patterson is a mining engineer by trade and has had many years experience in the establishment and management of public mining companies in Australia. He is currently the Chairman of Sonic Healthcare Limited and the Silex Remuneration Committee.

#### Dr Michael Goldsworthy

BSc(Hons), MSc, PhD, FAIP (Managing Director/CEO) (executive)

Dr Goldsworthy received his PhD in Physics from The University of New South Wales. Prior to starting with Silex Systems Limited in 1988, 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, and the establishment of the Company's extensive interests in semiconductor and photonics technologies.

#### Mr Christopher Wilks

BComm, ASA, FCIS, FCIM, FAICD (Director – Corporate) (executive)

Mr Wilks is responsible for financial oversight and corporate development of Silex. He has held a number of directorial positions with Australian public companies and has a background in investment banking. He is currently a director of Sonic Healthcare Limited, and is also a member of the Silex Audit Committee.

#### 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, and became a member of the Silex Audit Committee on 11 September 2002.

#### 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 Audit and Remuneration Committees.

### (b) Directors' interests in shares and options as at 25 September 2002

Director's name	Class of shares	No. of shares	Share options
B S Patterson	Ordinary	4,573,863	–
M P Goldsworthy	Ordinary	3,899,533	3,400,000
C D Wilks	Ordinary	1,844,021	1,850,000
C S Goldschmidt	Ordinary	2,825,937	–
R P Campbell	Ordinary	1,354,823	–

# DIRECTORS' REPORT

## 13. 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		Remuneration Committee Meetings	
	Number Held	Number Attended	Number Held	Number Attended	Number Held	Number Attended
B S Patterson	9	7	–	–	2	2
M P Goldsworthy	9	9	–	–	–	–
C D Wilks	9	9	2	2	–	–
C S Goldschmidt	9	9	–	–	–	–
R P Campbell	9	9	2	2	2	2

B S Patterson resigned as a member of the audit committee during the year. C S Goldschmidt was appointed to the audit committee on 11 September 2002.

## 14. Indemnification and insurance of directors

The Company has entered into agreements to indemnify all Directors of the Company named in paragraph one 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 Directors or Executive Officers 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.

## 15. Environmental regulation

The Company is subject to the environment 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.

## 16. Auditors

PricewaterhouseCoopers continues in office in accordance with section 327 of the Corporations Act 2001.

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



Dr M P Goldsworthy  
Managing Director



Mr C D Wilks  
Director

Sydney, 25 September 2002

# CORPORATE GOVERNANCE

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, Shareholders and Continuous Disclosure.

## 1. Board of Directors and its Committees

The Board is responsible for the overall Corporate Governance of the Company, including the strategic direction, establishing goals for management and monitoring the achievement of these goals. To assist in this process, the Company has established an Audit Committee and a Remuneration Committee.

### Composition of the Board

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

Name	Age	Position	Expertise
Dr M P Goldsworthy	44	Managing Director/CEO	Physicist and Co-inventor of the SILEX Technology
Mr C D Wilks	44	Director of Finance and Corporate Development	Investment Banking, Finance and Company Management
Dr C S Goldschmidt	48	Non-executive Director	Company Management
Mr B S Patterson	61	Non-executive Director	Company Management
Mr R P Campbell	57	Non-executive Director	Finance and Accounting, Computing and Company Management

### Board meetings

The full Board currently holds nine scheduled meetings per year, plus meetings at other such times as may be necessary to address any significant matters that may arise.

### Independent professional advice

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

### Ethics

An important goal of the Company is to develop and maintain a strong culture built on the expectations that all Directors and employees will act with integrity and honesty at all times. The Company has policies across a range of areas including occupational health and safety, and workplace discrimination and harassment.

### Directors' Share Trading

Directors are prohibited from buying or selling Silex shares at any time if they are aware of any material price-sensitive information that has not been made public. In addition, the Managing Director and Director-Corporate are required to obtain approval from the Chairman of the Remuneration Committee before selling any shares. All Silex share dealings by directors are promptly notified to the Australian Stock Exchange (ASX).

### 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 Company.

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 at the date of this report are:

Mr Peter Campbell (Chairman)  
Mr Christopher Wilks  
Dr Colin Stephen Goldschmidt

Dr Colin Stephen Goldschmidt was appointed to the Audit Committee on 11 September 2002.

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

# CORPORATE GOVERNANCE

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; 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 to cover the following issues:

- to discuss the external audit plan;
- to review the results and findings of the audit or review 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 or review report and to make the necessary recommendation to the Board for the approval of the financial statements.
- 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 Company during the year;
- to review the fees proposed for the audit work to be performed; and
- to organise, review and report on any special reviews or investigations deemed necessary by the Board.

## Remuneration Committee

The role of the Remuneration Committee is to review and make recommendations to the board on remuneration packages and policies applicable to the Managing Director and Director - Corporate. This role also includes responsibility for share option schemes, incentive performance packages, superannuation entitlements, retirement and termination entitlements and fringe benefits policies. The Remuneration Committee, when deemed necessary, obtains independent advice on the appropriateness of remuneration packages.

The members of the Remuneration Committee during the year were:

Mr B S Patterson (Chairman)

Mr R P Campbell

The current remuneration for directors is \$40,000 per annum. The Remuneration Committee meets twice a year or as required.

## 2. Identifying and managing business risks

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

# CORPORATE GOVERNANCE

## 3. Shareholders

### The role of shareholders

The shareholders are responsible for voting on the appointment of Directors. The Annual General Meeting also provides shareholders with the opportunity to express their views on matters concerning the Company and to vote on other matters of business for resolution by 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.

### Communications with shareholders

The Board of Directors aims to ensure that the shareholders are informed of all major developments affecting the Company's state of affairs. Information is communicated to shareholders through the annual report, half-yearly report, Chairman's and Managing Director's address to the Annual General Meeting, and through announcements to the Australian Stock Exchange and releases to the media.

## 4. Continuous disclosure

The Company Secretary has been appointed as the person responsible for communications with the Australian Stock Exchange (ASX). This person is also responsible for ensuring compliance with the continuous disclosure requirements in the ASX rules and overseeing and co-ordinating information disclosure to the ASX, analysts, brokers, shareholders, the media and the public.

The Company has written policies and procedures on information disclosure that focus on continuous disclosure of any information concerning the Company that a reasonable person would expect to have a material effect on the price of the Company's securities.

All information disclosed to the ASX is posted on the Company's web site as soon as it is disclosed to the ASX. Procedures have also been established for reviewing whether any price sensitive information has been inadvertently disclosed, and if so, this information is also immediately released to the market.



