

## JOINT TECHNICAL PROGRAM 2012

### Electrical and Electronic Engineering

A program of general interest talks and visits, and a chance to network with people in your industry

(last updated 26 February 2012)

- 21st Feb  
Host EA
- Zero Carbon Australia Stationary Energy Plan**  
*Patrick Hearps BE (Hons), Research Fellow in Energy & Transport Systems at the University of Melbourne's Energy Research Institute.*  
A presentation of the framework, methodology and findings of the Beyond Zero Emissions 'Zero Carbon Australia Stationary Energy Plan', a technical feasibility study for powering Australia with 100% renewable energy, primarily through a combination of approximately 60% concentrating solar thermal (CST) with storage and 40% wind power. The performance of this proposed supply infrastructure in meeting projected electricity demand was modelled with real resource and demand data from 2008 and 2009. Finally, the practical feasibility of implementation was tested against the resource and workforce constraints of the Australian economy, and the financial impacts of the scheme were compared with business as usual.  
More details about Beyond Zero Emissions are at: <http://beyondzeroemissions.org/>
- 7<sup>th</sup> Mar  
Host JTP  
Mech, IEEE
- \*\* VISIT to Biomechanical Materials Testing Laboratory at Flinders University – Hexapod Robot**  
*Contact to be advised. Joint event with JTP Mechanical.*  
Based on the concept of the flight simulator, the hexapod robot is a state of the art biomechanical testing system capable of producing either single-axis or multi-axis displacements and rotations to any material, joint, implant or surgical device. This allows for more realistic simulation of the complex movements of bones and joints and improved understanding of how joints and implants function and why they fail.  
The Hexapod Robot is the most advanced of its kind in the world and the only one of its kind in Australia – was launched at Flinders University on Tuesday 27 September 2011.  
The device, developed over two years by a team led by Flinders Biomechanical Engineer Dr John Costi and including researchers from The University of Adelaide's School of Mechanical Engineering, can study complex joint motions in 3D to help design and develop improved joint replacements.
- 20<sup>th</sup> Mar  
Host EA
- \*\* VISIT to Renewable Energy Centre at Regency campus TAFE**  
*Ashjorn 'Aussie' Kanck, Lecturer in Renewable Technology, Training & Technology TAFE, Regency Campus*  
A site tour of the renewables energy training facilities. The Regency campus houses the "Renewable Energy Centre" which provides significant training opportunities for both industry personnel and those with a general interest in renewable and sustainable energy fields. The centre also trains students who want to obtain Clean Energy Council (CEC) accreditation to design and/or install grid and/or stand alone power systems, such as solar.  
More details about Regency TAFE are at: <http://www.tafesa.edu.au/renewable-energy-centre.aspx>
- 17<sup>th</sup> April  
Host EA
- \*\* VISIT to RAAF Edinburgh AP-3C Orion Flight Simulator**  
*Flight Lieutenant Andrew Sibenaler, RAAF Edinburgh*  
The simulator activity would allow attendees to fly the AP-3C and possibly attempt a landing or take-off.  
Limited to 20 people, meeting at RAAF base main gate at 6:15pm.
- 15<sup>th</sup> May  
Host EA
- The Integration of Complex Engineered Systems in the ADF Technical Regulatory Environment**  
*Michael Edwards FIEAust CPEng, Engineering Fellow, Raytheon Australia*  
Systems being acquired for use by the Australian Defence Force (ADF) continue to become more complex costing hundreds of millions of dollars and requiring the work of hundreds of engineers and technicians to design, integrate and support these systems. Assuring these systems are fit for service and safe is the aim of the technical regulatory environment established by the ADF. This topic presents the characteristics of complex engineered systems, explores the concept of technical integrity and discusses the features of the ADF regulation that are meant to achieve this technical integrity. We look at what this means practically for organisations entrusted with integrating these systems within the technical regulatory environment of the ADF.
- 19<sup>th</sup> June  
Host IET
- Electrification and upgrade of the Northern Line – DPTI**  
**More details to follow at a later date (JTP Contact – Tom Bammann (IET))**
- 17<sup>th</sup> July  
Host TSA
- Role of the ACMA**  
*Prof. Reg Coutts, Director ACS Telecommunications Board*  
The talk by Professor Reg Coutts is a personal perspective of the Australian Communications and Media Authority (ACMA) [www.acma.gov.au](http://www.acma.gov.au) to which he was appointed for a five-year term in October 2010. The 'converged' regulator the ACMA was established by the Australian Government in 2005 through the integration of the telecommunications regulator the Australian Communications Authority (ACA) and the media regulator the Australian Broadcasting Authority (ABA). The ACMA has the broad remit to regulate across what were historically distinct industries under separate Acts of Parliament. The talk will discuss examples of this convergence in which the ACMA has been involved since late 2010 when he joined the authority many of which have been controversial. Professor Coutts will give his personal perspective of how the authority is coping with this challenge.
- 21st Aug  
Host IEEE
- Radar, where did it come from?**  
*Professor Don Sinnott, Adjunct Professor of Radar Systems at University of Adelaide*  
Radar is an electronic system and its appearance was paced by progress in the understanding of electromagnetic theory and electronic technology development. The theoretical underpinnings of electromagnetic theory by Maxwell, the demonstrations of radio-wave phenomenology by Hertz and vacuum tube technology development in the twentieth century were critical items on the path before radar sets could be produced. The presentation will trace this chain of development through some of the key people involved, from the first radar demonstration in 1904, through British, US and Australian World War 2 developments to current Australian over-the-horizon development.
- 20<sup>th</sup> Sep  
Host IET
- Nuclear Power: From Opponent to Proponent**  
**The essential role of nuclear power for decarbonising a warming world**  
*Ben Heard, Director, ThinkClimate Consulting*  
What does it take to turn an environmentalist pro-nuclear? This presentation recounts the true process of critical examination that saw an environmental professional do a full turn around on nuclear power.

