The Electrical and Information Engineering Foundation was established by the Senate of The University Sydney in 1983.

The mission of the Electrical and Information Engineering Foundation is to build successful partnerships between the School of Electrical and Information Engineering at the University of Sydney, industry and the profession to achieve world-class performance through leading education, research and professional development programs in Australia.
THE YEAR IN REVIEW

In 2010, the Foundation continued to support the School of Electrical and Information Engineering and strengthen its relationship with the School by aligning its strategic priorities with the School and the Faculty.

HIGHLIGHTS

- Official opening of the ABB Technology Centre
- Roundtable Series – one of the Foundation’s successful initiatives
- Inaugural Annual Foundation Dinner held in March
- Prize Giving Ceremony - recognising outstanding achievement with award supported by industry and the profession
- Top 100 Scientist
- 92 new graduates welcomed into the profession
- Research Conversazione
- Bioelectronics at the Shanghai World Expo
- A suite of new Undergraduate Scholarship established commencing in 2011

People

- New Director of the Foundation appointed
- Three new Council members appointed, including Mr David Hammond, Mr Peter Handel and Mr Rod Vawdrey
- Three new Governor members, including Freelancer Australia, Schneider Electric (Australia) and Siemens Ltd
- Four new Governor representatives, including Mr Axel Kuhr, incoming Country Manager, ABB Australia, Mr Jeff Ferdinands, General Manager Communications Sector, IBM, Mr Matt Barrie, Chief Executive, Freelancer, Mr Raj Kapoor, General Manager, Siemens Ltd and Mr Kazuyuki Takahashi, incoming Managing Director, Sumitomo Australia.

School Appointments

Professor David Hill was appointed the incoming EnergyAustralia Chair of Power Engineering.

School Research Achievements

$2.3 million awarded to researchers in Australian Research Grants commencing in 2011.

NEW DIRECTIONS

Rethinking engineering – using science and technology to address healthcare issues

In 2010 a Faculty research and education network in the Medicine-Engineering-IT-Health Sciences was introduced. The Faculty presented a successful symposium on this capability at the Australian Pavilion of the Shanghai International Expo.

To progress the potential of this combined capacity and strength, the School will offer a bioelectronics engineering program in 2011.

Wired and wireless technology can help diagnose, monitor and manage patients, with instruments connected via telephone, web-based services and databases. Bioelectronic engineering gives us the ability to address concerns raised in a recent Federal Government report on the medical device industry, identifying gaps in engineering graduates’ practical skills development. The new degree gives students the skills to build healthcare equipment, previously only used in hospitals, for the home.

Biomedical electronic devices and systems are key growth areas of engineering due to the impact increasing medical costs of an ageing population.

Related postgraduate research at the School is looking at the link between nutrition in early life to the onset of cardiovascular disease in later years. The School’s alumni and researchers profiled in this report are developing new electronic devices that integrate with biological systems to deliver diagnostic tools such as imaging to detect Alzheimer’s and Parkinson’s disease, breast cancer, and for stroke, epilepsy and cardiac monitoring. And other developments that will ‘break the silence’ for 278 million hearing impaired people globally.
In August 2010, the University of Sydney’s Strategic Plan 2011-2015 was approved by the University Senate. In parallel, the Faculty of Engineering and Information Technologies and the School of Electrical and Information Engineering reviewed their strategies to ensure that each are aligned.

The School of Electrical and Information Engineering has defined its vision to:

Be a leading international school in electrical and information engineering research and education.

As part of its first contribution to support the School to achieve that vision, the Foundation has identified six strategic priorities outlined below. In order to achieve these strategies, the Council has established four committees endorsed by members at the Foundation meeting in October. Each committee reports to the Council and has a number of initiatives to be prioritized in consultation with the Head of School during 2011.

STRATEGY ONE: REFINE OUR GOVERNANCE STRUCTURE

The governance of the Foundation enables the Mission to become a reality and ensures all University regulatory and statutory requirements are upheld.

STRATEGY TWO: EXPAND OUR MEMBERSHIP BASE

To ensure financial sustainability.

STRATEGY THREE: DEVELOP OUR CAPACITY TO SUPPORT THE SCHOOL’S RESEARCH EXCELLENCE

An endowment or sponsorship for an academic position (chair, lectureship) is the most effective way toward addressing the skill shortage currently facing the electrical engineering industry. A Chair provides academic leadership in all fields of teaching, research, professional practice and industry engagement, with respect to the stream of electrical engineering. Restoring the undergraduate degree programs in Electrical and Information Engineering through industry support presents opportunities for information sharing between industry and the research community.
STRATEGY FOUR: DEVELOP OUR CAPACITY TO SUPPORT THE SCHOOL’S EDUCATION EXCELLENCE

Undergraduate training in electrical engineering should be supported by significant laboratory component within the curriculum. To enable the increased focus on laboratory work, the School requires state-of-the-art laboratory facilities. By providing graduates with skills such as problem solving, communication, team work and project management in addition to technical skills, the School plans to equip them with the tools necessary to ensure they are competitive in the market place.

The more typical type of collaboration takes place across the sector through students and academics. Other mechanisms to improve the partnership between engineering and industry include Interdisciplinary Research Centres, Faculty positions, Research Internships and direct research collaboration.

STRATEGY FIVE: DEVELOP OUR CAPACITY TO SUPPORT THE SCHOOL’S STUDENT RECRUITMENT

The future of electrical engineering relies on strong profiling of the importance of the discipline among potential students. Energy and water are critical for long term sustainable social and economic development. By studying electrical engineering students are at the centre of the long term development of the world. As the only commodity that needs to be generated instantly, electricity is a challenging resource with varying demand across time. There are many new developments in the field that will continue into the foreseeable future. Some of these developments include improved sensing technology, on-line and off-line monitoring and diagnostic systems information and communication systems and electronics. Integration of these technologies will create increased opportunities for effective and more economical management of networks that will offer long term benefits to customers and the environment.

STRATEGY SIX: AGREE COORDINATED STRATEGIES FOR IDENTIFYING, DEVELOPING AND SUPPORTING FACULTY PRIORITIES

The Faculty is working to identifying and support its research strengths and to invest in a number of major cross-disciplinary research and education initiatives in areas of national and international importance. The education and research interfaces of Medicine-Engineering-Information Technologies-Health Sciences have continued to grow in the faculty in recent years. In education, the School of Aerospace, Mechanical and Mechatronic Engineering has pioneered the establishment of a biomedical engineering program. The School of Electrical and Information Engineering will offer a bioelectronics engineering program in 2011. Biomedical electronic devices and systems are key growth areas of engineering due to the impact increasing medical costs of an ageing population. To progress the potential of this combined capacity and strength, the Faculty is planning to establish a premier integrated research and education network in the Medical-Engineering-Information Technologies space.
In March 2010, ABB Australia, together with the School of Electrical and Information Engineering, officially opened the ABB Technology Centre at The University of Sydney.

The Centre was launched by Heather Ridout, Chief Executive Officer, Australian Industry Group.

The then Chief Executive Officer of ABB Australia John Gaskell announced the centre complete and fully operational on February 9, 2010 to a crowd of esteemed guests, engineers and industry representatives from here and abroad.

“The opening of the ABB Technology Centre marks a major step forward in an Australian-first project to close the gap between academia and industry,” said John Gaskell. “The centre integrates many professional functions to facilitate learning, industry training and continuous interaction between students, academia and industry.”

Vassilios Agelidis, Professor and EnergyAustralia Chair of Power Engineering, championed the vision of this innovative novel, integrated teaching approach: “The ABB Technology Centre was a concept born to highlight the breadth of talent of Australia’s young engineers and act as a beacon for the way in which electrical engineering will be taught. We have now seen this dream come to reality with the opening of the centre,” said Professor Vassilios.

Opening the Centre, Heather Ridout spoke about the impact the centre would have on the wider community: She said “The investment that ABB has made in the technology centre will bring benefits way beyond the company itself. The technology centre will bring benefit to the university, the industry as a whole, the economy and the broader community.”

The ABB Technology Centre houses a wide range of ABB products and solutions - 15 different technology demonstrations in total. These include low and medium voltage switchgear, an AC and DC variable speed drive system, substation automation systems, instrument and distribution transformers, process control system, an industrial robot, amongst others.

“Engineers of tomorrow will now not only have the finest theoretical instruction, they will also be able to gain first hand experience on state-of-the-art equipment as used in the industries that they will work in on completion of their studies,” concluded John.
Keynote speaker at this year’s dinner was Mike Quigley, the Executive Chairman of NBN Co Limited.

The dinner provided a special opportunity to hear first hand from Mike Quigley of the challenges and the opportunities for the industry presented by the government’s ambitious National Broadband Network project.

The Foundation wishes to acknowledge the support of our Governor members who attended the Dinner. Without our members’ personal commitment, the dinner would not have attained its most important goal — strengthening the relationship between industry and the university.

“I see the Foundation as a great step to supporting the future of the industry through open communication between industry and the University and an opportunity to compliment the structure of studies for students to come,” said Mr Steve Jeston, CEO ANZ, Landis & Gyr.

Among the attendees:
Prof Mary O’Kane, NSW Chief Scientist and Scientific Engineer
Prof Archie Johnston, Dean, Faculty of Engineering and Information Technologies
Prof Jill Trewhalla, Deputy Vice Chancellor (Research)
Sir William Tyree OBE
Prof Graham Davis, Dean, Faculty of Engineering, UNSW.

Governor members:
Alstom
Conneq
Evans & Peck
EnergyAustralia
GHD
Fujitsu
Leighton Contractors
NHP
Olex Australia
Schneider Electric
Sylvania Lighting Australasia
Telstra

Our thanks to Landis + Gyr for their generous support of the event.
ROUND TABLE SERIES

In March and November 2010, the Foundation hosted two events in one of its most successful initiatives, the Roundtable Series.

The purpose of the Roundtable Series is to provide Governor members with the opportunity to discuss national issues in science, engineering and technology and their contribution to the economic health and social development of Australia

12 MARCH 2010

Australia: Energy Superpower – Sustainable Energy Leader

The Hon John Robertson
Minister for Industrial Relations
Minister for Commerce
Minister for Energy
Minister for Public Sector Reform

The Minister discussed the challenges of renewable for the grid in the light of the Government’s intention to see a much greater role for the private sector in generation infrastructure.

Our thanks to PricewaterhouseCoopers for hosting the event and EnergyAustralia for their generous sponsorship.

25 NOVEMBER 2010

Australia’s Infrastructure Challenge

The Hon. Mark Birrell
Chairman, Infrastructure Partnerships Australia

Mark Birrell spoke on the challenges of Australia’s infrastructure requirements and investment in existing power sources and alternatives.

He said the total infrastructure requirement in Australia has been estimated by Infrastructure Australia has estimated Australia’s total infrastructure requirement to be between $600 billion and $700 billion, covering areas as diverse as health, education, rail, road, ports, power and water. He highlighted the roadblocks to implementing these vital investments including funding and the regulatory maze in Australia.

Our thanks to Evans & Peck for their generous sponsorship.
FOUNDATION AND INDUSTRY SCHOLARSHIPS
In 2010, industry, the Foundation and the School of Electrical and Information Engineering established a suite of one-year undergraduate scholarships valued at over $100,000.

There are over 700 scholarship schemes on offer and each year the University of Sydney gives out over $65 million in scholarships, not taking into consideration prizes or College and Sporting Scholarships.

“The hallmark of a good company is no longer just how much it invests in its workforce, but how much it invests in its potential workforce.” George Maltabarow, Managing Director, Ausgrid.

The EIE Foundation Undergraduate Scholarship is designated for students in under represented Equal Opportunity Groups and from a low socioeconomic background.

“The EIE Foundation undergraduate scholarship was established as a way of trying to leverage the foundation’s resources to establish better connections between the Foundation and the School of Electrical and Information Engineering,” said George Maltabarow, President of the Foundation.

The EIE Scholarships are awarded to students who have achieved an Australian Tertiary Admission Rank (ATAR) of at least 95 and are financially disadvantaged or are socially disadvantaged.

In response to a scholarship fund established by the Foundation, the Head of the School of Electrical and Information Engineering has announced the School will provide five matching scholarships for the 2011 year.

“By supporting the training of undergraduates with multidisciplinary engineering skills, we can meet the future requirements of industry and provide solutions to today’s important challenges,” Professor Vucetic said.

The scholarships are a joint effort by the Foundation and the School.

Two new undergraduate Scholarships included in the Billinger Berger Services Undergraduate Scholarship for Tomorrows Engineering Leaders. The Scholarships recognize final year students in the Bachelor of Engineering (Power) and (Electrical) degrees.

Major Industrial Project Placement Scheme (MIPPS)
The MIPPS program is a 26-week industrial placement in 2011. The school’s top Fourth Year students work full time in an industrial placement and will have first semester requirements replaced with 6 months full-time work undertaking high-level investigative projects, under industrial and academic direction.

Summer and Research Placement Project Scholarships (SARPPS)
The SARPPS program is a 12-week industrial placement over the summer plus 2 days per week part-time over semester 1 in 2011.

Faculty-based Scholarships
Two Faculty-based scholarships established for students enrolled in the Telecommunications Degree.

CSIRO ICT CENTRE

Undergraduate Entrance Scholarships

CSIRO ICT Undergraduate Entrance Scholarship aims to encourage high-performing students entering the first year of the Bachelor of Engineering (Electrical), (Power), (Software), (Telecommunications) and (Computer) Tenable for one year by each student, the student will also spend one week work experience at the ICT Center under supervision of a staff member during the summer vacation with the payment provided by CSIRO.
In August 2010 the Foundation continued to support the School of Electrical and Information Engineering by sponsoring prizes valued at over $4,000 and by coordinating the Prize Giving Ceremony on behalf of the School.

The Prizegiving Ceremony recognizes the achievements of the School’s outstanding students and graduates. The Ceremony was opened with a welcome to students and their families by Professor Archie Johnston, Dean of the Faculty of Engineering and Information Technologies.

The Dean congratulated the prize winners for their significant accomplishments across a range of engineering disciplines. “Your achievements ensure the continuing success and strong reputation of the Faculty”, he said.

“Some of the prize winners with us today are recent graduates, already using their skills and competencies in the workforce or undertaking further study. I would like to take this opportunity to wish you all the best in your chosen careers and remind you to stay in touch. “

Deputy Director, Professor Robert Minasian was Master of Ceremonies.

Professor Branka Vucetic, Head of School said the Presentation allows us to celebrate our students and also gives us an opportunity to acknowledge the support the School receives from industry, government and the wider community. “The support of the community and the profession for the School of Electrical and Information Engineering is invaluable and the prizes awarded to our students would not be possible without it,” said Professor Vucetic.