# STATEMENT OF FINANCIAL PERFORMANCE

FOR THE YEAR ENDED 30 JUNE 2002

	Notes	2002 \$	2001 \$
Revenue from ordinary activities	2	6,281,478	7,582,619
Research and development expenses		(1,959,364)	(3,682,268)
Borrowing cost expense		(11,327)	(10,314)
Consultancy fees		(64,295)	(192,625)
Depreciation and amortisation expenses		(101,495)	(101,667)
Directors' remuneration expense		(581,449)	(576,333)
Employee remuneration expense		(2,305,613)	(1,955,423)
Legal costs		(266,352)	(126,335)
Printing, postage and stationery		(83,129)	(77,547)
Rent		(192,394)	(153,242)
Travelling expenses		(168,546)	(226,202)
Other expenses from ordinary activities		(426,347)	(448,245)
Shares of net (loss) of associate accounted for using the equity method (Translucent Photonics Inc.)	28	(689,794)	–
<b>Profit/(Loss) from ordinary activities before income tax expense</b>	3	(568,627)	32,418
<b>Income tax expense</b>	4	(92,164)	(71,082)
<b>(Loss) from ordinary activities after income tax expense</b>		(660,791)	(38,664)
<b>Net (Loss) attributable to members of Silex Systems Limited</b>		(660,791)	(38,664)
		Cents	Cents
Basic earnings per share	24	(0.5)	–
Diluted earnings per share	24	(0.5)	–

*The above statement of financial performance should be read in conjunction with the accompanying notes.*

# STATEMENT OF FINANCIAL POSITION

AS AT 30 JUNE 2002

	Notes	2002 \$	2001 \$
<b>Current Assets</b>			
Cash assets	25	3,345,807	3,736,570
Investments (Bank bills)	5, 25	37,721,376	37,651,129
Receivables	6	688,853	1,140,761
Other	7	382,942	15,181
Total Current Assets		42,138,978	42,543,641
<b>Non-current Assets</b>			
Property, plant and equipment	8	205,650	162,352
Intangible assets	9	291,323	324,709
Investments accounted for using the equity method	10	9,253,456	9,943,250
Other financial assets	11	750,000	–
Other (Deferred tax assets)	7	220,390	129,917
Total Non-current Assets		10,720,819	10,560,228
Total Assets		52,859,797	53,103,869
<b>Current Liabilities</b>			
Payables	12	357,555	327,136
Provisions	13	527,525	507,416
Interest bearing liabilities	14	59,475	36,578
Current tax liabilities	15	–	59,541
Total Current Liabilities		944,555	930,671
<b>Non-current Liabilities</b>			
Provisions	13	33,078	22,137
Interest bearing liabilities	14	69,022	41,818
Deferred tax liabilities	15	292,079	54,489
Total Non-current Liabilities		394,179	118,444
Total Liabilities		1,338,734	1,049,115
Net Assets		51,521,063	52,054,754
<b>Equity</b>			
Contributed equity	16	44,328,898	44,201,798
Retained profits	16	7,192,165	7,852,956
Total Equity		51,521,063	52,054,754

The above statement of financial position should be read in conjunction with the accompanying notes.

# STATEMENT OF CASH FLOWS

FOR THE YEAR ENDED 30 JUNE 2002

	Note	2002 \$	2001 \$
<b>Cash Flows from Operating Activities</b>			
Receipts from customers inclusive of goods and services tax		4,682,185	5,832,438
Payments to suppliers and employees inclusive of goods and services tax		(6,162,557)	(7,798,217)
Interest received		1,906,788	1,867,777
Interest and other costs of finance paid		(11,327)	(10,314)
Income tax paid		(48,747)	(2,718,982)
Net cash (outflows)/inflows from operating activities	25	366,342	(2,827,298)
<b>Cash Flows from Investing Activities</b>			
Payments for investments		(750,000)	(9,943,250)
Payments for intellectual property		–	(43,863)
Payments for property, plant and equipment		(19,873)	–
Net cash (outflows) from investing activities		(769,873)	(9,987,113)
<b>Cash Flows from Financing Activities</b>			
Proceeds from issue of shares		127,100	36,673,200
Share issue costs		–	(1,080,000)
Repayment of hire purchase liabilities		(7,507)	–
Principal repayments under finance leases		(36,578)	(60,477)
Net cash inflows from financing activities		83,015	35,532,723
Net increase/(decrease) in cash held		(320,516)	22,718,312
Cash at the beginning of the financial year		41,387,699	18,669,387
<b>Cash at the End of the Financial Year</b>	25	<b>41,067,183</b>	<b>41,387,699</b>
Non-cash financing and investing activities	25		

*The above statement of cash flows should be read in conjunction with the accompanying notes*

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

## NOTE 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 Act, 2001.

It is prepared in accordance with the historical cost convention, except for certain assets, which, as noted, are at valuation. Unless otherwise stated, the accounting policies adopted are consistent with those of the previous year.

### (a) Income tax

Tax effect accounting procedures are followed whereby the income tax expense in the statement of financial performance is matched with the accounting profit after allowing for permanent differences. The future tax benefit relating to tax losses is not carried forward as an asset unless the benefit is virtually certain of realisation. Income tax on cumulative timing differences is set aside to the deferred income tax or future income tax benefit accounts at the rates, which are expected to apply when those timing differences reverse.

### (b) Foreign currency

Foreign currency transactions are initially translated into Australian currency at the rate of exchange at the date of the transactions. At balance date, amounts payable and receivable in foreign currencies are translated to Australian currency at rates of exchange current at that date. Resulting exchange differences are recognised in determining the profit and loss for the year.

### (c) Acquisitions of assets

The purchase method of accounting is used for all acquisitions of assets regardless of whether equity instruments or other assets are acquired. Cost is measured as the fair value of the assets given up, shares issued or liabilities undertaken at the date of acquisition plus incidental costs directly attributable to the acquisition. Where equity instruments are issued in an acquisition, the value of the instruments is their market price as at the acquisition date, unless the notional price at which they could be placed in the market is a better indicator of fair value. Transactions costs arising on the issue of equity instruments are recognised directly in equity.

### (d) 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 and Government assistance (START Grant), interest and other revenue are recognised as earned on an accrual basis.

### (e) Receivables

All trade debtors are recognised at the amounts receivable, as they are due for settlement no more than 60 days from the date of recognition. Collectibility of trade debtors is reviewed on an ongoing basis. Debts which are known to be uncollectible are written off. A provision for doubtful debts is raised when some doubt as to collection exists and in any event when the debt is more than 60 days overdue.

### (f) Trade and other creditors

These amounts represent liabilities for goods and services provided to the Company prior to the end of the financial year and which are unpaid. The amounts are unsecured and are usually paid within 45 days of recognition.

### (g) Recoverable amount of non-current assets

The recoverable amount of an asset is the net amount expected to be recovered through the cash inflows and outflows arising from its continued use and subsequent disposal.

Where the carrying amount of a non-current asset is greater than its recoverable amount, the asset is written down to its recoverable amount. Where net cash inflows are derived from a group of assets working together, recoverable amount is determined on the basis of the relevant group of assets. The decrement in the carrying amount is recognised as an expense in net profit or loss in the reporting period in which the recoverable amount write-down occurs. The expected net cash flows included in determining recoverable amounts of non-current assets are not discounted.

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

## NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES CONTINUED

### (h) 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 entitlements; and
- other types of employee entitlements

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

### (i) Superannuation commitment

The Company contributes to an employee defined contribution 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 statement of financial performance when incurred.

### (j) Cash

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

### (k) Depreciation and amortisation of property, plant and equipment

Property, plant and equipment are depreciated over their estimated useful lives, being between three and ten 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 Uranium research and development is paid for by USEC. The cost of such equipment is not reflected in the statement of financial position.