16<sup>th</sup> Oct      **\*\* VISIT Electra Net's Newly Commissioned 275/66kV City West Substation**  
Host IET      *Ryan Atkinson - ENet*  
A Substation tour and a Cable Route tour at the City West Substation 275/66kV at the Keswick Terminal. The new undertaking is a major expansion of the high voltage electricity supply to the Adelaide CBD.  
The site visit is aimed at University Students and is anticipated taking approximately two hours commencing at 9 am at the Substation.  
Booking is essential to cater for provider free bus transfers and refreshments.

23<sup>rd</sup> Oct      **STUDENT PAPERS NIGHT**  
Host IEEE      Students from our three universities present their final year projects whilst competing in the IET Rex Jones Student Presentation Prize. IEEE Student Subject prizes will also be presented at this meeting.

20<sup>th</sup> Nov      **National Broadband Network – Update**  
Host TSA      *Peter Triantafilou – Principal Policy Officer – Department of Further Education, Employment, Science and Technology, Government of South Australia*  
The National Broadband Network is one of the largest infrastructure projects and will change the telecommunications landscape in Australia. In 2012, the NBN is expected to deliver high speed broadband services to end users beyond the early trial sites, as part of the greater volume rollout.  
This presentation will provide an update of progress, technology issues and look at some of the challenges and policy issues that will need to be addressed as part of this ambitious initiative.

**CPD Points : It is recommended that attendance at each of these presentations be counted as one CPD point under *Engineers Australia* guidelines**

**Venue:**      Engineers Australia, Sir Robert Chapman Theatre, Level 11, 108 King William St., Adelaide (except visits).  
**Dates:**      Meetings are generally held on the third Tuesday of each month.  
**Time:**      Light refreshments commence at 5:30 PM and the meeting at 6:00PM (except site visits).

**For each event, a flyer presenting details of the event will be posted on the websites of EA, IEEE, IET and TSA (see the details overleaf). These websites will also inform about any changes to the above program. Bookings to the visits should be made using the EA's website. Numbers for visits are normally limited so book early - preference will be given to EA, IEEE, IET and ACS-TSA members.**

**ALL VISITORS ARE WELCOME!**

#### **THE COMMITTEE**

The Committee normally consists of two representatives from each of the participating Institutions and Societies. The Chairperson is one of these representatives. The Minute Secretary is agreed by the previous year's Committee and is normally from the Institution/Society which will chair the Committee in the following year.