The Foundation would like to warmly congratulate all of the prize winners and sponsors for their continuing support.
University Medal
Amy Dee Fu

Dean’s List for Academic Excellence
Amy Dee Fu (Electrical)
Rohen Seed (Telecommunications)

Scholarships
CSIRO ICT Centre Undergraduate Entrance Scholarships
Phillip Ydia
Chunyang Liu
Liana Paolino

G S Caird Scholarship in Electrical and Information Engineering
Cameron James Higgins

Awards
Vern Kenna Awards in Electrical and Information Engineering
Mattia Pagani
Le An
Alan Luc
Jonathan Bradley Ingram

Prizes
The Electric Energy Society of Australia Prize
Cameron James Higgins

The Australian Electrical and Electronics Manufacturers’ Association of NSW Prize in Electrical Power Engineering
Anh—Dung Diep

The Institution of Engineering and Technology Prize
Lyndall Merin Jensen

Ian James McPherson Prize
Jianxi Li

Percy L Weston Prize
Edmund Chi Man Tse

R E Jeffries Memorial Prize
Alan Luc

EIE Foundation Prize for Final Year Achievement
Sandhya Madakasira (Computer)
Cameron James Higgins (Electrical)
Rohen Sood (Telecommunications)

EIE Foundation Prize for Communication Skills
Mattia Pagani (2nd year)
Alan Luc (3rd year)
Timothy O’Keefe (Final Year)

EIE Foundation Prize for Final Year Achievement in Electrical Engineering
Victor Ho Duen Wu

G. S. Caird Scholarship in Electrical and Information Engineering
Established in 1986 by using accumulated funds from the bequest of Miss E.R. Caird, and named after her father. Awarded annually to the student with the highest average.

Ian James McPherson Prize
Established in 1999 by a donation of $10,000 made in memory of Ian James McPherson. Awarded annually to the student with the second highest average.

Percy L Weston Prize
Founded in 1919 by a donation of £100 from Mrs. Clara Weston as a memorial to her son, Percy L Weston, BSc, BE. Awarded annually to the student with the third highest average.

R E Jeffries Memorial Prize
Established in 1978 by a bequest of $3,000 from the late Mr. R.E. Jeffries for a prize in electrical engineering.

Vern Kenna Awards
This Award is based on high academic merit in the fields of Communications, Electronics or Digital Systems and on submission of a 1500 word paper on the future of electronic communication.
DIRECTOR
OF THE FOUNDATION
APPOINTED

JOHN GASKELL

In August 2010, the Provost and Deputy Vice-Chancellor approved the Council’s appointment of John Gaskell as Director of the Foundation.

John is a chartered Engineer and a fellow of the IET and a non-executive director of the Hastie Group. In his role as Director of the Foundation he is working with the university and industry to encouraging our brightest and best young people that they should consider what great careers there are in Electrical Engineering.

John Gaskell was chief executive of ABB in Australia and New Zealand, for eight years until he retired in May 2010. This was 45 years since he started his apprenticeship in Electrical Engineering at "The BTH" Willesden in North London.

In the ’70’s he worked in Iran on the national grid development, establishing an engineering team of expats and young Iranian engineers. He also includes Iraq, UAE, Sweden, Switzerland and the USA in the countries where he has lived and worked.

John joined ASEA in ’79 and has spent 20 of the last 30 years with ASEA and ABB, also working with Kennedy and Donkin where he was CEO and Rolls-Royce where he was a member of the Group Executive and President of the Energy business.

John addresses the Top 10 engineering leadership questions as part of Engineers Australia’s Year of Engineering Leadership.

What are the qualities of a good engineering leader?

A good leader is not driven by ambition for personal achievement. A good leader works to enable the team to succeed. This requires a clear vision of the direction the business needs to take and the goals that need to be achieved, the leader makes sure this is communicated in clear, uncomplicated messages. A good leader empowers the team to set themselves challenging goals and guides them in achieving these goals.

Name an engineer, past or present that has demonstrated great leadership.

Percy Barnevick was responsible for the merger of ASEA and Brown Boveri into ABB. His leadership of that combined business was an outstanding example of empowerment and inclusive management. Unfortunately his example suffered from the ravages of time and some rather big egos, but those challenges have also been addressed.
Name an engineering project that has made a significant impact on society.

Deptford Power Station, built in the east of London in the 1890s by Sebastian Ferranti took electricity from a novelty to an established and practical form of energy which has not only had a huge impact on many aspects of our society to date but will be of fundamental importance in the use of renewable energy resources.

What advice can you give young engineers to assist them on their leadership journey?

The most important skill that a leader needs is communication. The best advice I ever heard was, "Look in the mirror and note that The Lord gave us two ears but only one mouth. Try and make sure that you are listening for twice as long as you talk."

We should also remember that we communicate much more through our actions than our words. People don't always listen to what we say, but they certainly watch what we do.

Who has been a mentor to you throughout your career?

I have been privileged to work with a number of really great engineers in the past forty years, I have learned a great deal from them, some were great engineers, others great leaders. David Bennett was my boss in Iran when I was there from 1974 -79. He was the first person to show me the huge motivation that comes from empowerment.

Iran was a very interesting country to work in, but it was also quite a tough place and David was a beacon of calm and stability.

What professional development can you recommend to people who want to enhance their leadership skills?

As a leader it is vital to have a clear understanding of the whole business, this includes the financial performance as well as the engineering aspects, the financials are far too important to be left to the accountants. Make sure you have a very strong grasp of all of the numbers.

What have been your most significant leadership achievements?

I think this is really for others to say. There is a huge sense of achievement in putting together a team, particularly with young people, and as a CEO I have worked with some fantastic teams over the years.

Recently I have been very proud of the graduate development program that we put in place in ABB in Australia. It has been running for five years and there are so many really good people coming out of that and they are already showing great leadership potential. I would be happy for that to be my legacy.

How do you inspire people?

You inspire people by giving them the opportunity to achieve things that they had not felt possible. This needs clarity of direction, support and a great deal of trust.

Do engineers make good leaders?

Sometimes, but not always, delegation does not come easily to all engineers as they have a tendency to get too absorbed in the detail, then they meddle with the work their team is trying to do. It is important to be "hands on" but not "hands in".

Being in a leadership role can be stressful, how do you unwind?

There is no question that work/life balance is a very important thing to get right, because if you get it wrong, both your work and your private life suffer.

My wife and I enjoy spending time with family and friends and we share interest in good food and wine, music, art and the garden. (I also have a secret room for my railway, and I can spend hours "unwinding" there.)

(Reprinted courtesy of Engineers Australia.)
GRADUATION 2010

GLOBAL CITIZENS

In May and November, Graduation Ceremonies were held in which 92 graduates entered the profession.

The Foundation congratulates and welcomes new graduates into the profession.

Doctor of Philosophy
Stephen Michael Hanham
Raymond Hall Yip Louie
Yaozhou Ma
Cibby Babu Pulikkaseril
Xiaoyuan Ta
Alex Wang

Master of Philosophy
Boyang Hu
Xinyi Li
Stephen Thomas O’Rouke
Lei Lei Wu

Master of Engineering (Research)
Jaebok Lee

Master of Professional Engineering
Yahya Khaled (Wireless)

Master of Engineering
Abdul Kerim Al Sultan (Electrical)
Jesudass Arockiasamy (Wireless)
Xiaobo Bai (Wireless)
Vikaas Chhatwai (Network)
Dhaval Shankar Chaganti (Power)
Zhao Chen (Network)
Qi Dan Feng (Wireless)
Paul Wesley Goodall (Wireless)
Md Ferdous Habib (Wireless)
Fawzi Harfouch (Wireless)
Jie He (Power)
Tashfqul Alam Khan
Jiyang Li (Network)
Leiming Li (Power)
Wei Long
Chaonan Lu (Network)
Mohamad Naji (Wireless)
Sajad Nasim (Power)
Anh Tuan Nguyen (Wireless)
Audrey Octavia (Wireless)
Sarah Pathuri (Wireless)
Babar Saleem (Electrical)
Bryan Kevin Schwitter (Electrical)
Nitya Mani Shakya (Power)
Pitichai Tirapongporn (Power)
Jia Wang (Wireless)
Liang Yu (Power)
Ya Liang Zhang (Wireless)
Yangyang Zhao (Wireless)
THE SYDNEY GRADUATE

For students, the University of Sydney experience should be one that builds on their aspirations and provides opportunities for them to develop new ways of thinking; as global citizens, inquiring scholars, and as individuals with a lifelong passion and flair for learning. These are the qualities described by the University’s statement of Graduate Attributes and are some of the outcomes of a University of Sydney education that allow our graduates to excel in the world of work and contribute as leaders and agents of social good in our society. As a university community we seek to foster the development of these attributes through students, participation in the rich intellectual and social life of the university, through the learning experiences of their courses and the diverse extra curricular activities available.
ABB Australia and EnergyAustralia sign MOU on engineers exchange program

In October 2010 — ABB Australia and Energy Australia signed a Memorandum of Understanding to undertake an Engineers Exchange Program.

The MOU was signed by ABB Australia Country Manager, Axel Kuhr and EnergyAustralia Managing Director, George Maltabarow.

The agreement will facilitate the temporary exchange of engineers between the two companies.

“This will be a pilot program providing our engineers with an opportunity to gain knowledge and experience from another organization,” Mr Maltabarow said.

The objective is to enhance the capabilities of staff of the two companies and to augment internal engineering talent.

If the program is successful it may be extended to include other organisations in the future. Information about the program will be available over the coming months.

It is expected that the first exchange occurred in early October. The EnergyAustralia participant will move to ABB and the ABB Sweden participant will move to the Engineering, Transmission and Technology Division of EnergyAustralia. Both will remain in those roles until near the end of this year.
John O’Sullivan’s innovative radio camera could illuminate the origins of the universe. In 2010, the CSIRO engineer successfully built a camera prototype for the Australian Square Kilometre Array Pathfinder (ASKAP) radio telescope project, with a field of view 30 times greater than present telescope capability.

“I find some of the puzzles about how the universe started and why — although ‘why’ may be a bit ambitious to answer — fundamental, deep, interesting questions,” says O’Sullivan, who in his high school years would frequent Oxford Street disposal stores in search of parts to build radios. “It would be great to be part of something that threw important light on that.”

O’Sullivan led the team of engineers, physicists and mathematicians that invented the high-speed wireless computer networking technology now in laptops, games and phones and used by a billion people worldwide every day, earning him the Prime Minister’s $300,000 Prize for Science in 2009 and the CSIRO its most lucrative patent ever.

(Photo and article courtesy of The Sydney Magazine and Fairfax Photographic Collection).
“Seeing the look on someone’s face when they hear for the first time, using a product you’ve helped create, is definitely something worth getting out of bed for.”

ALUMNI FOCUS

MICHAEL BEWLEY  BE (Elec) ’07
SYSTEMS ENGINEER
COCHLEAR LTD

THE GIFT OF SOUND

Alumni Focus profiles a successful alumnus who is exploring the space between engineering and science, research and design, or investigation and proof-of-concept and venture capital to encourage innovation.

Michael Bewley is using his skills in signal processing and artificial intelligence to help design the next generation of bionic ears. “Over 278 million” people suffer from moderate to profound hearing loss globally.

What did you like about the course? My original plan was a physics degree, with electrical engineering to help me get a job. After the early year fundamentals, I began to find out what real engineering was about. Electrical engineering has a massive range of applications. I played with lasers, designed a satellite link, wrote speech compression software, used artificial neural networks, measured the impulses on a cane toad’s nerve, learned about management and innovation systems. For my undergraduate thesis, I created a working automated system to help doctors diagnose Alzheimer’s disease.

What do you like about your job? At Cochlear, I’ve had the opportunity to get stuck into a whole range of projects – everything from artificial neural networks to wireless technology, chip design, audio processing and project management. Technical stuff aside, seeing the look on someone’s face when they hear for the first time, using a product you’ve helped create, is definitely something worth getting out of bed for.

One particularly exciting thing is that we have a program called “Tech Life”, which is like an internal venture capital scheme to encourage innovation. After being an enthusiastic participant, I’m now running the program, which involves helping engineers to carry out side projects that turn some of their more unconventional ideas into reality.

What else do you do? Given that I spend a good chunk of the day staring at a computer screen, I like to get outdoors and active with things like canyoning, rock-climbing and hiking. I completed a 100km charity walk with Oxfam, with our whole team making it over the line in just 35 hours.

About Michael

Michael was Engineers Australia Student Engineer of the Year and University Medallist. 2007. In 2008 he joined Cochlear’s graduate engineer program. Prior to joining Cochlear, he worked in the Electrical Machines Group in the Industrial Physics Division at CSIRO on a hybrid-electric vehicle project.

Education: BE(Elec) BSc (Sydney)
"Stay Hungry, Stay Foolish."

Steve Jobs’ 2005 Stanford Commencement Address.

ALUMNI FOCUS

JONATHAN TEO BE (Telecoms) ’07
VICE-PRESIDENT
BENCHMARK CAPITAL

In 2010, the School joined the Facebook website. Five successful alumni talk about their current jobs and offer advice to prospective students. A profile of one of our Telecommunications Engineers (2003) is provided.

Jonathan Teo is helping entrepreneurs to build great information technology companies by investing in their success. Currently based in the Silicon Valley, California, Jonathan talks about his career to date and offers some advice.

What did you like about the course? What I enjoyed most about my time at Sydney University was the Advanced Engineering Program. It allowed us to defer certain subjects and work in a supervised design group on a research project. This provided a collaborative environment within which to brainstorm. What I realize now is that when you enter the workforce all the work you do is collaborative and to have that education early on in college has been invaluable to me.

What is your advice to students considering engineering? Be proactive about your education. One of my most valuable experiences was when I worked on a project with Professor Abbas Jamalipour who supervised my undergraduate thesis and continues to be a great mentor to me. Being able to participate in research projects provides you with the opportunity to work with not only the best resource in the School – the faculty – but also with the teams that they have assembled – their graduate students. This puts you in a position to differentiate yourself based on the project work you do as well as the experience you get from learning from your peers.

I will leave you with a quote from Steve Jobs which is “Stay Hungry, Stay Foolish.” Never settle for something that you do not enjoy or are not learning from because life’s too short.”

About Jonathan

Most recently he was Engineering Product Manager in the Search Properties and Enterprise Products groups at Google, and an early member of its Strategy and Business Operations team. In both roles he created highly leveraged research and product organizations around the world and planned the build out of Google’s datacenter operations. He was a founding member of a software development group focused on developing security protocols and analyzers. He currently holds patented work in ink layer security.

Education: BE (Telecoms) M.S. (Stanford)
The Fibre-optics and Photonics Laboratory (FPL) at the School of Electrical and Information Engineering partners with a new multi-disciplinary institute. FPL is a core partner of the Institute of Photonics and Optical Sciences (IPOS) links the faculties of Science and Engineering at the University of Sydney. The Institute was opened by Senator McEwen.