### (l) Leased assets

Where property, plant and equipment is acquired by means of finance leases or hire purchase, which effectively transfer to the Company 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.

### (m) Research and development costs

Research and development costs incurred by Silex for the development of the SILEX Technology to Uranium enrichment 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. Other research and development costs are expensed as incurred.

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

## NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES CONTINUED

### (n) Investments

#### *i. Bank bills*

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.

#### *ii. Investments in associates*

Investments in associates are accounted for in the financial statements using the equity method. Under this method, the Company's share of the post acquisition profits or losses of associates is recognised in the statement of financial performance when material, and its share of post acquisition movements in reserves is recognised in reserves. The Company's share of the post acquisition profits or losses of overseas associates are translated at the average of rates ruling during the year. The cumulative post acquisition movements are adjusted against the cost of the investment. Associates are those entities over which the entity exercises significant influence, but not control.

#### *iii. Other investments*

Interests in unlisted securities, other than controlled entities and associates are brought to account at cost and dividend income is recognised in the statement of financial performance when receivable.

### (o) 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.

### (p) Share issue expenses

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

### (q) 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 between 10 and 20 years.

### (r) Maintenance and repairs

Maintenance and repairs costs are incurred on a regular basis. The costs of this maintenance is charged as expense as incurred.

### (s) Web site costs

Costs in relation to the Company website are charged as expense in the period in which they are incurred.

### (t) Borrowing costs

Borrowing costs are recognised as expenses in the period in which they are incurred. Borrowing costs include finance lease charges and hire purchase charges.

### (u) Ownership-based remuneration schemes

Ownership-based remuneration is provided to employees via the Silex Systems Limited Employee Option Plan. No accounting entries are made in relation to the Silex Systems Limited Employee Option Plan until options are exercised, at which time the amounts received from employees are recognised in the statement of financial position as share capital.

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

	2002 \$	2001 \$
<b>NOTE 2 REVENUE</b>		
<b>Revenue from operating activities</b>		
Recoverable project costs	3,161,681	4,727,321
START Grant	866,600	647,100
Other Project income	66,163	174,447
	<b>4,094,444</b>	<b>5,548,868</b>
<b>Revenue from outside operating activities</b>		
Interest revenue	1,892,372	1,967,625
Foreign currency exchange gain (net)	293,472	59,941
Other income	1,190	6,185
	<b>2,187,034</b>	<b>2,033,751</b>
Total Revenue	<b>6,281,478</b>	<b>7,582,619</b>
<b>NOTE 3 OPERATING PROFIT/(LOSS)</b>		
<b>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 foreign exchange gain	293,472	59,941
<b>Expenses:</b>		
Amortisation of intellectual property	33,386	29,154
Amortisation of plant and equipment under lease	22,428	44,486
Interest and finance charges paid/payable on finance leases	11,327	10,314
Depreciation of plant and equipment	45,681	28,027
Rental expenses relating to operating leases	192,394	153,242
Provision for employee entitlements	31,050	117,050
Research and development expenditure	1,959,364	3,682,268
Loss on disposal of property plant and equipment	2,652	-

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

	2002 \$	2001 \$
<b>NOTE 4 INCOME TAX</b>		
(a) The income tax expense for the financial year differs from the amount calculated on the profit/(loss). The differences are reconciled as follows:		
Profit/(loss) before income tax expense	(568,627)	32,418
Income tax expense/(benefit) calculated @ 30% (2001: 34%)	(170,588)	11,022
Tax effect of permanent differences:		
Non deductible legal fees	69,493	28,166
Share of loss of associate	206,938	–
Sundry items	19,607	21,362
Income tax adjusted for permanent differences	125,450	60,550
Net adjustments to deferred income tax liabilities and assets to reflect the decrease in company tax rate to 30%	–	10,057
Under (over) provided tax paid for previous year	(33,286)	475
Income tax expense	92,164	71,082
(b) Future income tax benefit		
No part of the future tax benefit shown in Note 7 is attributable to tax losses, and as a consequence, the Company has no available tax losses (2001: \$nil). The directors' estimate that the potential future income tax benefit at 30 June 2002 in respect of tax losses of Translucent not brought to account is	163,594	–
The benefit will only be obtained if:		
(i) the associate derives future assessable income of a nature and of an amount sufficient to enable the benefit from the deductions for the losses to be realised;		
(ii) the associate continues to comply with the conditions for deductibility imposed by tax legislation; and		
(iii) no changes in tax legislation adversely affect the associate in realising the benefit from the deductions for the losses.		
<b>NOTE 5 INVESTMENTS (CURRENT)</b>		
Bank bills	37,721,376	37,651,129
(i) Significant terms & conditions		
Bank bill investments with a face value of \$37,721,376 (2001: \$37,651,129) mature at various dates over the 2 months (2000: 3 months) following balance date. The weighted average interest rate is 4.83% (2001: 4.98%). 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 investments at year end to be \$37,721,376 (2001: \$37,651,129) based on their assessment of its estimated realisable value.		

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

	2002 \$	2001 \$	
<b>NOTE 6 RECEIVABLES (CURRENT)</b>			
Other debtors	220,678	47,650	
Accrued income	468,175	1,093,111	
	<b>688,853</b>	<b>1,140,761</b>	
<b>(i) Credit risk</b>			
Other debtors above include an amount owing by USEC of \$174,432 (2001: \$nil). 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 receivables approximate their net fair values.			
<b>NOTE 7 OTHER ASSETS</b>			
<b>Current</b>			
Prepayments	21,942	15,181	
Other	361,000	–	
	<b>382,942</b>	<b>15,181</b>	
<b>Non-current</b>			
Future income tax benefit	220,390	129,917	
<b>NOTE 8 PROPERTY, PLANT AND EQUIPMENT</b>			
Plant and equipment			
At cost	687,213	583,955	
Less accumulated depreciation	(522,187)	(498,255)	
	<b>165,026</b>	<b>85,700</b>	
Plant and equipment under lease			
At cost	69,640	103,640	
Less accumulated amortisation	(29,016)	(26,988)	
	<b>40,624</b>	<b>76,652</b>	
<b>Total</b>	<b>205,650</b>	<b>162,352</b>	
	Plant and equipment \$	Lease plant and equipment \$	Total \$
<b>Reconciliations</b>			
Carrying amount at 1 July 2001	85,700	76,652	162,352
Additions	114,059	–	114,059
Disposals	(2,652)	–	(2,652)
Transfers	13,600	(13,600)	–
Depreciation/amortisation expenses (note 1(k))	(45,681)	(22,428)	(68,109)
Carrying amount at 30 June 2002	<b>165,026</b>	<b>40,624</b>	<b>205,650</b>

