Engineering Tasmania

February 2007

ENGINEERS AUSTRALIA
Tasmania Division

Newsletter of Engineers Australia, Tas Division - Royal Engineers Building, 2 Davey Street Hobart
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IN THIS ISSUE

PRESIDENT'S REPORT

This is my first opportunity, as the new President of Engineers Australia, Tasmania Division. It will be a challenging year ahead and am very proud to have been extended the opportunity to assist in advancing the organisation over the next year. I trust that I can fulfill the role as well as Dan O'Toole and I would also like to take the opportunity to congratulate Dan on a job well, and for an extended period.

For those who do not know me I am the Group Manager for Infrastructure at the Launceston City Council, a position I have held for some 10 years. Being President from a region will be challenging, but there is a lot of opportunity for the Division to get more involved with the regional groups and in the coming year the committee will be seeking out those opportunities. Similarly the regional groups can become more involved with the whole Division. Lets not let distance be a barrier to success.

Over the last 18 months a number of northern members have been working to host the 30th Hydrology and Water Resources Symposium for Engineers Australia's National Committee on Water Engineering. The Conference was held in Launceston in December and the theme was "Past, Present and Future". Given Australia's current drought water is certainly very topical at the moment and there is hardly a day that does not go past without some media coverage of the water situation.

The key note speaker for the "Past" was Dr. Walter Boughton. Dr Boughton has been extensively involved in Water Resources over the last 40+ years. He presented a summary of investment activity in the water sector over the 20th Century, choosing an evaluation of major dam construction to highlight a change in approach in the last decade of the 20th Century. He observed how 87% of the storage capacities of major dams were constructed in the last half of the 20th Century, but limited activity had occurred since the end of the 1980's…"Governments became reluctant to build anything, with a run down of infrastructure in power generation and transport, but water resources developments were particularly affected."

Dams may not necessarily be the answer, but balanced investment must keep place with a growing community, and community demands.

The conference committee were also fortunate to be able to invite two engineers form New Orleans. Mike Patorno and Dr Barry Fels work in New Orleans for URS, an American consulting firm engaged to assist in the levee reconstruction following Hurricane Katrina in August 2005. Mike and Barry's message was that communities need to be ever vigilant about the state of their infrastructure and that you can not afford to take your eye of the ball. The picture they painted of the consequences of poor infrastructure was truly devastating.

Against that backdrop last December the Treasurer Michael Aird released a discussion paper on reforming the water and sewerage sector in Tasmania. No solutions for reform were announced but 12 issues for consideration were presented for discussion. Mr Aird said "that there was evidence that Tasmania's urban and regional reticulated water and sewerage sector had not kept pace with the state's strong economic progress in recent years." In doing so he acknowledges the work done by Engineers Australia in our "Infrastructure Report Card" rating Tasmania as having the worst water and wastewater infrastructure in Australia.

Here we have direct evidence of the usefulness of our organisation and the role to be played by Engineers in alerting communities and governments to the state of our assets.

Further information is available at www.treasury.tas.gov.au. and submissions may be made by the 23 February 2007.

I look forward to the coming year and know I will need much support to continue Dan's good work in promoting the profession, Engineers Australia and Tasmania.

GEOFF BRAYFORD, FIEAust

UPGRADING MEMBERS

NILS BLICHFELDT MIEAust CPEng

I started my industry experience as an electronics assembler at Novaris technologies on a casual basis during the second year of my engineering degree at the University of Tasmania in 2000. I continued to work as an assembler for the following 2 years after which time I was appointed as a junior research and development engineer at Powercom Consultants.
At Powercom I assisted with the development of prototype designs and undertook the development of a combination wave surge generator, which I was able to accredit as my final year project.

I received my bachelor of electrical power engineering at the end of 2003 and commenced working as a graduate engineer at Transend Networks in 2004.
During my time at Transend, I have participated in the graduate rotation scheme, working in various departments throughout the company including operational planning and asset groups over the past 3 years.

My career highlight was when I was given the opportunity to become involved with commissioning of the Basslink cable. My role in the Transend Basslink team was to produce simulations of commissioning tests using specialised dynamic software. I was also lucky enough to be on site to witness the first power transfers across the cable and many subsequent operational tests throughout the commissioning period.

Transend have a strong focus on their graduate engineers and I was given ongoing support throughout my rotation to pursue the competencies required for chartered status.