The FPL’s participation in IPOS centres on research into advanced optical techniques for information systems. This focuses on photonic signal processing, microwave photonics, optical communications, nonlinear optics, optical network security and encryption, optically-controlled phased arrays, and terahertz/gigahertz photonics.

**Next Generation Collaborative Optical Research Centre**

Development of next generation optical fibres to reach into homes and offices is just one field of critical world-leading research being undertaken at the new Institute of Photonics and Optical Sciences (IPOS).

IPOS is a world class centre that is home to more than 30 academic and research staff and 40 postgraduate students. It aspires to be the Asia-Pacific region’s leading provider of photonics research and education.

“For many years researchers from the University of Sydney have led the world in developing technology for optical fibre networks and the research being undertaken at IPOS continues this,” Senator McEwen said.

“Scientists at IPOS are exploring ways of reducing the internet’s energy consumption and increasing the capacity of networks a thousand Fold.”

The IPOS also houses the Australian Research Council’s $19 million Centre of Excellence for Ultrahigh Bandwidth Devices for Optical Systems.

“Cutting-edge research from IPOS will underpin essential technology for the delivery of future broadband infrastructure such as the Government’s new national broadband network.”

“Australia needs to concentrate on its areas of strength – the work being undertaken at IPOS is a good example of this principle in practice – consolidating shared resources and establishing effective collaborative links.”
THE CENTRE OF EXCELLENCE IN TELECOMMUNICATIONS

PROFESSOR BRANKA VUCETIC
DIRECTOR
PROFESSOR ABBAS JAMALIPOUR
ASSOCIATE DIRECTOR

The Centre of Excellence in Telecommunications conducts innovative research programs in wireless communications and networking. It consists of four academic staff, four research fellows, and more than twenty PhD students.

The centre has been very successful in attracting national/international competitive research grants and publishing high quality journal papers. It has also been very active in collaborations with world leading research institutions.

Highlights from research projects and funding is provided below.

RESEARCH PROJECTS 2010

Cognitive Radio Networks

This project is focused on developing new technologies to address the increasing demands for wireless services and shortage of radio spectrum. In our research we are developing novel radio spectrum allocation methods that will enable non-licensed transmitters/receivers to operate in the same spectrum as licensed transmitters/receivers. This will result in a major increase in the efficiency with which the available radio spectrum is used. The project is funded by an ARC Discovery grant.

Smart Grid Wireless Networks.

This project is focused on developing a new generation of wireless access and home area communication networks that will meet unique requirements of smart grids. The project is funded by an ARC Linkage grant and direct grants from EnergyAustralia.

RESEARCH FUNDING 2010

Energy Australia, 2010-2011, $220,000 for two research projects.

ARC Discovery Project 2010 -2012, $360,000 for "Network code division multiplexing in multi-system wireless networks."

US Air Force, Asian Office of Research and Development, 2010-2011 U$180,000 for “Robust Multi-Agent Sensor Network Systems,

World university network (WUN) central development fund 2010 £10,000, 2010.

The University of Sydney International Development Fund 2010. $10,000

The University of Sydney International Visiting Fellowships 2010.

ARC Discovery Project 2011-2013 $255,000 for “Design of Future Cognitive Radio Relay Networks

A recent Access Economics study predicted investment in smart grid technology would conservatively reduce electricity usage in Australia by 4 per cent over 10 years.

Computer, communication and control sciences are vital to the success of smart grid technology says the incoming Energy Australia Chair of Power Engineering.

Professor David Hill says smart grids are poised to become big business internationally. Australia's small size and coordinated pilot projects like the Smart Grid Smart City initiative, recently awarded to Energy Australia, in Newcastle-Sydney position it well to capitalise on the technology.

"One of my first priorities will be to draw on computer, communication and control scientists' expertise to develop data handling techniques and algorithms, enabling the necessary handling of huge amounts information to implement 'smart' capabilities.

"My emphasis will be about fine tuning smart grid intelligence so we can implement them widely, better integrate renewable energy sources, and fix network problems remotely so there's no need to 'send a truck out' when there's a blackout."

Professor Hill's research will inform the Smart Grid Smart City initiative which he says is a good platform for testing futuristic ideas.
World Health Organisation projects a US$508b loss of Chinese national income over the next 10 years due to cardiovascular disease, says Alistair McEwan, one of the speakers at the Shanghai World Expo.

Dr Alistair McEwan presented on bioelectronic sensing methods and developments in impedance imaging in areas of neurology, cardiology and nutrition. He outlines a current research project.

**BIOELECTRONICS AT THE SHANGHAI WORLD EXPO**

**DR ALISTAIR MCEWAN**
**COMPUTER AND AUDIO LABORATORY**

Electrical Impedance Tomography is a relatively new imaging method that traditionally uses a ring of external electrodes to image impedance changes in 2D within the body. The technology has recently been described as being on the verge of clinical application for pulmonary monitoring with medical device manufacturers offering 2D imaging systems for trial.

There is also clinical need to image the heart in intensive care but physicians find echocardiograms difficult due to the presence of bone and the ventilated state of the lungs. The resolution of EIT is limited by the number of measurements, electrode location and the 2D nature of acquisition. For providing the optimum information on cardiac function it is important to measure a sufficient number of frames within a single cardiac cycle.

In collaboration with clinicians at Westmead hospital this project will aim to increase the measurement speed, use of internal electrodes and other methods to improve image resolution.

The team of investigators comprises Drs André van Schaik and Craig Jin, as well as a number of research associates and PhD students.

Dr McEwan’s research investigates medical instrumentation, biomedical technology and integrated circuit design. He has worked on a new medical imaging device at University College London and Philips Research Laboratories in Germany. The resulting system is currently being used in clinical trials of stroke and epilepsy monitoring in London hospitals. In addition to the work on the human brain, Dr McEwan is also investigating the possibility of an impedance tomography project to detect breast cancer in collaboration with INPHAZE Pty Ltd.
In 2010, the School continued its success in national competitive grant funding in all major areas of electrical engineering including significant funding from the Australian Research Council (ARC) for projects and Fellowships.

The School was awarded $125,000 in University competitive grant funding from the Major Equipment Scheme, Early Career Research and the International Program Development Fund.

**COMPUTER ENGINEERING**

**ARC 2011–2013**

“Mapping Ear Morphology”

$330,000 to develop a practical method to derive a listener's individualised Head Related Transfer Functions from two dimensional images of the head and ears. These are essential for generating high-fidelity three dimensional audio. The project will perceptually evaluate and test the proposed system when applied to teleconferencing, surveillance, and navigational guidance. (Drs Craig Jin, A van Schaik and Mr Anthony Tew).

**ARC 2011–2013**

“Electrical Impedance Imaging”

$188,400 to develop non-invasive devices based on biosignal and impedance monitoring. They will be highly portable and based on comfortable electrode patches that can be applied quickly in emergencies. The technology may be used to save lives and reduce disabilities by monitoring strokes and heart attacks and stimulate Australia’s biomedical industry (Dr Alistair McEwan).

**ARC 2011–2013**

“Carbon Nanotube based Electrodes”

$117,000 to develop optimised electrical sensors with nanotechnology coatings for a device that farmers can use to pregnancy test their herd without the need for a vet. This will lead to greater improved management of beef and dairy cattle pregnancies and has been estimated to be worth over $100 million per year to the Australian beef industry (A/Prof Andrew T Harris and Dr Alistair L McEwan).

**Major Equipment Scheme**

$35,000 for the project “Assessing newborn health: Spectrometers to measure impedance through the electromagnetic spectrum”. (Dr Alistair McEwan).

**International Program Development**

$18,000 for the project “International Biomedical Engineering and Bioelectronics Workshop”. (Drs Alistair McEwan, André van Schaik and Craig Jin).

**Google Research Award**

$50,000 to refine its iWrite web application. (Dr Rafael Calvo).
PHOTONICS ENGINEERING

ARC 2011—2015
"Photonic Approaches" $550,000 to leverage Photonic breakthroughs in photonics to develop new programmable microwave processors, with benefits to Australia in radar/antenna systems for defence and broadband wireless networks. (Prof Robert A Minasian and Dr Xiaoke Yi).

Syndovate $61,000 for the project “A photonic controlled bean former for phased array antennas.”

POWER ENGINEERING

ARC 2011—2015
"Large Infrastructure Networks" $630,000 to enable the capability to study systematically basic questions on the operation of large infrastructure systems. Methodologies for control of larger systems and security issues will be developed. Application of the techniques to several applications areas will include power grids and traffic networks (Prof David J Hill).

Early Career Researcher $30,000 for the project “Participation of distributed energy resources in system support” (Dr Gregor Verbic).

Major Equipment Scheme $35,000 for the project “A Modular Wireless Communication System For a Micro-power grid. (Profs Branka Vucetic, David Hill and Dr Dylan Lu).

Australian Power Institute $50,000 for a teaching grant to Dr Gregor Verbic.

TELECOMUNICATIONS

ARC 2011—2013
"Cognitive Radio Relay Networks" $255,000 to make fundamental advances in the design of spectrum-efficient cognitive radio relay networks. This will be facilitated by novel designs using game theory, multiple-antenna and cooperative relaying technologies. These designs will be essential to the future development of spectrum-efficient wireless communications (Dr Raymond H Louie).

ARC 2011—2012
"Network Coding Schemes" $240,000 to contribute to theory and development of network coding techniques and their application in future wireless networks. (Prof Branka Vucetic, Drs Zihuai Lin, Pei Xiao, Wu Yin).

COLLABORATIVE

Australian Learning and Teaching Council $219,000 for the project “An Online Writing Centre for Undergraduate Engineering Students: a One Stop Shop” (Dr Rafael A Calvo- The University of Sydney and The University of New South Wales).

AUSTRALIAN PROFESSORIAL FELLOWSHIP

2010 Professor David J Hill

APFs provide opportunities for outstanding researchers with proven international reputations to undertake research that is both of major importance in its field and of significant benefit to Australia. Australian Professorial Fellowships (APF) are available to researchers with more than 8 years’ research experience since the award of the PhD or equivalent research doctorate.

AUSTRALIAN POSTDOCTORAL FELLOWSHIP

2010 Dr Raymond H Louie
2010 Dr Zihuai Lin

APDs provide opportunities for researchers at the postdoctoral level to undertake research of national and international significance, and to broaden their research experience. ARC Postdoctoral Fellowships are available to researchers with up to three years’ research experience since the award of the PhD or equivalent research doctorate.

QUEEN ELIZABETH II FELLOWSHIP

2010 Dr Xiaoke Yi

QEII)s provide opportunities for established researchers to undertake research of national and international significance. QEII)s encourage research in Australia by postdoctoral graduates of exceptional promise and proven capacity for original work. QEII)s are available to researchers with up to 8 years research experience since the award of the PhD or equivalent research doctorate.
An international collaboration program will lead to strong research interactions with international collaborators at the Stanford University Photonics Research Centre and at the Hong Kong Polytechnic University.

**NEW MULTI-FUNCTION WIDEBAND MICROWAVE AND RADIO FREQUENCY SIGNAL CONDITIONING BASED ON PHOTONIC APPROACHES**

Increasing signal speeds and multifunction RF system requirements are creating unprecedented challenges for optimally conditioning wideband signals. This new project addresses the demand for more bandwidth, more functionality and higher sensitivity. It proposes new microwave photonic approaches to realize microwave functions that are either very complex or, not even possible in the microwave domain.

The project leverages breakthroughs in photonics to develop new programmable microwave processors, with benefits to Australia in radar/antenna systems for defence and broadband radio-over-fibre networks.

Expected outcomes include new versatile signal processors that overcome the bottlenecks of conventional electronic processors, and have the advantages of immunity to electromagnetic interference and high bandwidth capability.

The team of chief investigators comprises Dr. Xiaoke Yi and Professor Robert Minasian, and links with international collaborators at the Stanford University Photonics Research Centre and at the Hong Kong Polytechnic University.
In October 2010 the Foundation continued its support of the Faculty’s Research Conversazione by coordinating the School of Electrical and Information Engineering Research Exhibition.

What does the investigation of “smart grids” technologies, and biomedical electronic devices and systems, and photonics supporting the National Broadband Network, have in common?

RC2010 showcased the high-level research taking place in the School of Electrical and Information Engineering from the School’s final year undergraduate and postgraduate students. Research in poster format was displayed for review by industry partners, academics and researchers. Students and research supervisors were on hand to exchange ideas, explore their research activities, and the possibilities for further research and practical applications with industry partners.

This year the School was delighted to partner with TransGrid who generously sponsored the School’s research exhibition. “It was an opportunity to build and strengthen relationships”, Professor Vucetic said.

Highlights of the event:

- 200 industry guests including alumni, and academic experts
- 59 research posters in 11 categories including Electrical, Biomedical, Electronic, Software, Power Telecommunications, Computer, Potential for Commercialisation, Next Generation Applications, and Solving an industry problem
- 18 industry prizes awarded
- Alumni of the Year awarded to Matt Barrie

Our thanks to TransGrid for their generous sponsorship of the exhibition.
ABB Australia Prize for Power Engineering
Quang Ngoc Nguyen
Photovoltaic Panel Simulator

Cochlear Prize for Biomedical Engineering
Tim Patten
Spatiotemporal Dynamics of Brain Oscillations

Dulhunty Power Prize Potential for Commercialisation (Other)
Liwei Li
Elimination of Dispersion-induced RF distortion in spectrum sliced microwave photonic filters

EnergyAustralia Prize for Power Engineering
Ian Laird
Thermoelectric power converter

Fujitsu Australia Prize for Computer Engineering
Prakash Ravindran
Gesture Features as Indices for Cognitive Load

IBM Australia Prize for Next Generation Applications (Computing)
Aengus Martin
Intelligent automation of soft musical instruments

Integral Energy Prize for Solving an Industry Problem
Fan Bai
Ecologically Inspired Data Harvesting Method for Wireless Sensor Networks

Leighton Holdings Prize for Collaboration with Industry
Naimui Alam
Air Conditioner Automatic Control Using ZigBee

Microsoft Prize for Software Engineering
Ian Lam
Machine Learning and Cloud Computing for use in FX Hedging

NHP Engineering Prize for Electronic Engineering
Vafaali Javanmardi
Microcontroller Based Self Tracking Solar Power Station with MPPT and Storage Facility

NICTA Prize for Next Generation Applications (Telecoms)
Owen Brasier
OSNR Monitoring in Reconfigurable Optical Networks

RailCorp NSW Prize for Potential for Commercialisation (Computing)
Hamed Monkaresi
A Facial Expression Recognition System for User’s Attention Detection

ResMed Prize for Biomedical Engineering
Omar Alzoubi
Detecting Learners Affect from Physiological Measures: Practical Modeling Issues

SingTel Optus Prize for Telecommunications Engineering
Philip Milligan
Developing a Linear SOA Towards Multiwavelength Optical Systems

SingTel Optus Prize for Next Generation Applications (Telecoms)
Md. Farhad Hossain
Towards Eco-Inspired Sustainable Green Cellular Networks

Telstra Corporation Prize for Potential for Commercialisation (Telecoms)
Ruo (David) Qi
Cloud Telecommunication

TransGrid Prize for Potential for Commercialisation (Power)
Yang Du
Using Battery-Integrated Boost Converter in DMPPT Configuration to Improve Power Output and Stability of a PV System

Tyree Holdings Prize for Electrical Engineering
Neda Aboutorab
New Iterative Channel Estimation for High Mobility OFDM Systems

Engineering Sydney Alumni of the Year Award
Matt Barrie BE BSc MAppFin MSEE (Stanford)
Chief Executive Freelancer Australia, Sydney
New Council Appointments

I am pleased to report the following new appointments to Council:

- Mr John Gaskell, Director of the Foundation
- Mr David Hammond
- Mr Peter Handel
- Mr Rod Vawdrey

John’s experience in industry provides the Foundation with a skilled and qualified leader who will continue the work for which the Foundation has achieved over the last 27 years. Under his leadership we look forward to seeing the Foundation develop its networking base to enhance the Foundation’s ability to continue its contribution to the School’s mission to be a leading international school in electrical engineering research and education.