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

	2002 \$	2001 \$
<b>NOTE 9 INTANGIBLE ASSETS</b>		
Intellectual property	413,864	413,864
Less accumulated amortisation	(122,541)	(89,155)
	<b>291,323</b>	<b>324,709</b>
<b>NOTE 10 INVESTMENTS (NON-CURRENT)</b>		
Shares in associate (note 28)	<b>9,253,456</b>	<b>9,943,250</b>
<b>NOTE 11 OTHER FINANCIAL ASSETS</b>		
Investment in other corporations – at cost	<b>750,000</b>	–
This relates to Photonica Pty Ltd. Photonica is an innovative optical communications/photonics company based in Adelaide.		
<b>NOTE 12 PAYABLES</b>		
Trade creditors	248,255	327,136
Other creditors	109,300	–
	<b>357,555</b>	<b>327,136</b>
<b>Net fair value</b>		
The Directors consider that the carrying amounts of trade creditors and other creditors approximate their net fair values.		
<b>NOTE 13 PROVISIONS</b>		
<b>Current</b>		
Provision for employee entitlements	527,525	507,416
<b>Non-current</b>		
Provision for employee entitlements	33,078	22,137
<b>NOTE 14 INTEREST-BEARING LIABILITIES</b>		
<b>Current</b>		
Hire purchase liabilities (note 18)	17,657	–
Lease liabilities (note 18)	41,818	36,578
	<b>59,475</b>	<b>36,578</b>
<b>Non-current liabilities</b>		
Hire purchase liabilities (note 18)	69,022	–
Lease liabilities (note 18)	–	41,818
	<b>69,022</b>	<b>41,818</b>
<b>Net fair value</b>		
The Directors consider that the carrying amounts of lease liabilities and hire purchase liabilities approximate their net fair values.		
Lease liabilities and hire purchase liabilities are effectively secured as the right to the leased asset reverts to the lessor in the event of default.		

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

	2002 \$	2001 \$
<b>NOTE 15 TAX LIABILITIES</b>		
<b>Current</b>		
Income tax liability	–	59,541
<b>Non-current</b>		
Deferred income tax liability	292,079	54,489

## NOTE 16 EQUITY

### (i) Paid up capital

127,086,240 ordinary shares fully paid (2001: 124,821,240)	44,328,898	44,201,798
--	------------	------------

### (a) Share capital

	Shares	Shares
Ordinary shares		
Fully paid	127,086,240	124,821,240

### (b) Movements in ordinary share capital

Date	Details	Number of shares	Issue price \$	\$
30 June 2000	Balance	103,581,240		8,398,598
14 July 2000	Options exercised	10,000	0.49	4,900
21 August 2000	Options exercised	10,000	0.49	4,900
4 September 2000	Options exercised	10,000	0.49	4,900
4 September 2000	Options exercised	2,100,000	0.05	105,000
9 November 2001	Share issues	60,000	3.50	210,000
11 November 2000	Options exercised	400,000	0.05	20,000
13 November 2000	Options exercised	1,250,000	0.05	62,500
17 November 2000	Options exercised	1,250,000	0.05	62,500
20 November 2000	Options exercised	250,000	0.05	12,500
21 November 2000	Share issues	9,000,000	4.00	36,000,000
21 November 2000	Share issue expenses			(1,080,000)
23 January 2001	Options exercised	10,000	0.49	4,900
8 February 2001	Options exercised	10,000	0.49	4,900
15 March 2001	Options exercised	1,000,000	0.05	50,000
16 March 2001	Options exercised	20,000	1.94	38,800
13 June 2001	Options exercised	4,600,000	0.05	230,000
28 June 2001	Options exercised	10,000	0.49	4,900
29 June 2001	Options exercised	1,250,000	0.05	62,500
30 June 2001	Balance	124,821,240		44,201,798
25 July 2001	Options exercised	5,000	1.94	9,700
13 September 2001	Options exercised	10,000	0.49	4,900
19 September 2001	Options exercised	1,250,000	0.05	62,500
27 February 2002	Options exercised	1,000,000	0.05	50,000
		127,086,240		44,328,898

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

## NOTE 16 EQUITY CONTINUED

### (c) Ordinary shares

Ordinary shares entitle the holder to participate in dividends and the proceeds on winding up of the Company in proportion to the number of and amounts paid on the shares held.

### (d) Options

No options (2001: 1,860,000) were granted under the Silex Employee Option Plan to employees of Silex Systems Limited.

The number of unissued ordinary shares under these options at 30 June 2002 is 7,190,000 (2001: 9,455,000).

	2002 \$	2001 \$
<b>(ii) Retained profits</b>		
Retained profits at the beginning of the financial year	7,852,956	7,891,620
Net (loss) attributable to members of Silex Systems Limited	(660,791)	(38,664)
Retained profits at the end of the financial year	7,192,165	7,852,956
<b>(iii) Total equity</b>		
Total equity at the beginning of the financial year	52,054,754	16,290,218
Total changes in equity recognised in the statement of financial performance	(660,791)	(38,664)
Transactions with owners as owners:		
Contributions of equity, net of transaction costs	127,100	35,803,200
Total equity at the end of the financial year	51,521,063	52,054,754

## NOTE 17 FRANKING ACCOUNT BALANCE

Franking credits available for the subsequent financial year at 30%	11,183,786	11,338,632
---	------------	------------

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.

## NOTE 18 COMMITMENTS FOR EXPENDITURE

### Finance leases

Commitments in relation to finance leases payable are as follows:

Not later than one year	44,587	42,261
Later than one year but not later than five years	–	44,587
Minimum lease payments	44,587	86,848
Deduct future finance charges not provided for in the financial statements	(2,769)	(8,452)
Total lease liability	41,818	78,396
Consisting of: Current (note 14)	41,818	36,578
Non-current (note 14)	–	41,818
	41,818	78,396

The weighted average interest rate implicit in the lease is 8.87% (2001: 8.5%)

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

	2002 \$	2001 \$
<b>NOTE 18 COMMITMENTS FOR EXPENDITURE CONTINUED</b>		
<b>Hire Purchase liabilities</b>		
Commitments in relation to hire purchases payable are as follows:		
Not later than one year	23,304	–
Later than one year but not later than five years	76,477	–
Minimum hire purchase payments	99,781	–
Deduct future finance charges not provided for in the financial statements	(13,102)	–
Total hire purchase liability	86,679	–
Consisting of: Current (note 14)	17,657	–
Non-current (note 14)	69,022	–
	86,679	–
The weighted average interest rate is 7.18%.		
<b>Operating leases</b>		
Commitments for minimum lease payments in relation to non-cancellable operating leases are payable as follows:		
Not later than one year	170,719	173,003
Later than one year but not later than five years	29,950	–
	200,669	173,003
<b>NOTE 19 REMUNERATION OF DIRECTORS</b>		
Income paid or payable, or otherwise made available to the Directors in connection with the management of affairs of the Company	637,429	692,293

The number of Company Directors whose total income from the Company was within the following bands are as follows:

	2002 Number	2001 Number
\$30,000 – \$39,999	–	1
\$40,000 – \$49,999	3	3
\$90,000 – \$99,999	1	–
\$110,000 – \$119,999	–	1
\$400,000 – \$409,999	1	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 were levied on a commercial basis. The charges are included in the Directors' remuneration detailed above.

No options were granted to Directors during the year. Details of options exercised by Directors are set out in note 21.

Directors' remuneration excludes insurance premiums paid by the Company in respect of directors' and officers' liability insurance as the contracts do not specify premiums paid in respect of individual directors and officers. Information relating to the insurance contracts is set out in the Directors' report.