ANDREW HALLEY MIEAust

Andrew graduated from the University of Tasmania in 1997 with 1st Class Honours in Electrical Power Engineering. After a short stint with Australian Paper at Burnie (prior to closure of the Pulp Mill), Andrew joined the Consulting Business Unit of Hydro Tasmania as a graduate electrical engineer in late 1998.

The position within Power Systems Department provided Andrew with significant opportunities to develop his experience in power system analysis, operation, and design. Investigations and studies undertaken at that time included a comprehensive review of voltage stability in the Tasmania network, determination of ancillary service requirements for management of frequency and voltage, pricing mechanisms for ancillary services, determination of generator FCAS capabilities, and post event analysis of actual system disturbances via simulation. Andrew was heavily involved in system studies associated with the integration of the Basslink HVDC inter-connector to Victoria and undertook multiple projects which included transmission line thermal capability assessments, transient and small signal stability impact assessments, and notably, due diligence assessment of the Frequency Control System Protection Scheme (FCSPS).

In recent years, Andrew's focus has shifted to generator control systems and associated compliance issues brought about by Tasmania's operation in the National Electricity Market (NEM). Andrew has undertaken a significant number of compliance assessments (in comparison with National Electricity Rule (NER) requirements) for alternator and excitation systems owned by Hydro Tasmania. This process has included development / confirmation of dynamic models via field testing utilising programs such as MATLAB and PSS/E. In 2006, Andrew was responsible for commissioning and compliance testing on the newly installed Unitrol 5000 excitation system for Gordon generating unit #2 and acted in the TNSP witnessing position in late 2006 for the same tests on Gordon generating unit #1.

During his time with Hydro Consulting, Andrew had the opportunity to work both locally as well as overseas and undertook projects of various durations in Cambodia, New Zealand and Fiji.

In October 2006, Andrew accepted the position of Senior System Performance Engineer with Transend Networks. The role builds on Andrew's existing experience in dynamic modelling and application of NER technical standards, as well as incorporating some new challenges including power quality investigations in the Tasmanian Electricity Network.

CONGRATULATIONS/ WELCOME

MEMBERS

Nils Blichfeldt, MIEAust CPEng
Andrew Halley, MIEAust
Christopher Owens, OMIEAust
Paul Rayner, MIEAust
Michael Sylvester, MIEAust

GRADUATES

Benjamin Coward, GradIEAust
Joanna Ford, GradIEAust
Timothy Gibbs, GradIEAust
Adam Hedge, GradIEAust
Leslie Lew, GradIEAust
Jaspal Singh, GradTIEAust
James Thorp, GradIEAust

STUDENTS

(StudIEAust)

Nicholas Clark
Julius Dowson
John Fletcher
Charles Lord
Timothy Moore

CHRISTOPHER OWENS OMIEAust

I have spent my entire 26 year career thus far working in the power supply industry at Aurora Energy. I started working as an Electrical apprentice in 1979 and after completion of my trade course undertook further training in Electronics before beginning the Electrical Engineering Certificate course in 1985.

I worked from 1986 as a technical officer looking at testing and evaluation of new technologies involved with metering and logging equipment. During this period I, along with others, developed electronic voltage and current logging equipment. I also wrote a manual on current transformer metering for the then Hydro Electric Corporation.

In 1993 I moved into the Business Advisory area looking after large commercial and industrial; customers. I designed various electrical systems to replace existing diesel or gas fired plant and equipment. This lasted until 1999 when I moved into the role of Senior Designer In this role I design substations, power lines both overhead and underground, street lighting and more recently fiber optic communication cabling for Aurora's distribution system. I have also undertaken staff training and written design manuals and software (using visual basic) for use in power line design. These include programs to calculate voltage drop in subdivisions and overhead power line systems.

I am now moving on to the next phase in my career where, in conjunction with a partner I have just started up an electrical consulting company. We undertake power line and substation design, street lighting design and associated services including CAD drafting. I have set up a new website for our company (www.designforpower.com.au) and am now in the process of forming alliances with various suppliers to build our business into the future. I have found my career very rewarding up to this point and am looking forward to the next stage with great anticipation.

PAUL RAYNER MIEAust

Paul Rayner obtained his Bachelor of Engineering with Honours in 1993, specialising in electrical power engineering and control systems.