Partnership with Industry

The Foundation fosters relationships to assist the School in meeting strategic goals such as the expansion of the scholarship programs, the establishment of new research chairs and capital works. Partnerships with individuals, alumni, business and the community assist the Foundation and the School to achieve their goals.

In 2010, the ABB Technology Centre was officially opened. This follows the official opening of the Sir William Tyree Laboratory in Power Engineering in 2009 and is an example of strategic partnerships.

Our Commitment

The Foundation is committed to strengthening the School’s partnerships with industry. There are a broad range of benefits for industry and students in developing a strategic relationship with the University including: providing opportunities for research collaboration and work with researchers on innovation for products and services as well as internships for students, among other initiatives.

New Directions and Strategies for the Foundation

The Vice-Chancellor, Dr Michael Spence, has introduced substantial changes in the area of the University’s many foundations and fundraising activities. These changes have been introduced to provide co-ordination and to ensure consistent marketing and branding. Foundations’ activities are to expanded to include approved sponsorship and corporate social partnerships.

The Foundation defined its strategic priorities for the next five years in consultation with the School. The main impetus for the Foundation’s initiative was to provide co-ordination of activities of the School and the Foundation in this significant area of engagement with industry.

The relationship between the Foundation and the School is integral to the purpose of the Foundation and the effectiveness of the School. Under the chairmanship of members of Council, the Foundation through its Committees will be able to assist the School achieve its mission.

I look forward to working with the School on the direction that we together have set.

School of Electrical and Information Engineering

I am pleased to note the appointment of Professor David Hill, the incoming EnergyAustralia Chair for Power Engineering. The Foundation congratulates him and wishes his well in his endeavours in this significant role.
Rules for Foundations
The Rules for Foundations will be recommended to Senate for amendment in March 2011. The major recommended amendments are:

- Foundations’ activities be expanded to include approved sponsorship and corporate social partnerships;
- Nominations sub-committees to be standing committees of each Foundation council;
- Councillors to be appointed for a three (3) year term, with a maximum of three (3) terms.
- Office Bearers to hold their position for a maximum of nine (9) years without the consent of the Senate;
- At least half of the members of the Council must not be current or former University employees, contractors or agents;
- Consolidation of meeting procedures.

Membership Development
The Foundation is continuing to build its membership base with 26 Governor members as at December 2010.

University of Sydney Foundations Webpage
The Office of General Counsel developed a webpage to further assist the University’s foundation councillors, University Officers (Foundations), Executive Officers and interested parties. The website is a compliance website and is designed to complement existing foundation related websites. It will contain general information about the governance of the foundations and up-to-date features that concern the foundations. Visit: http://sydney.edu.au/staff/leadership_strategy/ogc/foundations.shtml.

E-Newsletter
January 2010
May 2010
September 2010
December 2010

2010 Calendar of Events
9 February 2010
ABB Technology Centre Industry Launch
12 March 2010
Roundtable Series: Australia: Energy Superpower – Sustainable Energy Leader
23 March 2010
Annual Foundation Dinner
27 July 2010
Foundations Cocktail Reception
30 July 2010
Luncheon with the US Ambassador
9 August 2010
International Forum: Economic Development in the Global Financial Crisis – Perspectives on Europe & Asia Pacific
27 August 2010
Prize Giving Presentation
8 September 2010
International Forum: Economic Growth in Asia
29 September 2010
Lecture: Nuclear Power in the Context of Climate Change and Energy Security
29 October 2010
Research Conversazione
25 November 2010
Roundtable Series: Australia’s Infrastructure Challenge
25 November 2010
International Forum: Trade, Growth and Jobs: The Blueprint for the EU Trade Policy 2010-2015

Meetings
23 March 2010 AGM
26 May 2010 Ordinary
20 July 2010 Council
12 October 2010 Council
13 October 2010 Ordinary
30 November 2010 Council
Overview

I am pleased to report a 25% increase in the number of commencing students in the School of Electrical and Information Engineering (the School) relative to the one in 2010. There have been many other positive developments in the School in 2010, such as exceptional success in research grants, a new bio-electronics undergraduate program, joint undergraduate and postgraduate degrees with top overseas universities and appointments of new academic staff in power engineering.

Enrolment Statistics (as at 4 March 2011)

Overall undergraduate enrolments in first year increased from 75 in 2010 to 100 in 2011. Most importantly, there is a growing number of students with the Australian Tertiary Admission Rank (ATAR) of 98 and above and the average ATAR cut-off has improved by 1. The number of local first year students and Power Engineering first year students increased by 80% each. Postgraduate enrolments have not been finalised, and it is likely that they will not be lower than last year intake.

Staff

There have been two new academic appointments in the School in 2010, a lecturer and EnergyAustralia Chair, both in Power Engineering. Dr Andrë van Schaik, a QEII Fellow, resigned in the beginning of 2011.

Research Achievements

The School has been successful in attracting a significant number of research grants in 2011, with a total amount of over $2.3 million and was awarded an Australian Professorial Fellowship, a Queen Elizabeth II Fellowship and an Australian Postdoctoral Fellowship. A program of interdisciplinary research in smart grids has been developed with the support from EnergyAustralia (renamed Ausgrid effective 1 March 2011) and ARC. ARC Excellence in Research for Australia (ERA) assessments have been announced. The School’s main research area, electrical and electronics engineering, has been rated at 4, which is qualified as “above the world standard”.

Undergraduate and Postgraduate Teaching Programs

From 2011 the School is offering a Bachelor of Engineering (Bioelectronics) which has been designed to meet the needs of the resurgent Australian and overseas bioelectronics and biomedical instrumentation industries and future demands of an aging population by producing graduates with technical skills in this field.

The Faculty has signed agreements for joint undergraduate programs with Shanghai Jiaotong University. Under a joint undergraduate degree with Harbin Institute of Technology there will be 17 international students starting Year 3 in 2012 and 18 in 2013 at the School. A Joint Centre for Wireless Communications Research was established in 2010 between the University of Sydney and the Chinese Academy of Sciences Institute for Computer Technologies. Two PhD students have been jointly supervised by the Chinese and Australian academics.

Challenges

A continuing challenge for the School is the provision of adequate laboratories for our teaching and research programs. Current students and recent graduates are commenting on our poor infrastructure and laboratory facilities. Top quality training and research requires provision of appropriate equipment and laboratories. I am pleased to report generous donation of alumnus John Rector to the School of a California Instruments advanced programmable power supply that the students in the School rely on to test power electronics systems.

The School has invested recently some funds to refurbish its first and second year electrical engineering and electronics laboratory. The improved facilities will be beneficial in attracting new students and research funding. The laboratory has been designed to support a novel teaching framework based group projects.

EIIE Foundation

The School and Foundation worked closely in 2010 in defining its strategic priorities. I am delighted that the relationship between the School and Foundation has enabled access to additional resources for educational, research and community purposes that may otherwise not have been possible. A prominent joint initiative was the establishment of ten scholarships, resulting in a higher intake of quality students in 2011. I acknowledge the role of Trevor Ashton in starting and implementing this initiative.

I am looking forward to working with the Foundation on the directions that we together have set. The School priorities for 2011 are (1) attracting high quality undergraduate and postgraduate students; (2) building high quality teaching laboratories; (3) working with the Foundation on establishing a Chair in Software Engineering.
FOUNDATION MEMBERSHIP

Foundation Council 2010

Mr. George Maltabarow, President
Mr. Peter Tyree, Deputy President
Director of the Foundation:
Professor Vassilios G Agelidis (26.07.07 - 28.2.10)
Professor Branka Vucetic (1.3.10 - 31.7.10)
Mr. John Gaskell (1.8.10 - current)
Professor Archie Johnston, University Officer (Foundations)
Ms Shauna Jarrett, DVC and Provost nominee
Mr. David Hammond, Independent Councillor
Mr. Peter Handel, Independent Councillor
Mr. Rod Vawdrey, Independent Councillor

Governor Members

ABB Australia Pty Ltd
AECOM
AEMO
ALSTOM
AREVA T&D (until June 2010)
Conneq Infrastructure Services
EnergyAustralia
Evans & Peck
Freelancer Australia
Fujitsu
GHD
Hastie Group
Integral Energy
IBM Australia Limited
Leighton Contractors
NHP Electrical Engineering Products
Olex Australia
RailCorp NSW
Schneider Electric
Siemens Ltd
Sinclair Knight Merz
SingTel Optus
Sumitomo Australia
Sylvania Lighting Australasia
Telstra Corporation
Tyree Industries
United Group Infrastructure

A directory of Governor members is provided in the Appendix to this report.

Personal Members

Mr. Alex Baitch
Dr. Trevor Bird
Mr. John Debrincat
Mr. John Doherty
Dr. Ashok Manglick
Mr. David Stuart-Smith
Dr. David Tien

Honorary Life Members

Mr. Allan Gillespie
Professor Mike Dureau

Observer Members

Mr. Keiran Passmore
Mr. Steven Finlay
Prof. Branka Vucetic

Foundation Executive Officer

Dianne Ellis
COUNCIL MEMBERS

George Maltabarow
BE (Elec), BEc, FAICD, FIEAust
President
Independent Non-Executive Member of Council

George Maltabarow was appointed to the Foundation Council in July 2006. He is now President of the Foundation Council and also Managing Director of Ausgrid (formerly EnergyAustralia). He was previously Executive Director of NSW Treasury, where his focus was microeconomic reform, and Deputy Chairman of NSW Treasury Corporation. George is an energy specialist whose career has included utility and policy roles in all sectors of the electricity industry and government energy policy with the former NSW Energy Authority. He is a former Chairman and current Board member of the Energy Networks Association of Australia and a Director of the Energy Supply Association of Australia.

Peter Tyree
CPEng, Hon FIE (Aust.), FTSE
Deputy President
Independent Non-Executive Member of Council

Peter Tyree is a chartered professional engineer and non-executive company director. He is President of the Business/Higher Education Round Table (B-HERT). He holds or has held the following positions: Chairman of the Copper Development Centre (Australia), Member of the governing council of CIGRE, the global electricity industry’s technical forum. He is also a Governor of the Warren Centre for Advanced Engineering and Councillor of the Australian Industry Group. He was formerly Chairman/Chief Executive Officer of the Tyree Group of Companies, one of the largest non public companies in Australia. He has sat on a range of governing and advisory bodies including government, university and not for profit across a range of sectors including education and energy. He advises engineering and energy faculties at the universities of Sydney, NSW and Wollongong.
John Gaskell

B.Sc. (Hons)(Elec Eng), C.Eng, FIET
Director of the Foundation and Member of Council

John Gaskell was appointed to the Foundation Council in March 2010. He is Director of the Foundation. He is an independent non-executive director of The Hastie Group.

John was appointed to the Board of Hastie Group Limited in August 2008 and is a member of the company’s Remuneration Committee. He was previously Chief Executive Officer of ABB Australia Pty Ltd with responsibility for ABB’s operations in Australia and New Zealand. He has had a long career in Managing Director roles with ABB and its predecessor companies, with Rolls-Royce and with Kennedy and Donkin across Europe, the Middle East, North America and Asia.

Professor Archie Johnston

BE, PhD, AICD
Ex-Officio Member of Council

Archie Johnston has been an ex-officio member of the Foundation Council since September 2009. He represents the University of Sydney in his capacity as University Officer (Foundations). He is Dean of the Faculty of Engineering and Information Technologies, a Fellow of the Australian Academy of Technological Sciences & Engineering, Engineers Australia, and, the Institution of Civil Engineers. He is Chair of the Centre for Leadership and Management (Engineers Australia), Deputy Chair of the Education Forum of the Australian Academy of Technological Sciences and Engineering (ATSE). He is a Director of the Warren Centre for Advanced Engineering, the Smart Services CRC and the CRC for Advanced Composite Structures Ltd.
David Hammond
Independent Non-Executive Member of Council

David Hammond was appointed to the Foundation Council in March 2010. He is Chief Executive Officer of the Mechanical, Electrical and Plumbing Division of the Hastie Group. He was appointed to this position in July 2010 after holding the position of Chief Executive Officer of Hastie Group’s Electrical Division since September 2006. David Hammond entered the electrical contracting industry as an apprentice in 1979. In 2004 he was appointed Chief Executive Officer of Heyday Group and then Watters Electrical (Aust) who joined the Electrical Division upon their acquisition in December 2007. David is also Chairman of the major contractors group of the National Electrical and Communications Association (NECA-NSW) and Director of the not for profit ElectroGroup Skills and Group Training.

Peter Handel
BE
Independent Non-Executive Member of Council

Peter Handel was appointed to the Foundation Council in May 2010. He is Chair of the Community Engagement Committee. Peter Handel is Executive General Manager for the Industrial and Energy Division of Leighton Contractors. With more than 30 years in the construction industry, Peter oversees a diverse and growing national business spanning the industrial, process, energy, power, and transmission and distribution markets across Australia and New Zealand. Peter joined Leighton Contractors’ Construction Division in 2005, initially playing a pivotal role in the expansion of the NSW/ACT construction business into new markets including rail, transmission and distribution, and water and wastewater infrastructure. He is a member of senior leadership groups for several alliance projects, including the Energy2U Alliance with Ausgrid. Prior to Leighton Contractors, Peter worked in senior management roles with Costain Australia, Kilpatrick Green and Concrete Constructions (later Walter Construction Group).
COUNCIL MEMBERS

Rod Vawdrey
BE
Independent Non-Executive Member of Council

Rod Vawdrey was appointed to the Foundation Council in March 2010. He is Chair of the Strategy and Development Committee. He is Chief Executive Officer and Executive Director of Fujitsu Australia and New Zealand. Rod began his career in IT services as a graduate trainee in 1978 gaining a variety of experiences and quickly moving through sales to general management and ultimately business leadership. He is also a Director of the Australian Information Industry Association. Prior to Fujitsu, Mr. Vawdrey held the position of Vice President, Worldwide Sales and Marketing – Retail Division NCR managing several thousand staff across the Americas, EMEA, Japan and Asia Pacific.