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

	2002 \$	2001 \$
<b>NOTE 20 REMUNERATION OF EXECUTIVES</b>		
Remuneration received, or due and receivable by executive officers (including Directors) whose total remuneration exceeds \$100,000 from the Company	408,660	523,094
The numbers of executive officers (including Directors) whose remuneration from the Company was within the specified bands are as follows:		
\$110,000 – \$119,999	–	1
\$400,000 – \$409,999	1	1

## NOTE 21 RELATED PARTIES

### (i) Directors

The names of persons who were directors of Silex Systems Limited at any time during the financial year are as follows: B S Patterson; M P Goldsworthy; C S Goldschmidt; C D Wilks and R P Campbell. All of these persons were also directors during the year ended 30 June 2001. In addition, M B Boyd held office as a director until his retirement on 31 May 2001.

Directors' remuneration during the year has been disclosed in note 19.

### (ii) Share options 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 2002 were:

Directors	Options Issued during the Year ended 30 June 2002	Total number of options held (over ordinary shares)	Fully paid ordinary shares held
Mr B S Patterson or related entity	–	–	4,573,863
Dr M P Goldsworthy or related entity	–	3,400,000	3,899,533
Dr C S Goldschmidt or related entity	–	–	2,825,937
Mr C D Wilks or related entity	–	1,850,000	1,844,021
Mr R P Campbell or related entity	–	–	1,354,823

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 1,533,345 (2001: 3,416,869).

Directors	Shares sold	Options exercised	Shares acquired
Mr B S Patterson	1,000,000	–	–
Dr M P Goldsworthy	150,000	500,000	500,000
Dr C S Goldschmidt	288,343	–	–
Mr C D Wilks	95,002	–	–
Mr R P Campbell	–	–	–

### (iii) Transactions with director-related entities

The Company was charged an administration fee of \$14,796 (2001: \$24,000) by Douglass Hanly Moir Pathology Pty Ltd, a controlled entity of Sonic Healthcare Limited. Sonic Healthcare Limited was a related entity to M B Boyd last year through his substantial shareholding in Sonic Healthcare Limited.

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

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

## NOTE 21 RELATED PARTIES CONTINUED

### (iv) Transactions with director-related entities:

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

	2002 \$	2001 \$
Douglass Hanly Moir Pathology Pty Ltd	–	2,000

## NOTE 22 AUDITORS' REMUNERATION

During the year the auditor of the company earned the following remuneration:

Audit or review of financial reports of the company	31,290	16,000
Other audit-related work	1,000	750
Other assurance services	5,000	–
Total audit and other assurance services	37,290	16,750
Corporate finance	12,000	–
Taxation	15,773	2,750
Total remuneration	65,063	19,500

It is Silex's policy to employ PricewaterhouseCoopers on assignments additional to their statutory audit duties where PricewaterhouseCoopers' expertise and experience with Silex are important; these assignments are principally tax advice and assurance related, or where PricewaterhouseCoopers is awarded assignments on a competitive basis. It is Silex's policy to seek competitive quotes for all major consulting projects.

## NOTE 23 INDUSTRY AND GEOGRAPHICAL SEGMENTS

### Primary reporting – business segments

The Company operates predominantly in one business segment being research and development. The Company's research and development is centred upon the laser isotope separation technology known as "SILEX". Other research into synergistic technologies such as Silicon Isotope Superlattice and Silicon Planar Lightwave Circuits are being undertaken.

### Secondary reporting – geographical segments

Segment revenue is based on the geographical area of the Company's customers.

	Segment revenues from external customers		Segment assets		Acquisitions of property, plant and equipment, intangibles and other non-current segment assets	
	2002 \$	2001 \$	2002 \$	2001 \$	2002 \$	2001 \$
United States of America	3,227,844	4,901,768	481,705	891,873	–	–
Australia	867,790	653,285	42,696,924	41,906,121	864,059	–
Other countries	–	–	207,322	232,708	–	253,863
	4,095,634	5,555,053	43,385,951	43,030,702	864,059	253,863

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

	2002	2001
<b>NOTE 24 EARNINGS PER SHARE</b>		
Basic earnings per share (cents per share)	(0.5)	nil
Diluted earnings per share (cents per share)	(0.5)	nil
Weighted average number of ordinary shares on issue used as the denominator in calculating basic earning per share:	126,143,432	112,594,939
Weighted average number of ordinary shares and potential ordinary shares used as the denominator in calculating diluted earning per share:	133,425,377	119,810,814
Reconciliation of earnings used in calculating earnings per share		
Basic and diluted earnings per share		
Net (loss)	(660,791)	(38,664)
Adjustments	-	-
Earnings used in calculating basic and diluted earnings per share	(660,791)	(38,664)
	2002 Shares	2001 Shares
Reconciliation of denominator used in calculating basic earnings per share to denominator used in calculating diluted earnings per share		
Shares used in calculating basic earnings per share	126,143,432	112,594,939
Adjustment for options	7,281,945	7,215,875
Shares used in calculating diluted earnings per share	133,425,377	119,810,814

Options granted are considered to be potential ordinary shares and have been included in the determination of diluted earnings per share. The options have not been included in the determination of basic earnings per share. Details of options granted between the reporting date and the time of completion of the financial report are disclosed in note 29.

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

	2002 \$	2001 \$
<b>NOTE 25 STATEMENT OF CASH FLOWS</b>		
<b>(i) Cash</b>		
Cash at bank and on hand	3,345,807	3,736,570
Investments (Bank bills)	37,721,376	37,651,129
	<b>41,067,183</b>	<b>41,387,699</b>
<b>(ii) Reconciliation of net cash provided by operating activities to operating (loss) after income tax</b>		
Operating (loss) after income tax	(660,791)	(38,664)
Depreciation	45,681	28,027
Loss on sale of plant and equipment	2,652	–
Amortisation of intangibles	33,386	29,154
Amortisation of leased assets	22,428	44,486
Share of loss of associate	689,794	–
(Increase) in prepayments and other current assets	(367,761)	(6,766)
Decrease/(increase) in other debtors	(128,869)	567,188
Decrease/(increase) in accrued income	624,936	(449,592)
(Increase) in future income tax benefit	(90,473)	(14,901)
(Decrease) in provision for income tax	(103,700)	(2,658,966)
Increase in deferred income tax liability	237,590	25,968
Increase/(decrease) in trade and other creditors	30,419	(470,282)
Increase in provision for employee entitlements	31,050	117,050
Net cash inflow/(outflow) from operating activities	<b>366,342</b>	<b>(2,827,298)</b>
<b>(iii) Non-cash financing and investing activities</b>		
Acquisition of intangible assets through the issue of shares	–	210,000
Acquisition of plant and equipment by means of hire purchase	94,186	–
	<b>94,186</b>	<b>210,000</b>

These acquisitions are not reflected in the statement of cash flows.

## NOTE 26 AMOUNTS RECEIVABLE AND PAYABLE DENOMINATED IN FOREIGN CURRENCY (AUSTRALIAN DOLLAR EQUIVALENTS)

	2002 \$	2001 \$
Current US dollars receivable not effectively hedged	147,728	32,677
Current US dollars payable not effectively hedged	773	79,211
Current British pound sterling payable not effectively hedged	–	325
Current Swiss francs payable not effectively hedged	26,870	–

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

## NOTE 27 FINANCIAL INSTRUMENTS DISCLOSURE

### (i) Off-balance sheet derivative instruments

The Company is party to derivative financial instruments in the normal course of business in order to hedge exposure to fluctuations in foreign exchange rates.