Paul initially worked for Comalco Research and Technology in Melbourne, providing electrical engineering support to projects dealing with improvements in casting of liquid metal. In 1995 and 1996, he was seconded to New Zealand Aluminium Smelters, working as a process control engineer. This role involved design, procurement, installation and commissioning of the control system for a potline fume scrubbing system. The fume scrubbing technology implemented was proprietary technology developed by Comalco, and at the end of the project Paul left New Zealand as the World Authority on Torbed Control Systems. But this knowledge was to no avail...at the end of 1996, whilst on a well-earned holiday in Europe, Comalco's new management declared Paul's position redundant. (This paid for the holiday, and resulted in zero long-term psychological damage.)

Paul returned to Tasmania and joined the then Hydro Electric Corporation (now Hydro Tasmania) in 1997. He has worked for Hydro Tasmania since that time, initially involved in power station design work, but later concentrating on assessing generator performance. This later role involves a range of activities: field testing of generators, building mathematical models to simulate the generator's response, and advising whether the generators meet regulatory requirements. Paul's most interesting project with Hydro Tasmania was an electrical infrastructure assessment job in the newly independent East Timor in 2002. Paul said this experience was a real eye-opener to the senselessness and impact of war on innocent people. The technical aspects of the job paled into

EMPLOYMENT WANTED

REF: T/01 2007

Seeking a Civil Engineering career, drafting, consulting or other.

Studying for qualifications, well presented family man, great drive to succeed.

Strong communication skills, computer literate including AutoCAD, extensive experience in Building industry and Asset management.

Please contact Catherine at the Division Office on 6234 2228 or creading@engineersaustralia.org.au to if you are interested in obtaining a copy of this CV.

AUSTRALIAN INTERNATIONAL MODEL SOLAR CAR CHALLENGE

TASMANIAN CLEAN SWEEP

On the 2 & 3 December 2006 the National finals of the Australian International Model Solar Car Challenge were held at the University of NSW in Sydney. The competition has been running since 1992 and requires secondary school students to design and build a model car to a set of very strict regulations, and then race them two at a time on a 100 metre long figure of 8 track. It has been dominated since its inception by well funded teams from WA.

The cars must be no more than 32cm wide and 65cm long, and can only be powered by a solar panel producing no more than 12 watts. Despite that the best cars can attain over 30 kph. The top teams from all states and territories are invited to compete in the National competition, and this year a team from Portugal also took part, making a field of 32 cars.

Tasmania was represented by 2 cars from Rose Bay High School, 1 car from Taroona High School, 1 car from Queechy High School and 2 cars from Hobart College (after a late withdrawl by a NSW car).

On Friday all cars were timed over a lap of the track and seeded before the main event. This resulted in Tasmanian cars taking the top 3 seeds with all 6 cars in the top 10.

On Saturday a round robin saw 5 of the cars go through to the sudden death elimination finals. The sixth car fell foul of a wrong choice of motor but, after the motor was replaced, totally annihilated all comers in the ensuing plate competition for the 16 eliminated cars.

Along the way, this Hobart College car actually set a new track record of 16.36 seconds, slashing over half a second off the old record. The top 16 cars then took part in a best of three laps sudden death elimination competition. This saw all 5 cars make it through to the final 8. At this stage the competition rules required the 2 Rose Bay cars to race each other and the Taroona car was narrowly beaten by a car from Belridge Senior High School from WA.

Our Winning Teams !!!!!!!!!

This left 3 Tasmanian cars in the final 4. **The final result was Hobart College first, Queechy High School second, Rose Bay High School third, and Belridge Senior High School (WA) fourth.** As an extra to the racing, the teams are also interviewed by a team of experts to determine their knowledge and understanding of the engineering involved, and had to produce a poster detailing the development of the car. The Hobart College team also won this competition.

Alongside the cars, a solar powered model boat competition was held. There were 3 levels, for Primary, Intermediate and Senior students. asmania had three entries. In the Intermediate class, Rose Bay High School came 5th and Lauderdale Primary came 4th. In the Senior class Taroona High School were unlucky to be beaten into second place.

MEANDER DAM

UPDATE

Construction of the Meander Dam is forging ahead.

Crane & right abutment

The Project Manager for the Meander Dam Project, Mr Garry Evans recently said that project is forging ahead as planned .