Shauna Jarrett
BA (Hons) LLB
Ex-Officio Member of Council

Shauna Jarrett has been an ex-officio member of the Foundation since August 2008. She is the nominee of the Provost and Deputy Vice Chancellor of The University of Sydney. Shauna was appointed Assistant Group Secretary in the Office of General Counsel at the University of Sydney in August 2008. The University has established the Group Secretarial Office within the Office of General Counsel as one measure to assist the University improve its corporate governance and enhance the University’s ability to manage and support Regulated Entities such as institutes, foundations, centres, student organisations and corporate subsidiaries. She is also on the Board of the Public Interest Advisory Centre.
The Electrical and Information Engineering Foundation recognises the importance and benefit of reviewing its adoption and alignment with governance principles and provides the following report.

**PRINCIPLE 1**
**Lay solid foundations for management and oversight**

**Nature of the entity**

The Electrical and Information Engineering Foundation is a part of the University of Sydney ABN 15211513464 and not separately incorporated under a state or commonwealth Act. The Foundation is required to gain prior approval for its fundraising activities from the Director of Development up to $100K, the Provost and DVC from $100k to $1m and the Vice Chancellor over $1m. The Foundation’s activities are not-for-profit and covered by the DGR status of the University of Sydney. The University is exempted from the requirement to hold an Authority to Fundraise and obligations upon holders of such an authority but is still required to comply with the balance of provisions of the Charitable Fundraising Act.

**Roles of Council and management**

The Foundation operates under the authority of the Senate of the University of Sydney, as approved in 1983 and has no powers of delegation. The Foundation conducts its affairs pursuant to the Foundation Rules and the relevant policies of the University. The Foundation must have its annual fundraising plan approved. The Foundation is to be reviewed every three years from the date of its approval. No review was undertaken during 2010.

**PRINCIPLE 2**
**Structure of the council to add value**

The composition of the Council of the Foundation in 2010 is provided at page 22.

The meeting schedule is provided at page 28. Council members were elected and/or co-opted at the Foundation’s AGM on 23 March 2010. There is a separate nomination committee of Council but does not convene. The full Council resolves on nominations for co-opting of members to fill vacancies outside of the process of election at the AGM. There was not a performance evaluation of the Council undertaken in the reporting period.

**PRINCIPLE 3**
**Promote ethical and responsible decision-making**

Council members have been provided with the University of Sydney Foundation Governance Guide, Foundation Rules, Code of Conduct and Conflicts of Interest Policy and the Occupational Health & Safety Policy. The Code of Conduct and Conflict of Interest Policy and Occupational Health & Safety Policy are also available on the University’s public website as are other relevant University policies regarding harassment, grievance procedures and related policies.

**PRINCIPLE 4**
**Safeguard integrity in financial reporting**

The annual accounts of the Foundation are prepared by the financial staff of the University, signed off by the University Officer (Foundations) and included in this Annual Report to the Senate. The Foundation is part of the University and therefore does not have its own audit sub-committee. The University is audited by the Audit Office of NSW.

In conducting fundraising appeals the Foundation must take all reasonable steps to ensure that commissions paid or payable to any person as part of a fundraising appeal did not exceed one-third of the gross money obtained by that person in the appeal¹ and appropriate particulars of all items of gross income received or receivable, all items of expenditure incurred, including the application or disposition of any income obtained from the appeal and particulars of those transactions to which they related must be recorded in the minutes of the Foundation.² The Foundation did not undertake any fundraising appeals during 2010.

**PRINCIPLE 5**
**Make timely and balanced disclosure**

The Foundation complied with the reporting and disclosure requirements of the Senate. These include an annual budget and this Annual Report.

Members and Council have been made aware of the processes for disclosure pursuant to the Code of Conduct, Conflicts of Interest policy, which include protected disclosure to the ICAC, to the Ombudsman or the Auditor General.

¹ Reg 9(6) Charitable Fundraising Regulation 2008
² See s22(2)(b) Charitable Fundraising Act 1991 (NSW)
FOUNDATION GOVERNANCE STATEMENT

PRINCIPLE 6
Respect the rights of members, staff, volunteers, clients, & other stakeholders

The Foundation Council and/or membership consist of members of the community, industry bodies and the University whose input is invited via the Annual General Meeting and Council meetings of the Foundation. The following forums/mechanisms have been held during the year to involve stakeholders in election of the Council, activities of the foundation or other stakeholder participation: Annual General Meeting held on 23 March 2010 and Ordinary Meetings held on 26 May and 13 October 2010.

Under the Charitable Fundraising Act, the University may be questioned about any appeal on details of the purpose of the appeal such as the appeal target, objectives, distribution of proceeds, etc and the process to provide answers. During the year the Foundation published information on its website other means and outlines those activities in this annual report. There have been no specific requests for information responded to by the Foundation office. Other enquirys may have been made to other parts of the University.

PRINCIPLE 7
Recognise and manage risk

The Foundation recognises its activities within University premises or other premises require risks such as health and safety, environmental protection, privacy, trade practices, and compliance with the Charitable Fundraising Act to be considered and managed. The Foundation has managed these risks during the year by ensuring compliance with relevant legislation.

PRINCIPLE 8
Remunerate fairly and responsibly

No member of a Council is entitled to receive any remuneration for acting in that capacity except reasonable remuneration on a basis which has first been approved in writing by the University Officer (Foundations).

Members of the Foundation Council may be reimbursed for reasonable expenses after written approval of the University Officer (Foundations). Any such instances are recorded in the minutes of the Council.
COUNCIL MEMBERS’ REPORT

Council Members present their Report together with the Financial Statements of the Foundation for the year ended 31 December 2010 and the Governance Statement.

Council Members
The Council Members of the Foundation at any time during or since the end of the year are:

George Maltabarow
(elected 26 July 2007)

Peter Tyree
(re-elected 26 July 2007)

John Gaskell
(elected 23 March 2010)

David Hammond
(elected 23 March 2010)

Peter Handel
(elected 26 May 2010)

Rod Vawdrey
(elected 23 March 2010)

Archie Johnston
(ex-officio - University Officer (Foundations) appointed 1 September 2009)

Shauna Jarrett
(ex-officio - nominee for Deputy Vice-Chancellor and Provost) appointed 1 August 2009

Details of Council members, their qualifications, experience and any special responsibilities, including Foundation Committee Memberships, are set out on pages 23–25.

Principal Activities
The principal activities of the Foundation during the course of the year were the operation of a profession-based association and the provision of membership services.

<table>
<thead>
<tr>
<th>Council Member</th>
<th>Council</th>
<th>Nominations</th>
<th>Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Attended</td>
<td>Held</td>
<td>Attended</td>
</tr>
<tr>
<td>George Maltabarow</td>
<td>3</td>
<td>3</td>
<td>–</td>
</tr>
<tr>
<td>Peter Tyree</td>
<td>3</td>
<td>3</td>
<td>–</td>
</tr>
<tr>
<td>John Gaskell</td>
<td>2</td>
<td>3</td>
<td>–</td>
</tr>
<tr>
<td>David Hammond</td>
<td>2</td>
<td>3</td>
<td>–</td>
</tr>
<tr>
<td>Peter Handel</td>
<td>2</td>
<td>3</td>
<td>–</td>
</tr>
<tr>
<td>Rod Vawdrey</td>
<td>3</td>
<td>3</td>
<td>–</td>
</tr>
<tr>
<td>Archie Johnston</td>
<td>3&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3</td>
<td>–</td>
</tr>
<tr>
<td>Shauna Jarrett</td>
<td>2&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3</td>
<td>–</td>
</tr>
</tbody>
</table>

<sup>1</sup> The Nominations and Membership Committees were not required to convene separately during 2009 as all relevant business was during Council meetings

<sup>2</sup>Attended Meetings in an ex-officio capacity

<sup>3</sup> Attended Meetings in an ex-officio capacity

Council Meetings
The number of Council Meetings (including Meetings of Committees of Council) held during the year are detailed below.

Review of Foundations
The activities of the Foundation will be monitored against the proposed objectives and targets (including financial targets) of the Foundation, by the Foundations Office as part of the annual reporting process to Senate via the Audit and Risk Management Committee of Senate. (Policy 7.1)
## THE UNIVERSITY OF SYDNEY
### ELECTRICAL AND INFORMATION ENGINEERING FOUNDATION

**INCOME STATEMENT**  
FOR THE YEAR ENDED 31ST DECEMBER CALENDAR YEAR 2010

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INCOME</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scholarships, Donations and Bequests</td>
<td>13,000</td>
<td>-</td>
</tr>
<tr>
<td>Business and Investment Income</td>
<td>9,566</td>
<td>6,823</td>
</tr>
<tr>
<td>Membership and Subscriptions</td>
<td>159,341</td>
<td>121,382</td>
</tr>
<tr>
<td>Special Events Income</td>
<td>17,182</td>
<td>22,760</td>
</tr>
<tr>
<td>External Contributions</td>
<td>-</td>
<td>750</td>
</tr>
<tr>
<td>Internal and Other Income</td>
<td>-</td>
<td>955</td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td>199,089</td>
<td>152,670</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EXPENDITURE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaries</td>
<td>111,845</td>
<td>29,753</td>
</tr>
<tr>
<td>Consumables</td>
<td>1,387</td>
<td>546</td>
</tr>
<tr>
<td>Equipment and Repairs / Maintenance</td>
<td>-</td>
<td>933</td>
</tr>
<tr>
<td>Services and Utilities</td>
<td>13,324</td>
<td>16,651</td>
</tr>
<tr>
<td>Travel, Conferences, Entertainment</td>
<td>5,340</td>
<td>263</td>
</tr>
<tr>
<td>Student &amp; Printing</td>
<td>13,163</td>
<td>5,122</td>
</tr>
<tr>
<td>Other expenses</td>
<td>20,685</td>
<td>10,609</td>
</tr>
<tr>
<td><strong>Total Expenditure</strong></td>
<td>165,744</td>
<td>63,877</td>
</tr>
</tbody>
</table>

**SURPLUS / (DEFICIT)**  
33,345 \[33,345\]  88,793 \[88,793\]

Accumulated Funds as at 1st January  
149,693 \[149,693\]  60,900 \[60,900\]

**ACCUMULATED FUNDS AS AT 31ST DECEMBER**  
183,038 \[183,038\]  149,693 \[149,693\]
## FINANCIAL STATEMENTS

### THE UNIVERSITY OF SYDNEY

#### ELECTRICAL AND INFORMATION ENGINEERING FOUNDATION

**BALANCE SHEET**

**AS AT 31 DECEMBER CALENDAR YEAR 2010**

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASSETS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CURRENT ASSETS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funds Participating in University Pool interest</td>
<td>183,038</td>
<td>149,693</td>
</tr>
<tr>
<td><strong>Total Current Assets</strong></td>
<td>183,038</td>
<td>149,693</td>
</tr>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td>183,038</td>
<td>149,693</td>
</tr>
<tr>
<td><strong>NET ASSETS</strong></td>
<td>183,038</td>
<td>149,693</td>
</tr>
<tr>
<td><strong>EQUITY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accumulated Funds</td>
<td>183,038</td>
<td>149,693</td>
</tr>
<tr>
<td><strong>TOTAL EQUITY</strong></td>
<td>183,038</td>
<td>149,693</td>
</tr>
</tbody>
</table>

### Notes to Financial Statements

1. The financial statements have been prepared on a modified accrual accounting basis.
2. All fixed assets expenses are expended in the year of purchase.
3. Employee entitlements for Long Service Leave are held centrally in the University’s accounts.
4. The University (including the Foundations) is exempt from income tax.

*I certify that the Income Statement and Balance Sheet of the Foundation have been prepared in accordance with the University’s accounting practices and procedures. These Foundation accounts form part of The University of Sydney’s financial reports which have been audited by the Auditor-General, New South Wales.*

Greg Robinson  
Finance Director  
Faculties of Sciences, Engineering and Technology
CERTIFICATE OF OPERATIONS

CERTIFICATION

I hereby certify that the activities reflected in the Financial Statement for the year ended December 31, 2010 of the Electrical and Information Engineering Foundation fully complies with the Foundation Rules.

Any areas of non compliance or departure from such governing rules have been advised in writing to the DVC (External Relations) responsible for overall governance of the Foundation's operations.

Signature
University Officer (Foundations)  Professor Archie Johnston

Date:
PETER NICOL RUSSELL BEQUEST

In 1896 the late Sir Peter Nicol Russell, of London (formerly of Sydney), presented to the University a sum of £50,000 for the endowment of the Department of Engineering. In 1904 he gave a second sum of £50,000, making £100,000 in all.

The second gift was made as an extension of the first endowment, with an additional obligation for the establishment of efficient teaching in Electrical Engineering and for the foundation of additional scholarships.

In making the second endowment, Sir Peter Russell stipulated that the Government of New South Wales should undertake to hand to the University, within three years, a sum of £25,000 to provide an extension of the buildings of the School of Engineering or to erect new buildings. This the Government agreed to do, and a new building has been erected from the designs prepared by the Government Architect.

Royal Coat of Arms

At the ground floor entrance of the Peter Nicol Russell Building may be seen one of the hardwood lintels from the Darling Harbour foundry. An elaborate Royal Coat of Arms, which was cast in the foundry for an exhibition in London in 1851, is on display in the foyer. In the courtyard stands one of the many cast iron building columns made in the P.N. Russell & Co.’s foundry.