#### **2012 JTP Electrical & Electronics Committee**

Anthony Mew, Engineers Australia – Electrical College  
Marcelo Botelho, Engineers Australia – ITEE College  
Marek Kwiatkowski, ACS-TSA  
Prof. Reg Coutts, ACS-TSA  
Mark Pszczel, IEEE  
Tom Bammann, IET  
Sophie Ball - IET



Australia's National Society  
for Telecommunications People

The **TELECOMMUNICATION SOCIETY OF AUSTRALIA (TSA)** is Australia's national society for the people and organisations involved or interested in telecommunications and related industries. The Society's objective is to advance the level of knowledge and understanding in the Australian telecommunications industry of the issues, trends, developments and new directions in telecommunications and related areas. The TSA presents free lectures/briefings to members and publishes the Telecommunication Journal of Australia (issued free to members). The Society also plays a major role in collecting, preserving and exhibiting artefacts from Australia's telecommunications history. Individuals and organisations involved or interested in telecommunications and related industries are welcome to join the TSA. The TSA is now part of the Australian Computer Society (ACS) <http://www.acs.org.au> as a National SIG under the ACS Telecommunications Board chaired by Professor Reg Coutts.

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ENGINEERS  
AUSTRALIA  
South Australia Division

**ENGINEERS AUSTRALIA** is the national professional body for engineers, technologists and associates and with over 90,000 members is the country's largest and most diverse engineering association. Engineers Australia promotes the science and practice of engineering and represents public policy in engineering. Engineers Australia assists members to achieve their personal and professional goals by providing an extensive range of benefits, facilities and services at all stages of their careers. This is accomplished through graduate development programs, publications, presentations, workshops, site visits, technical presentations and career services. Engineers Australia defines the critical competencies required by professional engineers and engineering technologists in Australia, determines whether individual practitioners have demonstrated their capacity to deliver engineering services at these levels and administers the National Professional Engineers Register. Engineers Australia also accredits courses offered by tertiary education providers, under the Washington Accord, for international recognition and facilitates reciprocal membership of overseas institutions through Mutual Recognition Agreements.

For more information call: Ashlea Klingberg, Member Programs Coordinator, Engineers Australia, South Australia Division, Level 11, 108 King William St, Adelaide SA 5000

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The **INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)** has over 360,000 members in about 175 countries worldwide, with nearly 40% of the membership outside the USA. IEEE's technical activity is managed under the TAB (Technical Advisory Board) by 37 Societies and 4 Technical Councils, all of which have world coverage, and geographically under the RAB (Regional Activities Board) in 10 regions. Region 10, which includes Australia, is the last region formed, covers the Asia-Pacific, about half of the world's population, and has been the fastest growing IEEE region in recent years. All Australian states except Tasmania and the Northern Territory have at least one section (Queensland has two), and these sections form the IEEE Australia Council. The IEEE South Australia Section has about 450 active members, with 5 technical society chapters, a GOLD affinity group and 3 Student Branches. The Section has staged a number of major international conferences in Adelaide and elsewhere including ICASSP 94, APMC 2000, RADAR 2003 and ASCC 2004. For further information contact: The Secretary, IEEE SA Section, PO Box 53, Elizabeth SA 5112.

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Website: [http://ewh.ieee.org/r10/s\\_australia/](http://ewh.ieee.org/r10/s_australia/)



The Institution of  
Engineering and Technology

The **INSTITUTION OF ENGINEERING AND TECHNOLOGY (IET)** is an international organisation with over 130,000 members throughout the world who have joined together to promote the advancement of electrical and electronic science and engineering. It concerns itself with management, design, science, education and the many fields of technology related to the profession. Following the merger with the Institution of Manufacturing Engineers, the IET is particularly well placed to serve the manufacturing industry and the professional engineers who work in it. One of the functions of the IET is that of a learned society and as such it publishes material on a wide range of related fields. The IET hosts a suite of virtual Professional Networks that link engineers and scientists with a common interest and circumvent many of the issues involved with time and distance. Additional details are available on the IET's local web page home page (see below). Local contact details: Mr Ashley Keep, Honorary Secretary, The IET SA & NT Local Network, PO Box 992, Kensington Gardens, SA 5068

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Website: <http://www.theiet.org/local/pacific/australia/sant/index.cfm>