"The site is now ready for the dam wall to be constructed, the contractors, McConnell Dowel have exposed and cleaned the left and right abutments, in addition to preparing the bed rock in the river bed." Mr Evans said.

Preparing the site for the dam is vital, and involves removal of all the over burden from the left and richard abutments and the river bed.

The exposed rock is then cleaned by hand with wire brushes and any cracks filled with concrete (dental concrete) under high pressure.

"Most of the dental concrete on the left and right abutments and the river bed has been completed in preparation for construction of the dam wall.

"The geology of the dam site is good, with very little jointing, so in actual fact only minimal dental concrete was needed to fill the joints." Mr Evans said.

In addition to the completion of the site preparation, the dam downstream reinforced concrete plinth, which is anchored deep into the bed rock is almost complete.
A new tower crane has also been installed on site, this will assist with the placement of the downstream concrete blocks, the upstream concrete panels and installation of the "roller compacted concrete" which forms the core of the dam wall.

Mr Evans said the project is on track for the scheduled November 2007 commissioning.

Consulting firms unite to meet demands in Tasmania

The staff of Pacam Consulting Engineers has joined forces with leading international professional services company, GHD. This integration is a sign of GHD's strategy to build on its position in the market, by expanding its service offerings to better service the needs of clients.

In operation for more than 14 years Pacam, had developed a high profile in the Tasmanian market as well as a reputation for providing sound industrial engineering, among other services. Additionally, Pacam brings to GHD innovative skills in the design and application of fibre reinforced plastics for the industrial and mining sectors.

Says GHD's Tasmanian Manager, David Kinniburgh, "The combined organisation reinforces our ability to deliver a new depth of resources and experience to clients.

"We will also provide much needed professional career opportunities and contribute to the broader growth of the GHD Practice in Tasmania, which now numbers in excess of 120."

Today, GHD employs over 4,700 people in a network of 60 offices throughout Australia, New Zealand, Asia, the Middle East, the Americas and the United Kingdom. The company turnover to 30 June 2006 exceeded AUD500 million, which places GHD at the forefront of the Australian engineering industry and well within the top 30 engineering and architectural companies in the world.

Professor Arthur Sale,
FIEAust CPEng

Receives the 2006 Vice-Chancellor's Award for Outstanding Community Engagement

Professor Daryl Le Grew, Vice-Chancellor of the University of Tasmania has awarded Professor Arthur Sale the 2006 Vice-Chancellor's Award for Outstanding Community Engagement.

In this third year of the Awards, the level of interest and high calibre of nominations received showed a very significant commitment to community engagement from throughout the University. Fourteen individual and team nominations were received, covering a wide range of disciplines, interests and community interaction - providing a very challenging task for the Committee to select the awardees.

Arthur's nomination under the "Individual - Service to the Community" category, for what can only be described as an extensive range of achievements and outcomes, was highly commended by the Committee. His extensive record of community engagement has significantly enhanced the reputation of the University of Tasmania, locally, nationally and internationally.

On the national scale, he has succeeded in taking the Australian glass art community to substantial levels of electronic engagement and communication. This contribution has helped to consolidate the glass art community's reputation as one of the best in the world.

He is also an internationally recognised and respected contributor to the debate around free access to publicly funded research through the Open Access movement, and his involvement with the joint industry-government committee Future Role of Open Source in Tasmania (FROST) has resulted in valuable engagement with the local Tasmanian community.

Over the last twelve months, Arthur has also continued to provide invaluable advice relating to ICT matters through the HealthConnect initiative, most notably through the trial rollout of a Medicare Smartcard.

Arthur has worked tirelessly to increase the reputation of the University at every opportunity, and as his nominator Professor Young Ju Choi says:

"I do not know how he finds time to do all he does ... I only know that as an ambassador for the University of Tasmania, he is internationally, nationally and locally known and respected."

The award consists of a $5,000 grant and a certificate.

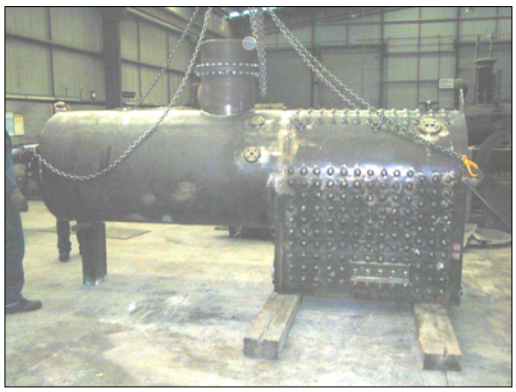
HERITAGE PAGE

REFURBISHMENT OF ABT LOCOMOTIVES No's 1, 3 & 5

An essential part of the restoration of the Abt Railway as a heritage and tourist venture was the refurbishment of three original Abt Railway engines. Saunders & Ward of Kingston, Tasmania won the contract to do this work.