These Royal Arms were cast at Messrs P N Russell’s works in obtained at the Fitzroy Iron Mines and exhibited at the International Exhibition held in Hyde Park, London in the year 1851.
Electrical and Information Engineering Foundation
T +61 2 9351 7171
F +61 2 9351 3847
E dianne.ellis@sydney.edu.au
W: http://sydney.edu.au

Faculty of Engineering and Information Technologies
LINK BUILDING
T +61 2 9351 2534
W: http://sydney.edu.au
<table>
<thead>
<tr>
<th>Content</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABB Australia</td>
<td>1</td>
</tr>
<tr>
<td>AECOM</td>
<td>2</td>
</tr>
<tr>
<td>AEMO</td>
<td>3</td>
</tr>
<tr>
<td>ALSTOM</td>
<td>4</td>
</tr>
<tr>
<td>Ampcontrol</td>
<td>5</td>
</tr>
<tr>
<td>Ausgrid</td>
<td>6</td>
</tr>
<tr>
<td>Conneq Infrastructure Services</td>
<td>7</td>
</tr>
<tr>
<td>Endeavour Energy</td>
<td>8</td>
</tr>
<tr>
<td>Evans &amp; Peck</td>
<td>9</td>
</tr>
<tr>
<td>Freelancer Australia</td>
<td>10</td>
</tr>
<tr>
<td>Fujitsu</td>
<td>11</td>
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<tr>
<td>GHD</td>
<td>12</td>
</tr>
<tr>
<td>Hastie Group</td>
<td>13</td>
</tr>
<tr>
<td>IBM Australia</td>
<td>14</td>
</tr>
<tr>
<td>Leighton Contractors</td>
<td>15</td>
</tr>
<tr>
<td>NHP Electrical Engineering Products</td>
<td>16</td>
</tr>
<tr>
<td>Olex</td>
<td>17</td>
</tr>
<tr>
<td>Parsons Brinckerhoff</td>
<td>18</td>
</tr>
<tr>
<td>RailCorp NSW</td>
<td>19</td>
</tr>
<tr>
<td>Schneider Electric</td>
<td>20</td>
</tr>
<tr>
<td>Siemens Ltd</td>
<td>21</td>
</tr>
<tr>
<td>Sinclair Knight Merz</td>
<td>22</td>
</tr>
<tr>
<td>SingTel Optus (corporate profile not available)</td>
<td>-</td>
</tr>
<tr>
<td>Sumitomo Australia</td>
<td>23</td>
</tr>
<tr>
<td>Telstra Corporation</td>
<td>24</td>
</tr>
<tr>
<td>Thiess Pty Ltd</td>
<td>25</td>
</tr>
<tr>
<td>Tyree Industries</td>
<td>26</td>
</tr>
<tr>
<td>United Group Infrastructure</td>
<td>27</td>
</tr>
</tbody>
</table>
ABB is one of the world's leading engineering companies, helping customers to use electrical power effectively and to increase industrial productivity in a sustainable way.

Formed in 1988 by the merger of two long-established engineering groups, ASEA and Brown Boveri, ABB has about 124,000 employees and operations in more than 100 countries in every region of the world. Headquartered in Zurich, Switzerland, ABB is a publicly listed company with shares being traded on the stock exchanges of Zurich, Stockholm and New York.

ABB operations in Australia include manufacturing facilities in Brisbane, Perth, Sydney and Melbourne and Service Centres around the country servicing all systems and products. With around 1300 employees located at 20 sites nationally, customers are served through an extensive country-wide presence.

**Changing the world, not just experiencing it**

Improving performance and reliability is second nature at ABB. As the pioneer of the world’s first industrial robot, ABB has a long history of introducing innovative automated techniques. Innovation like this is part of everyday life working at ABB.

A career at ABB offers the compelling opportunity to touch lives and improve communities, by shaping projects that leave a lasting impression. There is a constant focus on individual’s development, together with the freedom and support to make a mark in a truly multi-cultural, global business that combines leading technologies with the latest thinking.

Discover the difference your initiative, drive and passion for technology could make, and why a better world begins with you.

<table>
<thead>
<tr>
<th>Company Overview</th>
<th>Key Executives</th>
</tr>
</thead>
</table>
| ABB is one of the world's leading engineering companies, helping customers to use electrical power effectively and to increase industrial productivity in a sustainable way. | Mr. Axel Kuhr  
Country Manager |
| Formed in 1988 by the merger of two long-established engineering groups, ASEA and Brown Boveri, ABB has about 124,000 employees and operations in more than 100 countries in every region of the world. Headquartered in Zurich, Switzerland, ABB is a publicly listed company with shares being traded on the stock exchanges of Zurich, Stockholm and New York. | Corporate Office:  
Level 19  
68 Pitt Street  
Sydney NSW 2000  
Australia  
T: +61 2 9255 3999  
F: +61 2 9255 3991 |
| ABB operations in Australia include manufacturing facilities in Brisbane, Perth, Sydney and Melbourne and Service Centres around the country servicing all systems and products. With around 1300 employees located at 20 sites nationally, customers are served through an extensive country-wide presence. | Website:  
www.abbaustralia.com.au |
| **Changing the world, not just experiencing it** | Careers:  

**Mr. Axel Kuhr**  
Country Manager  

**Corporate Office:**  
Level 19  
68 Pitt Street  
Sydney NSW 2000  
Australia  
T: +61 2 9255 3999  
F: +61 2 9255 3991  

**Website:**  
www.abbaustralia.com.au  

**Careers:**  
At AECOM in Australia and New Zealand we thrive on finding smarter and more efficient solutions to some of the world's most challenging infrastructure projects. Our advisors, engineers, designers and planners work together as part of an integrated team that is committed to client success.

From our offices in over 100 countries, AECOM teams share and source knowledge, insights and experience globally to apply lessons learned locally. Together, our worldwide network of dedicated, award-winning professionals, provide services in the following practice areas:

- Architecture
- Building Engineering
- Design + Planning
- Economics
- Energy
- Environment
- Government
- Infrastructure Services
- Mining
- Program Management
- Transportation
- Water

In Australia and New Zealand, AECOM has more than 3,800 professionals working in over 20 offices. Our work includes some of our region's most iconic projects such as the multi-award-winning Inner Northern Busway Alliance (Queensland, Australia), the Rosedale Water Treatment Plant Outfall Project (Auckland, New Zealand), and Telfer Deeps Gold Mine (Western Australia, Australia). AECOM Technology Corporation (NYSE: ACM; pronounced A-E-COM) is one of the world's largest engineering and architectural design firms, ranked number two by Engineering News-Record and number one by Architectural Record. It provides professional, technical and management support services, specifically in the areas of transportation, facilities, environmental and energy. It has more than 43,000 employees in more than 100 countries. AECOM is a Fortune 500 company.
### AEMO Ltd

<table>
<thead>
<tr>
<th>Company Overview</th>
<th>Key Executives</th>
</tr>
</thead>
</table>
| The Australian Energy Market Operator (AEMO) operates the National Electricity  | Mr. Matt Zema  
| Market (NEM) as well as the retail and wholesale gas markets of south eastern  | Managing Director and  
| Australia.                                                                      | Chief Executive Officer                                                        |
| AEMO is an independent, member based organisation working in the long-term      | Corporate Contact:  
| interests of Australian consumers by ensuring that energy markets operate to    | Mr. Mark Miller  
| balance issues of price, quality, safety, reliability and security of energy    | Executive General Manager System  
| supply.                                                                        | Operations                                                                    |
| AEMO’s responsibilities include: day to day management of wholesale and retail   | Corporate Office:  
| energy market operations and emergency management protocols; on-going market    | Level 2  
| development required to incorporate new rules, infrastructure and participants;  | 530 Collins Street  
| and long term market planning through demand forecasting data and scenario      | Melbourne VIC 3000                                                          |
| analysis.                                                                      | GPO Box 2008  
| AEMO operates on a cost recovery basis as a corporate entity limited by         | Melbourne VIC 3001  
| guarantee under the Corporations Law.                                           | Australia                                                                    |
| Membership is split 60/40 between government and industry, which will be        | T: 1300 858 724  
| reviewed in 2012. Government members of AEMO include the state governments of   | I: +61 2 9609 8000                                                          |
| Queensland, New South Wales, Victoria, South Australia and Tasmania, the        | Website:  
| Australian Capital Territory and the Commonwealth. Private members include      | www.aemo.com.au                                                             |
| Australia’s major energy generators, wholesalers and retailers.                 | Careers:  
| AEMO was established by the Council of Australian Governments (COAG) as part   | http://www.aemo.com.au/careers/careers.html                                   |
| of policy developed by the Ministerial Council for Energy (MCE). It operates in |                                                                      |
| line with National Electricity Rules and National Gas Rules under laws         |                                                                      |
| developed by the Australian Energy Market Commission (AEMC) and enforced by the |                                                                      |
| Australian Energy Regulator (AER). Established in 2009, AEMO has amalgamated    |                                                                      |
| the roles of six separate organisations that formerly operated Australian     |                                                                      |
| electricity and gas markets (NEMMCO, VENCORP, ESIPC, REMCO, GMC and GMRO).      |                                                                      |
ALSTOM Australia & New Zealand

Company Overview

Alstom is a global leader in the world of power generation, power transmission and rail transport, setting the benchmark for innovative and environmentally conscious technologies. Alstom employs over 96,500 people across the world and over 1,000 people in Australia and New Zealand. The group is represented in Australia through its three activities in the fields of power generation, power transmission and rail transport.

**Alstom Power** designs, manufactures and supplies a comprehensive range of state-of-the-art products and systems for the power generation and industrial markets. This includes gas, coal, nuclear, wind, geothermal, solar and hydro power. Our objective is to build the most efficient and cleanest integrated power solutions for our customers. We supply and integrate all components of a clean power solution – including turbines, boilers, air quality control and energy recovery systems.

In the field of rail transport, **Alstom Transport** is the global number one in terms of orders. Alstom supplies rolling stock, transport infrastructure and signalling, maintenance equipment, and global rail systems. From the very first TGV delivered in 1978, Alstom has developed a world leading position in very high speed trains. The technological advance of Alstom allowed the company to achieve the world rail speed record at a speed of 574.8 kph on 3 April 2007. The company is number two worldwide in urban transport: one in four metro systems and one of three tramways in the world have rolled off Alstom’s production lines.

Throughout Australia, Alstom has established key references over a broad range of product lines and customers. Major rolling stock contracts and associated maintenance services for regional and suburban trains continue to run in both New South Wales and Victoria. In 2011 Alstom was awarded the contract by Railcorp in NSW for a new generation of rail signalling and infrastructure.

**Alstom Grid** is an active player around the globe. It designs, manufactures and supplies a complete range of equipment, systems and services for all stages in the transfer of electricity, from the generator to the end-user. Via its forebears, Alstom Grid has had a continuous presence in Australia for almost a century, including manufacture of transformer and switchgear in Brisbane for the past 60 years.

Alstom’s Network Energy Management system is responsible for managing 92% of Australia’s energy transmission network. Through the local organisation and world-class products Alstom can deliver solutions to utility and industrial customers which respond to the need for smarter, more stable, more efficient and environmentally friendly electrical grids.

---

Key Executives

**Mr. Chris W Raine**
President and Managing Director

**Corporate Office:**
16 Giffnock Avenue
North Ryde NSW 2113
Australia

T: +61 2 8870 6000
F: +61 2 8860 6005

**Website:**
www.au.alstom.com.au

**Careers:**
http://www.au.alstom.com/home/careers/

---
Ampcontrol Pty Ltd

**Company Overview**

The Ampcontrol Group is a leading international supplier of electrical and electronic products to the power, energy and mining sectors. With strategically positioned operations around the world, our products and services are internationally recognised. We operate sites across Australia and internationally in China, Hong Kong, New Zealand, Russia, South Africa and the United Kingdom allowing us to meet the needs of our global customers.

We pride ourselves on providing superior products and services to all our market sectors including Surface & Underground Mining, Power Distribution, Energy, Oil & Gas/Petroleum, Defence, HVAC & Environmental Monitoring, Tunnelling, Industrial, Infrastructure, and Automotive/Camping.

Underpinning our success is our ability to identify client needs and provide a competitive advantage through our vertically integrated operations. Through the operation of our three divisional identities, Power, Electronics and Service, we are able to target complete solutions and ultimately serve our customer needs. We offer complete in-house designed and manufactured packages of electrical and electronic products engineered to international standards, incorporating individual components to provide total electrical solutions.

**Graduate Program**

The company offers a comprehensive graduate program for Electrical, Mechatronic, Computer and Communication Engineering students. By participating in a series of rotations across the business, the graduates are exposed to the gamete of engineering services to be found within Ampcontrol.

---

**Key Executives**

**Mr. Geoff Lilliss**  
Chief Executive Officer and Managing Director

**Corporate Contact:**

**Corporate Office:**  
21 Old Punt Road  
Tomago NSW 2322  
Australia  
T: +61 2 4961 9000  
F: +61 2 4961 9009

**Website:**  
[www.ampcontrolgroup.com](http://www.ampcontrolgroup.com)
Ausgrid

Company Overview

Ausgrid is the new name for the EnergyAustralia electricity network – a smarter and more efficient electricity network reflecting a major rebuilding and smart grid programs.

Ausgrid manages the EnergyAustralia network of more than 200 major substations, 500,000 power poles and 50,000 kilometres of below and above ground electricity cables.

Its specialist crews of electricians, cable jointers and line workers will continue in their 24 hour service of electricity network.

We operate an electricity network of around 22,275 square kilometres – distributing electricity to the Sydney, Central Coast and Hunter regions. We are proud to provide a safe and reliable supply of electricity to over 1.5 million homes and businesses.

Ausgrid is delivering one of Australia’s largest infrastructure programs. It’s an $8 billion renewal of the electricity network that will make it smarter, more reliable and more efficient.

Ausgrid is also rolling out the nation’s first commercial scale smart grid project on behalf of the Australian Government.

Key Executives

Mr. George Maltabarow
Managing Director

Corporate Contact:

Mr. Trevor Armstrong
Executive General Manager Engineering
Transmission & Technology

Mr Tom Emeleus
Executive Manager–Learning & Development

Corporate Office:
570 George Street
Sydney NSW 2000
Australia

Postal Address:
GPO Box 4009
Sydney NSW 2001

T: 13 15 25

Website:
www.ausgrid.com.au

Careers:
Conneq Infrastructure Services

### Company Overview

Conneq is a specialist engineering, construction and asset management contractor, creating, operating and maintaining vital public and industrial infrastructure in Australia, New Zealand and the region. Comprising business units with operating histories of 60 years or more and employing in excess of 3,500 people, the company is a leading provider to the energy, utilities, resources, industrial, transport and social infrastructure sectors.

Top tier mining companies, major corporations and government agencies rely on the support of Conneq.

**Our Vision**
- To be the best at delivering value to our clients and stakeholders, by investing the time to understand their needs.
- To have the best people, the courage to make smart and timely decisions, be innovative and choose opportunities wisely.

**Our Values**
- People first, safety always
- Open and honest
- Innovative
- Professional
- Passionate
- Easy to deal with

### Key Executives

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. David Marchant</td>
<td>Managing Director</td>
</tr>
<tr>
<td>Mr. Greg Pauline</td>
<td>Executive Director - Development</td>
</tr>
<tr>
<td>Mr. David Tucker</td>
<td>Executive Director - Services</td>
</tr>
</tbody>
</table>

### Corporate Contacts:

**Corporate Office:**
Level 1 Building 0  
Binary Centre  
3 Richardson Place (PO Box 147)  
North Ryde NSW 2113  
T +61 2 8667 6000  
F +61 2 8667 6199  
E: enquiries@conneq.com.au

**Website:**
www.conneq.com.au

**Careers:**
# Endeavour Energy

## Company Overview

Endeavour Energy is the second largest state-owned energy corporation in NSW, incorporated under the Energy Services Corporations Act 1995.