#### *Forward exchange contracts*

The majority of the revenue from operating activities is derived in US dollars. In order to protect against exchange rate movements, the Company has recently started entering into forward exchange contracts to sell US dollars. The contracts are taken out when invoices are processed and are timed to mature when payment is received.

At balance date, the details of outstanding contracts are:

Sell US dollars	Buy Australian dollars		Average exchange rate	
	2002 \$	2001 \$	2002	2001
Maturity 0–6 months	26,705	–	0.5617	–

### (ii) Interest rate risk

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

	Notes	Floating interest rate \$	Fixed Interest Rate Maturities			Total \$
			1 year or less \$	1 to 5 years \$	Non interest- bearing \$	
<b>30 June 2002</b>						
<b>Assets</b>						
Cash	25	3,345,807	–	–	–	3,345,807
Investments (Bank bills)	5	–	37,721,376	–	–	37,721,376
Receivables	6	–	–	–	688,853	688,853
Total financial assets		3,345,807	37,721,376	–	688,853	41,756,036
Weighted average interest rate		4.50%	4.83%			
<b>Liabilities</b>						
Payables	12	–	–	–	357,555	357,555
Lease and hire purchase liabilities	14	–	59,475	69,022	–	128,497
Total financial liabilities		–	59,475	69,022	357,555	486,052
Weighted average interest rate			8.37%	7.18%		
Net financial assets/(liabilities)		3,345,807	37,661,901	(69,022)	331,298	41,269,984

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

## NOTE 27 FINANCIAL INSTRUMENTS DISCLOSURE CONTINUED

### (ii) Interest rate risk continued

	Notes	Floating interest rate \$	Fixed Interest Rate Maturities		Non interest- bearing \$	Total \$
			1 year or less \$	1 to 5 years \$		
<b>30 June 2001</b>						
<b>Assets</b>						
Cash	25	3,736,570	–	–	–	3,736,570
Investments (Bank bills)	5	–	37,651,129	–	–	37,651,129
Receivables	6	–	–	–	1,140,761	1,140,761
Total financial assets		3,736,570	37,651,129	–	1,140,761	42,528,460
Weighted average interest rate		4.22%	4.98%			
<b>Liabilities</b>						
Payables	12	–	–	–	327,136	327,136
Lease and hire purchase liabilities	14	–	36,578	41,818	–	78,396
Total financial liabilities		–	36,578	41,818	327,136	405,532
Weighted average interest rate			6.26%	6.26%		
Net financial assets/(liabilities)		3,736,570	37,614,551	(41,818)	813,625	42,122,928

### (iii) All financial assets are unsecured

The carrying amounts of financial assets in the Company's statements of financial position represent the Company's maximum exposure to credit risk in relation to these assets.

### (iv) Net fair value of financial assets and liabilities

The carrying amounts and net fair values of financial assets and liabilities at balance date are:

	Carrying amount 2002 \$	Net fair value 2002 \$	Carrying amount 2001 \$	Net fair value 2001 \$
<b>On balance sheet financial instruments</b>				
<b>Financial assets</b>				
Cash	3,345,807	3,345,807	3,736,570	3,736,570
Investments (bank bills)	37,721,376	37,721,376	37,651,129	37,651,129
Receivables	688,853	688,853	1,140,761	1,140,761
Non traded financial assets	41,756,036	41,756,036	42,528,460	42,528,460
<b>Financial liabilities</b>				
Trade and other creditors	357,555	357,555	327,136	327,136
Lease and hire purchase liabilities	128,497	128,497	78,396	78,396
Non traded financial liabilities	486,052	486,052	405,532	405,532
<b>Off balance sheet financial instruments</b>				
<b>Financial assets</b>				
Forward exchange contracts (a)	61	61	–	–

Net fair value is exclusive of costs which would be incurred on realisation of an asset, and inclusive of costs which would be incurred on settlement of a liability.

(a) The carrying amounts are unrealised gains or losses which have been included in the on balance sheet financial assets and liabilities disclosed above.

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

## NOTE 28 INVESTMENTS IN ASSOCIATES

Investments in associates are accounted for in the financial statements using the equity method of accounting.

Name of company	Principal activity	Ownership interest		Carrying amount	
		2002 %	2001 %	2002 \$	2001 \$
Translucent Photonics Inc. (Incorporated in USA)	Planar Lightwave Circuits	30%	30%	9,253,456	9,943,250

	2002 \$	2001 \$
--	------------	------------

### Movements in carrying amounts of investments in associates

Carrying amount at the beginning of the financial year	9,943,250	–
Amount of new investment	–	9,943,250
Share of (losses) from ordinary activities after income tax	(689,794)	–
Carrying amount at the end of the financial year	9,253,456	9,943,250

### Result attributable to associates

(Loss) from ordinary activities before income tax	(689,794)	–
Income tax expense	–	–
(Loss) from ordinary activities after income tax	(689,794)	–
Retained losses attributable to associates at the beginning of the financial year	–	–
Retained losses attributable to associates at the end of the financial year	(689,794)	–

### Summary of the performance and financial position of associates

The aggregate losses, assets and liabilities of associates are:

Losses from ordinary activities after income tax expense	2,299,313	–
Assets	6,863,762	–
Liabilities	225,598	–

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

	2002 \$	2001 \$
<b>NOTE 29 EMPLOYEE ENTITLEMENTS</b>		
<b>Employee entitlement liabilities</b>		
Provision for employee entitlements		
Current (note 13)	527,525	507,416
Non current (note 13)	33,078	22,137
Aggregate employee entitlement liabilities	<b>560,603</b>	<b>529,553</b>

## Silex Systems Limited Employee Option Plan

All full time staff of the Company and executive directors of the Company are eligible to participate in the plan. At 30 June 2002, 26 employees and 2 executive directors were eligible to participate in the plan.

Options are granted under the plan for no consideration. Options are granted for a five year period and become exercisable after two years of the date of the grant. The options lapse if the holder ceases to be an eligible employee other than by reason of death or permanent disablement, unless the Board determines otherwise in its absolute discretion. Options granted under the plan carry no dividend or voting rights.

When exercisable, each option is convertible into one ordinary share. The exercise price of options is based on the weighted average price at which the Company's shares are traded on the Australian Stock Exchange during the five trading days before the options are granted plus five cents. Amounts received on the exercise of options are recognised as share capital.

Set out below are summaries of options granted under the plan.

Grant date	Expiry date	Exercise price cents	Options granted	Options exercised and shares issued during the year		Unissued shares and options available at the end of the year	
				2002	2001	2002	2001
10 June 1998	9 June 2003	49	80,000	10,000	60,000	0	10,000
17 March 1999	16 March 2004	194	160,000	5,000	20,000	135,000	140,000
5 June 2000	4 June 2005	165	195,000	–	–	195,000	195,000
17 July 2000	16 July 2005	321	50,000	–	–	50,000	50,000
28 August 2000	27 August 2005	322	50,000	–	–	50,000	50,000
3 October 2000	2 October 2005	323	10,000	–	–	10,000	10,000
20 April 2001	19 April 2006	402	1,690,000	–	–	1,690,000	1,690,000
			2,235,000	15,000	80,000	2,130,000	2,145,000

The market price of shares under option at 30 June 2002 was \$0.80 (2001: \$4.55). In addition 610,000 options were issued to employees on 14 August 2002 with an exercise price of 73 cents and an expiry date of 13 August 2007.