Tony Reeve OMIEAust of Saunders & Ward gave an illustrated lecture describing this difficult task in November 2006. Tony outlined his forty years experience in engineering, principally with Phoenix Foundry of Launceston and Australian Newsprint Mills at Boyer, during which he also taught drafting at TAFE.

Prior to tendering, two of the engines has been dissembled but not cleaned down, so that many of the defects were hidden. This contract was a fixed price one, requiring an astute appreciation of potential problems with 100 year old locomotives that had been out service for forty years.



Side view new Abt boiler as manufactured by Saunders & Ward

The loco's which were state of the art in 1896 had to be brought to todays' standards and new boilers were required. The boiler design was contracted to Mr. J Whalley of the Festiniog Railway in Wales UK who worked with Tony via e-mail on producing a boiler to supply sufficient steam to pull forty tons up a grade of 1 in 16, and 110 tons on 1 in 40. The new boiler had to be oil fired, and a new injector was required. Tony pointed out the enormous benefit by which changes in overseas communications now allowed him to e-mail drawings etc to Festiniog today, allowed them to carry out the work during their normal hours, and reply to Tony the next day.

x

The locomotives were found to be in very poor condition. The steam cylinders, valve chests and axle journals were all non standard, with many cracks in the structures and other components. All common components were standardized by weld build-up, grinding of journals etc and new pistons and rings fitted. Some axles were replaced as were cabs, water tanks, valves and piping, particularly as copper pipe in the required size was un-available in short lengths. 320 drawings of various sizes had to be prepared to allow the work to be performed.

Abt No. 3 under going track testing at Queenstown

Initially two steam locomotives and one diesel locomotive were refurbished, followed by a third steam engine two years later.

Bruce Cole, FIEAust CPEng. & Tony Lee, OMIEAust

Cleanse & Slow the flow in Tas

Around 120 Tasmanian engineers, planners and other professionals attended the Stormwater and Water Sensitive Urban Design (WSUD) Forum at Launceston's Tramshed convention centre in September 2006. The focus of the day was to provide a showcase of local and national experiences in WSUD and improved stormwater management and was organised by The Department of Tourism, Arts and Environment and the Derwent Estuary Program. Attendance was well-represented by both local government and consulting professionals. Following on from the forum, two 2-day WSUD design workshops are planned for the end of March in Hobart (see details below).

One highlight of the forum was a presentation from Matt Francey, the stormwater quality team leader at Melbourne Water, who described the evolution of Melbourne Water's approach to managing urban runoff quality. We saw how their focus is evolving solely from end-of-pipe solutions, such as large wetlands, to an approach that also includes numerous smaller WSUD-style treatment systems, such as infiltration and biofiltration systems, distributed throughout catchments. Along that line, Professor John Argue, a veteran of low-impact stormwater management, showed that 'source control' techniques can address water quality and be used to maintain natural flow regimes even in heavily developed catchments.

Stormwater and WSUD Forum attendees at Launceston's Tramsheds

Local presenters were also very well received and talked on a broad range of subjects, from a showcase of local projects by local government and private industry to stormwater impacts on water quality and managing erosion in construction activities.

WSUD and stormwater source control is increasingly being seen as a cost-effective solution to reducing the impacts of urban runoff, both quality and quantity. As urban expansion continues across many areas of Tasmania on the back of the property boom of recent years, increased pressure is placed on drainage infrastructure. As development moves higher into catchments, drainage infrastructure in the lower areas often cannot cope with the additional load from growing catchment imperviousness. Drainage infrastructure that may have been initially sized for 20-year recurrence interval storms may now be struggling with a 5-year event. This presents managers and designers with the option of major infrastructure upgrades in established urban environments (expensive) or using techniques to minimise the impact from new development. Distributing systems throughout new development at the allotment and local scale can be a cost effective way to minimise loading.