Endeavour Energy also has over 50 years of experience in managing one of Australia's largest energy networks. Every day we distribute electricity to over 2.1 million people in households and businesses across 24,500 square kilometres of Greater Western Sydney, the Illawarra, and the Southern Highlands of NSW.

## What we believe in

We believe it is the quality and passion of our people that allows us to look confidently to the future as we strive to achieve our mission: to provide safe, reliable and sustainable customer services.

## Working with integrity

Our customers expect the highest standards from us. Our Code of Ethics is a framework for the kind of personal behaviour that is fundamental to our business success.

## Key Executives

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Vince Graham</td>
<td>Chief Executive</td>
</tr>
<tr>
<td>Mr Rod Howard</td>
<td>Group General Manager Network</td>
</tr>
<tr>
<td>Mr. Jim Battersby</td>
<td>Chief Engineer</td>
</tr>
</tbody>
</table>

## Corporate Contact:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>E: <a href="mailto:jim.battersby@endeavourenergy.com.au">jim.battersby@endeavourenergy.com.au</a></td>
<td></td>
</tr>
</tbody>
</table>

## Corporate Office:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>T: 13 10 81 F: +61 2 9853 6022 E: <a href="mailto:iendeavourenergy@endeavourenergy.com.au">iendeavourenergy@endeavourenergy.com.au</a></td>
<td></td>
</tr>
</tbody>
</table>

## Website:

www.endeavourenergy.com.au

## Careers:

Evans & Peck, a Worley Group company, is an international management consultancy that specialises in improving business performance and project outcomes for the creators, developers, deliverers, owners and operators of infrastructure. In the short-term, we not only save our clients time, money, and stress, but in the long-term we improve the efficiency, effectiveness and success of their projects and their core business.

From modest beginnings in 1985, which saw Evans & Peck open its first office in Sydney with two engineers, we have grown into a diverse company operating in every Australian State, New Zealand, Asia and the Middle East. Our employee base has also evolved to meet the growing needs of our clients. With over 350 employees, we still retain a strong foundation in engineering, but also employ economists, lawyers, accountants, organisational psychologists, graphic designers, environmental scientists, business and management practitioners, and safety professionals. For our clients, this means that Evans & Peck can offer a full range of services to support the needs of any project.

Mr Rob Aldis
Managing Director

Corporate Contact:
Mr. Bill Glyde
Principal
E: bglyde@evanspeck.com

Corporate Office:
Sydney
Level 6, Tower 2
475 Victoria Avenue
Chatswood NSW 2067
T: +61 2 9495 0500
F: +61 2 9495 0520

Brisbane
555 Coronation Drive
Toowong QLD 4066
T: +61 7 3377 7000
F: +61 7 3377 7070

Website:
www.evanspeck.com

Careers
www.evanspeck.com/Pages/careers.html
Freelancer.com

Company Overview

Freelancer.com is the world’s largest outsourcing marketplace, connecting millions of professionals from all over the world. Founded in 2004, Freelancer.com is the largest website run by an Australian company and in the top 400 websites globally. Through Freelancer.com, small businesses can hire on demand talent with skill sets as diverse as programming, web and graphic design, SEO, SEM, the sciences, engineering, writing, data entry, accounting and legal services to name just a few. The Freelancer Group consists of Freelancer.com and a wide array of region specific websites, as well as the Freemarket.com virtual marketplace.

Careers with Freelancer.com

We are always looking for talented graduates in software engineering and computer science. We like to hire the best of the best, and we provide a challenging and fun work environment. Here’s your chance to work for a rapidly growing technology company, that is already a world leader in its space!

If you’re interested in applying, please contact us at Freelancer.com using the email address ‘careers’.

Key Executives

Mr. Matt Barrie
Chief Executive
E:matt@freelancer.com

Corporate Contacts:

Ms Greta Stojanovic
Director of Strategy

Mr Neil Katz
Chief Financial Officer

Corporate Office:
Suite 501, 35 Lime Street
Kings Street Wharf
Sydney NSW 2000
Australia
T: +61 2 9279 3305

Website:
www.freelancer.com

Careers:
## Company Overview

**Fujitsu Australia Limited** is a full service provider of information technology and communications solutions. We partner with our customers to consult, design, build, operate and support business solutions. From strategic consulting to application and infrastructure solutions and services, Fujitsu has earned a reputation as the single supplier of choice for leading corporate and government organisations.

**Fujitsu New Zealand Limited** designs, builds and operates e-services that significantly improve the performance of our customers’ businesses. Through our knowledge of the e-services industry, IT and the digital economy, we help our customers unleash the infinite possibilities of the Internet. Fujitsu delivers solutions and services to key customers and target markets including Government, Retail, Utilities, Financial Services and Telecommunications. Fujitsu’s portfolio of offerings includes customer relationship management, e-business, applications, and information technology & telecommunications infrastructure systems and services.

Fujitsu New Zealand Limited is owned by Fujitsu Australia Limited.

## Key Executives

**Mr. Rod Vawdrey**  
Chief Executive Officer and Executive Director

**Corporate Contact:**  
Tracy McCormack  
General Manager, Marketing & Communications  
T: +61 2 9113 9225  
E: tracy.mccormack@au.fujitsu.com

**Corporate Office:**  
Level 16, 15 Blue Street  
North Sydney NSW 2060  
Australia  
T: +61 2 9113 9200  
F: +61 2 9113 9222

**Website:**  
www.fujitsu.com/au/  
www.fujitsu.com/nz

**Careers:**  
www.fujitsu.com/au/employment/graduates
GHD Pty Ltd

<table>
<thead>
<tr>
<th>Company Overview</th>
<th>Key Executives</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHD is one of the world’s leading engineering, architecture and environment</td>
<td>Mr. Ian Shepherd</td>
</tr>
<tr>
<td>consulting companies.</td>
<td>Chief Executive Officer</td>
</tr>
<tr>
<td>Established in 1928, GHD employs more than 6000 people across five continents</td>
<td></td>
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<tr>
<td>and serves clients in the global markets of water, energy and resources,</td>
<td></td>
</tr>
<tr>
<td>environment, property and buildings, and transportation.</td>
<td></td>
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<tr>
<td>Wholly-owned by its staff, GHD is focused on client success. Our global network</td>
<td></td>
</tr>
<tr>
<td>of engineers, architects, planners, scientists, project managers and economists</td>
<td></td>
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<tr>
<td>collaborate to deliver sustainable outcomes for our clients and the community.</td>
<td></td>
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<tr>
<td>Our core values of Teamwork, Respect and Integrity help create enduring</td>
<td></td>
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<tr>
<td>relationships that deliver exceptional results.</td>
<td></td>
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<tr>
<td>A member of the World Business Council for Sustainable Development, GHD is</td>
<td></td>
</tr>
<tr>
<td>recognised for its commitment to sustainable development, safety and innovation.</td>
<td></td>
</tr>
<tr>
<td>We care for the wellbeing of our people, communities and the environments in</td>
<td></td>
</tr>
<tr>
<td>which we operate.</td>
<td></td>
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<tr>
<td>GHD operates under a Practice Quality Management System that is certified by</td>
<td></td>
</tr>
<tr>
<td>Lloyds Register Quality Assurance (LQRA) to international standard ISO 9001:2008</td>
<td></td>
</tr>
<tr>
<td>GHD Pty Ltd’s Environmental Management System is certified to international</td>
<td></td>
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<tr>
<td>standard ISO 14001:2004 also by LQRA.</td>
<td></td>
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</tbody>
</table>
Hastie Group Ltd is the leading provider of essential business services and refrigeration systems in Australia and New Zealand. We also operate in the United Kingdom and the United Arab Emirates.

Hastie has grown over 35 years from a Sydney air conditioning business and now has four divisions, which provide a wide range of services:
- Mechanical and Hydraulics
- Refrigeration
- Electrical
- Maintenance and Service

Our businesses operate under brands which are well recognised in their own local markets and our customer base includes many of the largest construction companies, developers, shopping malls and industrial corporations. Through organic growth and our commitment to employees, Hastie Group has attracted some of the best people in the industry, including design engineers, professional project managers, draughtsmen, and a huge team of qualified tradespeople.

Mr. David Harris
Managing Director and Chief Executive Officer

Corporate Contact:
Mr David Hammond
Chief Executive Officer, Mechanical, Electrical Plumbing Division

Corporate Office:
Level 5, 50 Highgate Street
Auburn NSW 2144
Australia
T: +61 2 9714 4600
F: +61 2 9714 4601

Website:
www.hastiegroup.com.au
**IBM Australia Limited**

<table>
<thead>
<tr>
<th>Company Overview</th>
<th>Key Executives</th>
</tr>
</thead>
</table>
| **International Business Machines** abbreviated IBM, is a Multinational computer, technology and IT consulting corporation headquartered in Armonk, North Castle, New York, United States. The company is one of the few information technology companies with a continuous history dating back to the 19th century. IBM manufacturers and sells computer hardware and software (with a focus on the latter), and offers infrastructure services, hosting services, and consulting services in areas ranging from mainframe computers to nanotechnology. It has been nicknamed “Big Blue” for its official corporate colour. IBM has been well known through most of its recent history as the world’s largest computer company and systems integrator. With over 407,000 employees worldwide, IBM is the largest and most profitable information technology and services employer in the world according to the Forbes 2000 list with sales of greater than 100 billion US dollars. IBM holds more patents than any other U.S. based technology company and has eight research laboratories worldwide. The company has scientists, engineers, consultants, and sales professionals in over 200 countries. IBM worldwide. The company has employees have earned five Nobel Prizes, four Turing Awards, nine National Medals of Technology, and five National Medals of Science. As a chip maker, IBM has been among the Worldwide Top 20 Semiconductor Sales Leaders in past years. | **Mr. Andrew Stevens**  
Managing Director

**Executive Representative to the Board**

**Mr. Jeff Ferdinands**  
General Manager, Communications Sector

**Corporate Contact:**

**Mr. Jay Hannon**  
University Relations & Development Manager  
E: hannonj@au1.ibm.com  
T: +61 2 9397 8629

**Ms. Rachael Roberts**  
IBM A/NZ Vitality Team Lead  
(new graduate hires and student internships)  
E: rroberts@au1.ibm.com  
T: +61 2 9463 5064

**Corporate Office:**

**Sydney**  
601 Pacific Highway  
St Leonards NSW 2065  
Australia  
T: 13 2426  
F: +61 2 9354 4000

**Melbourne**  
60 City Road  
Southgate VIC 3006  
T: 13 2426  
F: +61 3 9354 4000

**Website:**

www.ibm.com/au

**Careers:**

www-07.ibm.com/employment/au
LEIGHTON CONTRACTORS

<table>
<thead>
<tr>
<th>Company Overview</th>
<th>Key Executives</th>
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</thead>
</table>
| Leighton Contractors is one of Australia’s largest and most diverse contracting and project development companies with operations spanning construction, energy, resources, telecommunications, infrastructure investment and facilities management. With 60 years experience, we have become an industry leader through our ability to listen, adapt and reliably deliver outstanding outcomes for our clients, partners and the community. Among our finest achievements are numerous landmark projects used by the community every day including the Eastern Distributor and M7 Motorway in Sydney, Inner Northern Busway in Brisbane, the Metrorail in Perth, the Southern Cross Railway Station in Melbourne and the Northern Gateway in Auckland. Leighton Contractors is proud to provide a challenging, values-based work environment for over 9,000 highly skilled and passionate people across Australia and New Zealand. | **Mr. Craig Laslett**  
Managing Director  

**Corporate Contact:**  
**Peter Handel**  
Executive General Manager – Industrial and Energy Division  
E: peter.handel@leicon.com.au  

**Corporate Office:**  
Level 8, Tower 1  
495 Victoria Avenue  
Chatswood NSW 2067  
Australia  
T: +61 2 8668 6000  
F: +61 2 8668 6666  

**Website:**  
www.leightoncontractors.com.au  

**Careers:**  
# NHP Electrical Engineering Products

## Company Overview

NHP Electrical Engineering Products Pty Ltd brings together leading products, systems and solutions from across six key electrotechnology sectors - Automation & Safety, Motor Control, Power Distribution, Hazardous Area Equipment & Control, Enclosure Systems & Power Quality and Automation Services & Training. An Australian owned company, NHP is committed to serving Australasian industry with quality products and the best in customer support.

## Our Vision

To be the number one choice in industrial electrical products, automation products and solutions as well as being the recognised industry leader in customer care, quality and innovation.

## Key Executives

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Lloyd Thomas</td>
<td>Managing Director, CEO</td>
<td><a href="mailto:lthomas@nhp.com.au">lthomas@nhp.com.au</a></td>
<td>+61 3 9429 2999</td>
</tr>
<tr>
<td>Mr. Alex Coslovich</td>
<td>Director – Product Quality and Engineering</td>
<td><a href="mailto:acoslovich@nhp.com.au">acoslovich@nhp.com.au</a></td>
<td>+61 3 9429 1075</td>
</tr>
</tbody>
</table>

## Corporate Contact:

**Corporate Office:**

43 — 67 River Street  
Richmond VIC 3121  
Australia

T: +61 3 9429 2999  
F: +61 3 9429 1075

**Website:**

www.nhp.com.au

**Careers:**

Olex is an Australian manufacturer of electrical cables with more than 65 years of experience servicing the Australian and Asia Pacific energy, construction and industrial markets. As Australia’s largest power cable manufacturer, Olex is a well respected supplier, providing a full range of general purpose fixed and flexible cables as well as special purpose cables. Olex also provides specialist technical services, cable design and other value added services gained from our extensive experience in the cable industry. Olex employs more than 700 staff in Australia and New Zealand, with sales offices and distribution centres throughout the Asia-Pacific Region.

The main manufacturing and product development centre is at Tottenham in Victoria, Australia. This is also the Olex Holdings Corporate head office. In total, there are three Olex manufacturing facilities – Tottenham, Lilydale (Victoria) and New Plymouth (NZ), and all are quality certified to ISO 9001.