The directors believe that the derivation of an exact value of share options issued is indeterminable. The value of the options is a function of the future prospects of the Company and the conditions of the options which include continuity of employment.

	2002 \$	2001 \$
Aggregate proceeds received from employees on the exercise of options and recognised as issued capital	14,600	68,200
Market value of shares issued to employees on the exercise of options at their issue date	42,000	297,600

# NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 30 JUNE 2002

## NOTE 30 ECONOMIC DEPENDENCY

The Company depends for a significant volume of revenue from USEC. During the year ended 30 June 2002, approximately 53% (2001: 62%) of the Company's revenue was sourced from USEC. Alternative sources of revenue are being sought to reduce future dependency on any particular entity.

	2002 \$	2001 \$
<b>NOTE 31 FINANCING ARRANGEMENTS</b>		
Unrestricted access was available at balance date to the following lines of credit:		
<b>Credit standby arrangements</b>		
Total facilities		
Lease finance – revolving facility	400,000	400,000
Documentary credit facility (overseas)	660,000	660,000
Visa facility	50,000	–
	1,110,000	1,060,000
Used at balance date		
Lease finance – revolving facility	41,818	78,396
Documentary credit facility (overseas)	–	–
Visa facility	–	–
	41,818	78,396
Unused at balance date		
Lease finance – revolving facility	358,182	321,604
Documentary credit facility (overseas)	660,000	660,000
Visa facility	50,000	–
	1,068,182	981,604
<b>Bank loan facilities</b>		
Total facilities	1,110,000	1,060,000
Used at balance date	41,818	78,396
Unused at balance date	1,068,182	981,604

The current interest rate is 8.87% on the Lease finance facility.

## NOTE 32 EVENT OCCURRING AFTER REPORTING DATE

On 24 September 2002 the Company acquired a 51% controlling interest in Photonica Pty Ltd, an innovative optical communications/photronics company based in Adelaide for an initial cash consideration of \$1,600,000 plus the issue of 172,414 fully paid Silex shares. In addition, Silex will grant (over three years) up to 1,500,000 options to Photonica staff out of the Employee Share Option Plan. \$3,650,000 additional cash will be paid over the next two and a half years provided certain performance milestones are achieved. This brings the total cash outlay to \$5,250,000. \$750,000 of the initial \$1,600,000 was advanced prior to 30 June 2002.

The financial effects of the above transaction have not been brought to account at 30 June 2002. The operating results and assets and liabilities of Photonica Pty Ltd will be consolidated from 24 September 2002.

## DIRECTORS' DECLARATION

The directors declare that the financial statements and notes set out on pages 30 to 51:

- (a) comply with Accounting Standards, the Corporations Regulations 2001 and other mandatory professional reporting requirements; and
- (b) give a true and fair view of the Company's financial position as at 30 June 2002 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 Act 2001; 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



C D Wilks  
Director

Dated in Sydney 25 September 2002

# INDEPENDENT AUDIT REPORT

TO THE MEMBERS OF SILEX SYSTEMS LIMITED

## Audit opinion

In our opinion, the financial report, set out on pages 30 to 52 :

- presents a true and fair view, as required by the Corporations Act 2001 in Australia, of the financial position of Silex Systems Limited as at 30 June 2002 and of its performance for the year ended on that date
- is presented in accordance with the Corporations Act 2001, Accounting Standards and other mandatory professional reporting requirements in Australia, and the Corporations Regulations 2001.

This opinion must be read in conjunction with the following explanation of the scope and summary of our role as auditor.

## Scope and summary of our role

### The financial report – responsibility and content

The preparation of the financial report for the year ended 30 June 2002 is the responsibility of the directors of Silex Systems Limited. It includes the financial statements for Silex Systems Limited (the Company), during the year ended 30 June 2002.

### The auditor's role and work

We conducted an independent audit of the financial report in order to express an opinion on it to the members of the Company. Our role was to conduct the audit in accordance with Australian Auditing Standards to provide reasonable assurance as to whether the financial report is free of material misstatement. Our audit did not involve an analysis of the prudence of business decisions made by the directors or management.

In conducting the audit, we carried out a number of procedures to assess whether in all material respects the financial report presents fairly a view in accordance with the Corporations Act 2001, Accounting Standards and other mandatory reporting requirements in Australia, and the Corporations Regulations 2001, which is consistent with our understanding of the Company's financial position, and its performance as represented by the results of its operations and cash flows.

The procedures included:

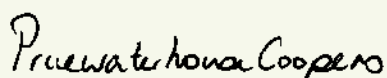
- selecting and examining evidence, on a test basis, to support amounts and disclosures in the financial report. This included testing, as required by auditing standards, certain internal controls, transactions and individual items. We did not examine every item of available evidence
- evaluating the accounting policies applied and significant accounting estimates made by the directors in its preparation of the financial report
- obtaining written confirmation regarding material representations made to us in connection with the audit
- reviewing the overall presentation of information in the financial report.

Our audit opinion was formed on the basis of these procedures.

## Independence

As auditor, we are required to be independent of the Company and free of interests which could be incompatible with integrity and objectivity. In respect of this engagement, we followed the independence requirements set out by The Institute of Chartered Accountants in Australia, the Corporations Act 2001 and the Auditing and Assurance Standards Board.

In addition to our statutory audit work, we were engaged to undertake other services for the Company. These services are disclosed in note 22 to the financial statements. In our opinion the provision of these services has not impaired our independence.



PricewaterhouseCoopers

Sydney, 25 September 2002



David Wiadrowski  
Partner

# SHAREHOLDERS' INFORMATION

## 1. INFORMATION RELATING TO SHAREHOLDERS AS AT 19 SEPTEMBER 2002

### (a) Distribution schedule

Number of holders		Ordinary shares
1 – 1,000		1,548
1,001 – 5,000		2,630
5,001 – 10,000		697
10,001 – 100,000		630
100,000 and over		82
Total number of holders of each class of security		5,587
Voting rights – on a show of hands		
	– on a poll	
Percentage of total holding held by the twenty largest holders		66.33%
Number of holders holding less than a marketable parcel of shares	855	
Substantial shareholders		
National Australia Trustees Limited		34,463,095
AMP Limited and its related bodies corporate		15,809,272
JP Morgan Nominees Australia Limited		7,667,409

### (b) Names of twenty largest holders of each security as at 19 September 2002

Name	Number of securities	Percentage held
National Australia Trustees Limited	34,463,095	27.12%
J P Morgan Nominees Australia Limited	7,667,409	6.03%
AMP Life Limited	4,890,928	3.85%
Polly Pty Ltd	4,573,863	3.60%
Majenta Holdings Pty Ltd	3,753,923	2.95%
AMP Nominees Pty Limited	3,180,508	2.50%
Commonwealth Custodial Services Limited	2,940,160	2.31%
Quintal Pty Ltd	2,849,835	2.24%
Throvena Pty Ltd	2,799,800	2.20%
Citicorp Nominees Pty Limited	2,771,255	2.18%
Mr Horst Struve	2,510,000	1.98%
National Nominees Limited	2,407,986	1.89%
Hamlac Pty Ltd	2,325,937	1.83%
Mr Christopher David Wilks	1,255,070	0.99%
Dalran Pty Ltd	1,208,100	0.95%
Westpac Custodian Nominees Limited	1,150,080	0.90%
Mithena Holdings Pty Limited	1,029,187	0.81%
UBS Warburg Private Clients Nominees Pty Ltd	1,010,247	0.79%
Hapday Holdings Pty Limited	805,620	0.63%
Dr Andrew Yang Ooi Tan	701,788	0.55%
	84,294,791	66.33%

## 2. VENDOR SECURITIES

There are no vendor securities.