Mr. Andrew Stobart
Managing Director & CEO

Corporate Contact:
Mr. Geoffrey Simpson
Business Manager Energy – Infrastructure
E: gsimpson@olex.com.au

Corporate Office:
207 Sunshine Road
Tottenham VIC 3012
Australia
PO Box 33
West Footscray VIC 3012
T: +61 3 9281 4444
F: +61 3 9281 4294

Website:
www.olex.com.au
PB

<table>
<thead>
<tr>
<th>Company Overview</th>
<th>Key Executives</th>
</tr>
</thead>
</table>
| PB is one of the world’s leading planning, environment and infrastructure consultancies, with over 14,000 staff based in offices across six continents. In Australia and New Zealand, PB’s multidisciplinary team of over 2,500 professionals offers a comprehensive range of multidisciplinary services and total project delivery on projects of any scale. Parsons Brinckerhoff is part of Balfour Beatty plc, the international infrastructure group operating in professional services, construction services, support services and infrastructure investments. | Dr. Jim Mantle  
Managing Director  
Parsons Brinckerhoff Australia-Pacific  

**Corporate Contact:**  
Mr Mark LePla  
General Manager – Engineering  
Parsons Brinckerhoff Australia-Pacific  

**Corporate Office:**  
Level 5, 503 Murray Street  
Perth WA 6000  
T +61 8 9489 9700  
F +61 8 9489 9777  

**Website:**  
www.pb.com.au  

**Careers:**  
Company Overview

RailCorp’s role is to provide passenger services to greater Sydney through CityRail and rural passenger services in NSW through CountryLink, and to provide access to its network to third-party freight and passenger operators. RailCorp was established in January 2004 as the amalgamation of the former State Rail Authority and the metropolitan operations of the Rail Infrastructure Corporation. Until 31 December 2008, RailCorp delivered services as a state-owned corporation. On that date RailCorp was abolished as a state-owned corporation reporting to a commercial board of management and, from 1 January 2009, reconstituted as a statutory authority reporting directly to and taking direction from the Minister for Transport.

The direction of RailCorp reflects its legislative responsibilities under the Transport Administration Act 1988 and the strategic direction of the NSW Government as set out in The State Plan – a New Direction for NSW.

Mission, values and key priorities

Our mission is to deliver safe, clean and reliable services that are efficient, sustainable and to the satisfaction of all customers.

The staff and the organisation as a whole commit to a set of values that guides the behaviour of all employees.

Key Executives

Mr. Rob Mason
Chief Executive Director

Corporate Contact:
Mr. Neal Hook
Chief Engineer Electrical Systems
E: neal.hook@railcorp.nsw.gov.au

Corporate Office:
Level 11, 477 Pitt Street
Sydney NSW 2000
Australia

T: +61 8202 2000

Website:
www.railcorp.info

Careers:
www.railcorp.info/careers/graduate_program
Schneider Electric (Australia) Pty Ltd

Company Overview

Make the most of your energy

Schneider Electric harnesses electricity to improve our customers’ performance and quality of life. We offer intelligent, integrated and networked solutions that allow our customers to:

- Use electricity in complete safety
- Develop automation everywhere
- Improve energy efficiency
- Ensure a high quality power supply
- Manage building utilities and electrical networks

As the global specialist in energy management, our company takes on the challenge of transforming the way people and organisations use energy.

We are the essential brick between energy production and energy usage.

Key Executives

Mr. Lionel Finidori
Managing Director Pacific Zone

Corporate Contact:

Mr Joe Riitano
National Business Development Manager Power Solutions  
E: joe.riitano@au.schneider-electric.com

Mr Farokh Ghadially
General Manager – Marketing  
E: farokh.ghadially@au.schneider-electric.com

Corporate Office:

Pacific Head Office  
78 Waterloo Road  
Macquarie Park NSW 2113  
Australia

T: 1300 369 233  
F: 1300 369 288

Website:

www.schneider-electric.com.au

Careers:

www.schneider-electric.com.au
Siemens Ltd

**Company Overview**

Siemens commenced operations in Australia in 1872 and is now one of the country's most reliable and trusted brands. The pressures brought on by the four global megatrends – climate change, demographic change, globalisation and urbanisation – can affect businesses and individuals significantly. With well-established businesses in both Australia and New Zealand, Siemens is a diversified technology-based solutions provider specialising in the areas of water, energy, environment, healthcare, productivity, mobility, safety and security. Through these eight solution areas, Siemens is meeting the demands placed on businesses by the four global megatrends.

As part of one of the largest electrical engineering and electronic businesses in the world, Siemens Australia and New Zealand also has access to the expertise, research and development of our 405,000 colleagues in over 190 other countries. With a combined research and development investment of A$6.3 billion and over 7,700 inventions in fiscal 2009, we offer access to the world’s best solutions.

**Our People**

With more than 2,500 people our employees are undoubtedly our greatest assets. They are highly qualified and committed to the creation and provision of innovative products, systems, solutions and services. Siemens employs the best and brightest people and empowers them to achieve the highest levels of performance and pursue their full potential.

We also place the highest value on the safety of our employees. Siemens is committed to continually improving our safety culture and achieving an injury free workplace. Our company Health & Safety Policy identifies the key action areas to achieve these goals.

**Key Executives**

- **Mr. Albert Goller**
  Chairman and Managing Director
  E: albert.goller@siemens.com

- **Mr Raj Kapoor**
  General Manager Regions
  E: raj.kapoor@siemens.com

- **Mr Steve Robinson**
  Vice President Energy Sector
  E: steve_robinson@siemens.com

**Head Office**

885 Mountain Highway,
Bayswater VIC 3153
Australia

T: 137 222
F: 1300 360 222

**Website:**

www.siemens.com.au

**Careers:**

http://aunz.siemens.com/JobsandCareers/
Sinclair Knight Merz

Sinclair Knight Merz (SKM) is a leading engineering, sciences and project delivery firm. Its purpose is to deliver a positive and enduring impact on the world. In support of this goal, we have over 40 major offices across Australia, New Zealand, Europe, the Middle East, South America and Asia. We work in close partnership with key clients in the public and private sectors, providing independent technical, strategic and commercial advice to deliver a wide range of projects in the communities in which we live.

We employ approximately 6500 people who come from a diverse range of disciplines including engineers, planners, architects, economists, scientists, project managers, technicians and administrative staff.

Our people work across four broad markets: Buildings and Infrastructure; Mining and Metals; Power and Energy; and Water and Environment. We continually strive to help our people reach their full potential, engaging them in challenging and inspiring projects that shape industries and build nations.

Wholly employee-owned, SKM is an organisation with a proud history and we embrace shared values and an open culture. We have a commitment to service and quality, with high standards of safety and business ethics, along with a leading edge approach to delivering a sustainable future.

Mr. Paul Dougas  
Chief Executive

Corporate Contacts:

Mr Ian Cutler  
CEng UK  
Principal / Global Practice Group Leader - Electricity Networks  
E: ICutler@skm.com.au

Corporate Office:

100 Christie Street  
P O Box 164  
St Leonards NSW 2065  
Australia

T: +61 2 9928 2100  
F: + 61 2 9928 2500

Website:  
www.skmconsulting.com

Careers:  
www.skmconsulting.com/Careers/Graduate-Program.aspx
Sumitomo Australia Pty Ltd

Company Overview

Sumitomo Australia is a wholly owned subsidiary of Sumitomo Corporation, one of Japan's most respected companies with a history dating back to the 17th century. Sumitomo Corporation is an integrated trading company whose global operations span 65 countries. The company is listed on several stock exchanges in Japan.

Sumitomo’s business in Australasia commenced in 1961 and its current activities include a diverse portfolio of investments, manufacturing, and the import and export of commodities that serve the agricultural, mining and industrial markets. Sumitomo Australia also provides a range of administrative and business services to many of the Sumitomo group companies in Australia and New Zealand. Our activities are supported by the diverse business interests and global network of the Sumitomo Corporation group.

Sumitomo Australia shares the Sumitomo Corporation values that are the foundation of our corporate culture. Consistent with this culture a high priority is placed on sound business management including compliance, risk management, and occupational health and safety.

Date of Establishment: August 1961
Number of Offices: 4
Sydney, Melbourne, Perth and Auckland
Affiliated companies: 9

Key Executives

Mr. Kazuyuki Takahashi
Managing Director and President

Corporate Contact:
Mr. Christian Marston
Fuel & Carbon Department
E: Christian.marston@sumitomocorp.co.jp

Corporate Office:
Level 18, 88 Phillip Street
Sydney NSW 2000
Australia
T: +61 2 9335 3700
F: +61 2 9335 3775

Website:
www.sumitomocorp.com.au
Telstra Corporation

Company Overview

We are Australia's leading telecommunications and information services company, with one of the best known brands in the country. We offer a full range of services and compete in all telecommunications markets throughout Australia, providing more than 9.0 million Australian fixed line and 10.2 million mobile services, including 6.3 million 3G services.

Our main activities include the provision of:
- Basic access services to most homes and businesses in Australia
- local and long distance telephone calls in Australia and international calls to and from Australia
- mobile telecommunications services
- broadband access and content
- a comprehensive range of data and Internet services (including through Telstra BigPond®, Australia's leading Internet service provider)
- management of business customers' IT and/or telecommunications services
- wholesale services to other carriers, carriage service providers and ISPs
- advertising, search and information services (through Sensis, Australia's leading directory and search company)
- cable distribution services for FOXTEL's® cable subscription television services.

One of our major strengths in providing integrated telecommunications services is our vast geographical coverage through both our fixed and mobile network infrastructure. This network and systems infrastructure underpins the carriage and termination of the majority of Australia's domestic and international voice and data telephony traffic.

Telstra owns 50% of FOXTEL®, and its international businesses include:
- CSL New World Mobility Group, one of Hong Kong's leading mobile operators
- TelstraClear Limited, the second largest full service carrier in New Zealand
- Reach Ltd, a provider of global connectivity and international voice and satellite services
- SouFun Holdings Limited, a leading real estate and furnishings website in China
- Norstar Media and Autohome / PCPop, leading Chinese internet business in the online auto and digital device advertising sectors
- China M and Sharp Point, two of China's leading mobile content and online music businesses.

Key Executives

Mr. David Thodey
Chief Executive

Corporate Contact:
Mr. Anthony Goonan
Director, Network and Commercial Planning
E: ag@team.telstra.com

Corporate Office:
242 Exhibition Street
Melbourne VIC 3000
Locked Bag 5639
Melbourne VIC 3001
T: 1300 368 387
F: +61 8 8211 9297

Locked Bag 6600
Sydney NSW 2001
T: +61 2 9578 5999
F: +61 2 9204 9992

Website:
www.telstra.com.au

Careers:
http://careers.telstra.com/
Thiess Pty Ltd

<table>
<thead>
<tr>
<th>Company Overview</th>
<th>Key Executives</th>
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<tbody>
<tr>
<td>Thiess is a <strong>leading construction, mining and services contractor</strong> with diverse operations throughout Australia and selected international markets.</td>
<td>Mr. David Saxelby&lt;br&gt;Managing Director</td>
</tr>
<tr>
<td>Our reputation is built on consistently meeting and exceeding the expectations of our clients across all our operations - from building, civil, mining, and process to environmental services, utilities services, and facilities operations and maintenance.</td>
<td><strong>Corporate Contact:</strong>&lt;br&gt;Mr Brendan Donohue&lt;br&gt;General Manager NSW/ACT</td>
</tr>
<tr>
<td><strong>We deliver....</strong></td>
<td><strong>Corporate Office:</strong>&lt;br&gt;26 College Street&lt;br&gt;Sydney NSW 2000&lt;br&gt;Australia&lt;br&gt;T +61 2 9332 9444&lt;br&gt;F +61 2 9331 4264</td>
</tr>
<tr>
<td><strong>Expertise:</strong> Our people have the skills, experience and vision to respond to project challenges. Through ingenuity and innovation, we deliver successful outcomes for our clients and the communities we work in.</td>
<td><strong>Website:</strong>&lt;br&gt;www.thiess.com</td>
</tr>
<tr>
<td><strong>Integrity:</strong> With openness, honesty and respect for the values of others, we strive to make a difference in all areas of our diverse operations. It's more than a statement. It's at the heart of how we do business.</td>
<td><strong>Careers:</strong>&lt;br&gt;www.thiess.com/Careers/index.htm</td>
</tr>
<tr>
<td><strong>Teamwork:</strong> We recognise, support and harness the diverse talents of our people, our organisation and our partners. Together we get results.</td>
<td></td>
</tr>
<tr>
<td><strong>Performance:</strong> We take a disciplined, professional approach to every project. Our commitment to deliver sets us apart.</td>
<td></td>
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<td><strong>Sustainability:</strong> As part of our People, Planet, Profit approach to business, we aim for excellence - in workplace health and safety, environmental management, community relations, and stakeholder value.</td>
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Tyree Industries Pty Limited

Company Overview

Tyree Industries is a wholly Australian owned family business that designs and manufactures medium voltage electrical products for the world’s electricity networks. The company is committed to maintaining and growing Australian manufacturing and distribution capability and creating opportunities for local employment and investment. Accreditation to AS/NZS ISO 9001 has been in place since 1990. Strategic alignment with key local and global supply chain partners ensures supply chain integrity for both the company and its customers. Significant on-going investment in automation, including robotics, keeps the company at the forefront of competitiveness and modern Lean Manufacturing practices.

Tyree Industries incorporates two divisions:

- Tyree Distribution Transformers
- Tyree Power Transformers

Sir William Tyree, the founder of the company, has been involved in the manufacturing of electrical products since the 1940’s and was knighted in recognition of his development of the industry in Australia.

The company’s headquarters and main manufacturing plant is located at Mittagong in the picturesque Southern Highlands of New South Wales, Australia.

The Tyree Group of companies has manufacturing and distribution resources strategically located across Australia, New Zealand and the broader Asia pacific region.

Key Executives

Mr. Bob McCulloch
Chief Executive Officer

Mr Barry Smith
General Manager Sales and Marketing

Sir William Tyree
Director

Mr Peter Tyree
Past Chairman

Corporate Contact:
Tyree Distribution Transformers
T: +61 2 4872 6177
E:: tyree_sales@tyree.com.au

Tyree Power
T: + 61 2 4872 6177
E: tpt_sales@tyree.com.au

Address
PO Box 191
Tyree Place
MITTAGONG NSW 2575

Corporate Office:
P O Box 191
Tyree Place
Mittagong NSW 2575
Australia

Website:
United Group Infrastructure Ltd (UGL)

**Company Overview**

UGL Infrastructure has been operating as a provider of engineering solutions to the infrastructure sector for more than 50 years, and today employs more than 2200 people, operating in a wide range of roles and locations.

UGL Infrastructure had annual revenue of approximately $800 million and began the 2009 financial year with an order book in excess of $2 billion and expectations of continued strong growth.

Through partnerships with international companies such as Alstom, GE, Balfour Beatty and Mitsubishi, UGL Infrastructure is able to offer its clients the world’s leading technology and best practice.

UGL Infrastructure ensures the highest standards of service and efficiency, providing tailored commercial delivery terms to each individual project while never compromising on safety, environmental responsibility, integrity and honesty.

**Key Executives**

Mr. Andy Summers  
Chief Executive Infrastructure

**Corporate Contact:**

Mr. Robbie Gatley  
Executive General Manager – Power

Mr. Bill Fisher  
Head of Human Resources – Infrastructure & Rail

**Corporate Office:**

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www.uglimited.com

**Careers:**

www.uglcareers.com