## 3. INTEREST OF DIRECTORS IN SECURITIES

Director	Ordinary shares	Interest held
Mr B S Patterson	4,573,863	Beneficially
Dr M P Goldsworthy	3,899,533	Personally/Beneficially
Mr C D Wilks	1,844,021	Personally/Beneficially
Dr C S Goldschmidt	2,825,937	Beneficially
Mr R P Campbell	1,354,823	Beneficially

## GLOSSARY AND FURTHER TECHNICAL INFORMATION

### Isotopes

Most chemical elements found in nature consist of two or more "isotopes" of the element. The chemical properties of all isotopes of a given element are essentially identical, but there are differences in their physical properties – namely their mass, or more specifically, the number of neutrons in the nucleus.

These differences are significant and can have technical and/or commercial applications, where the nuclear properties of the element come into play. For instance, illuminated "Exit" signs use tritium, a heavy isotope of hydrogen – however the lightest and most common hydrogen isotope does not have those properties that enable tritium to be used in this way.

Another example is Silicon, which occurs naturally with three isotopes: 92% Silicon-28, 5% Silicon-29 and 3% Silicon-30. By enriching or separating the Silicon-28 isotope to say, 99.9%, a super pure form of Silicon can be created which exhibits better performance characteristics in some semiconductor applications, such as increased thermal conductivity (ie, the ability to remove heat).

### 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 (i.e. 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 (i.e. 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 relatively 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 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 – a fully functional electronic 'switch'. 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 ultra large scale integration (ULSI) 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 and insulating (oxide) 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. Today, only long haul and metro networks use optical communications technology, based on fibre optic links. Access (user) networks and mass market consumer semiconductor products such as PCs are still all based on conventional Silicon chips and copper wire communications.

## GLOSSARY AND FURTHER TECHNICAL INFORMATION

### 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 per cent of the world's known low-cost reserves.

The mined product is traded as yellowcake, which is around 98 per cent 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 per cent and 99.3 per cent respectively of the total Uranium element present.

For use in Nuclear Power Reactors a U-235 concentration of approximately 5 per cent 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 gaseous  $UF_6$  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", 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 120,000 kg 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. World-wide 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.

### Silicon Isotope Superlattice (SIS)

With the development of sophisticated growth techniques such as molecular beam epitaxy (MBE), and metallo-organic chemical vapour deposition (MOCVD), it is now possible to fabricate synthetic semiconductor structures called superlattices, in which the semiconductor properties can be delicately controlled to produce superior capabilities in tiny "nano structures", compared to conventional bulk semiconductor structures. Superlattices provide artificial periodic structure consisting of alternate layers of two dissimilar semiconductor materials, with layer thicknesses the order of nanometres, that is, only a few atomic layers thick. Superlattices are now used routinely in many semiconductor devices, particularly for photonic structures which can emit, process or absorb light signals, and are generally made of expensive compound semiconductor materials such as GaAs, InP, InGaAs, AlAs etc.

The Silicon Isotope Superlattice structure differs in two major ways to typical photonic superlattice structures. First, SIS as the name suggests, is made entirely of the one element – Silicon. The structure consists of alternating layers of isotopically pure Silicon 28 and Silicon 30. The thickness and number of layers determines the performance of the SIS structure. Second, the SIS structure aims to improve electronic activity in Silicon, rather than tailoring photonic activity, although this might be a possibility in the future. The primary aim of SIS is to increase the electron mobility in Silicon, thereby improving the speed of Silicon-based devices significantly. In technical terms, the Silicon isotope superlattice provides a periodic structure which minimises phonon scattering of electrons. Whilst the basic effect has been observed in germanium isotope superlattice structures by the Keio University Advanced Semiconductor Materials Group, the effect is still to be demonstrated in Silicon. This is the aim of the current program being conducted by Silex and Keio University.

# GLOSSARY AND FURTHER TECHNICAL INFORMATION

## Planar Lightwave Circuits (PLCs)

PLCs are the basic building blocks of optical semiconductor devices, that is, the telecommunications equivalent of integrated circuits in electronics. PLCs have application as both passive (photonic function only), and active (photonic and electronic functions combined) components in optical telecommunications, and are the basis of today's "optical processors".

PLCs and photonic devices are made today with compound semiconductor materials such as GaAs and InP. Silicon cannot be used for photonic applications in its natural state. The very high costs associated with using compound semiconductors for photonics and optical communications equipment (there is no large scale integrated fabrication technology such as that which exists for Silicon electronic devices), result in them being too expensive to be used in consumer mass market products. This is the reason why our PCs and modems operate with copper wire links and Silicon based processors at very slow communication rates (small bandwidth). Only the long haul fibre optic and metro network systems can afford the high costs of photonic and optical communication equipment.

The Translucent Planar Lightwave Circuit has very significant implications for optical telecommunications technology because it aims to push low cost Silicon into the photonics arena in a unique way, delivering significant cost and performance benefits.

Translucent's PLCs could have broad application in the rapidly growing photonics semiconductor markets, currently worth several billion US dollars per annum. Photonic or optical semiconductor components are used principally in optical telecommunications equipment, providing the link between broadband (high speed) fibre optic networks and metro/local area electronic networks, which in turn deliver information to and from consumer electronic equipment, such as personal computers/modems, currently at much slower speeds. Translucent's PLCs could overcome these limitations.

Fiber optic connections to the home, the so-called "last mile" of broadband optical telecommunications, will only occur when optical equipment costs are comparable to those of consumer electronics. With Translucent's PLCs, the ability to integrate complex optical paths in an automated fabrication process would dramatically lower the cost of optical components (by at least a factor of ten) enabling the expansion of optical telecommunications into the price-driven consumer market. Typical consumer products that could use the new Translucent Silicon PLC technology include personal computers, fibre optic modems and cable TV.

# 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 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  
New Illawarra Road  
Lucas Heights  
New South Wales 2234  
Australia

Ph: 61 2 9532 1331  
Fax: 61 2 9532 1332

Postal address:  
PO Box 75  
Menai Central  
New South Wales 2234  
Australia

**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

Allens Arthur Robinson  
Skadden, Arps, Slate, Meagher & Flom (USA)

## Bankers

Australia and New Zealand Banking Group Limited

## American Depositary 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



Silex Systems Limited

Building 64, Lucas Heights Science & Technology Centre,  
New Illawarra Road, Lucas Heights NSW 2234 Australia  
[www.silex.com.au](http://www.silex.com.au)