A biofiltration garden treating road runoff (left) and biofiltration tree-planters replacing standard stormwater entry-pits at Melbourne's Docklands (right)

Combinations of infiltration systems, bioretention systems and rainwater collection and reuse systems can produce results whereby discharges from small to medium storms match those of fully undeveloped lands with additional benefits to on-site detention.

Not only are these techniques beneficial in maximising the longevity of existing infrastructure and delaying the need for upgrade but they can help to reduce erosion of local waterways, water quality degradation and even demand on potable water supplies.

Stormwater quality monitoring in urban rivulets and stormwater pipes conducted by Hobart regional councils in collaboration with the Derwent Estuary Program from 2002 to 2005 clearly showed the effect of urbanisation on water quality. Results showed markedly the decline in water quality as the rivulets traversed increasingly urbanised land. The results of this program also emphasised the need for a shift away from the traditional approach to drainage design where water is efficiently removed from cities and towns, taking with it contaminants entrained during overland flow. In addition to the flow-related benefits of WSUD-style drainage design, huge water quality benefits exist too. By filtering water through vegetation and soil profiles, and providing for sedimentation in bioretention or wetland systems, water is cleansed of many pollutants picked up around towns and cities, such as sediments, litter, heavy metals, pathogens, nutrients etc.

In 2006, the Derwent Estuary Program released "WSUD Engineering Procedures for Stormwater Management in Southern Tasmania". This manual provides detailed guidance on the design and construction of WSUD systems and is available from www.derwentestuary.org.au. An updated state-wide version of this manual is under development and should be finalised in coming months, so look out for its release.

Two-day engineering workshops in the use of the manual for design of WSUD systems are currently being planned for the 29-30 March and 2-3 April in Hobart. Following the release of the state-wide WSUD manual, workshops will be held in the North later in the year. For more information about the courses contact todd.milne@environment.tas.gov.au or (03) 6233 3595.

TODD MILNE,
Living Environment Program,
Dept Tourism Arts & The Environment

YEAT

YEAT CHAIR

PHOEBE SWIFT, GradIEAust

Celebrate 2007

Welcome to a new year with Young Engineers Tasmania! Let us start this year in reminiscence of our achievements in 2006: starting with a social tour of 'Moo Town' – the Moorilla Micro Brewery, our annual 'Meet the Profession' evening with vast support from engineering employers from across the state, and our annual CPEng workshop with a diverse crowd of young engineers from the greater Hobart area (and now set to extend to the North of the state this year!).

Then young engineers from across the state worked together to raise the profile of engineering in Tasmania by visiting 17 schools participating in the Science and Engineering challenge, and the Tasmania Gen^{2}X (generational and gender) exchange has been adopted as a national initiative. In October Todd Houstein, founder and inaugural president of Engineers Without Borders Tasmania, was named 2006 Tasmanian Young Professional Engineer of the Year, and we finalised the year with the Connectivity for Refugees Quiz Night raising over $2,500!

So, what's in store for 2007:the Year of Women In Engineering? We will explore creativity, innovation and engineering excellence in Tasmania, facilitate open forum discussion for young Tasmanian engineers on topical engineering issues, play host to our Chartered Status career episode State assessor and continue to inspire upcoming generations of young engineers… Stay tuned for more information about our upcoming events and the development of our new website!

Forging partnerships, working together

By Jess Andrewartha, Vice-Chair

Young Engineers and Engineers Without Borders held an extremely successful Charity Quiz Night on December 13th 2006 at the Hobart Function and Conference Centre (Elizabeth St Pier).
A total of $2,675 was raised to launch a Connectivity for Refugees program in Tasmania, which is a fantastic result. Connectivity for Refugees is a not for profit program to teach refugees basic computer skills, which will enable them to gain information about Australia, keep up to date with news from their home countries, and write job applications and resumes.

I would like to extend a huge thank you to each and every one of the 180 people who came along and supported the event – it proved to be a very entertaining evening. There was plenty of friendly competition between the different engineering firms present, but the overall winners were the aptly name "Dream Team", who achieved a near perfect score!

The Dream Team - Our Quiz Night Winners - Congratulations

This has been by far the largest event that YEAT has organised, and also probably the most successful thanks to the efforts of the YEAT committee.

I'd also like to thank the Quizzer of Oz and the many companies who provided prizes for the event, or made direct donations to the program:

Hobart Cruise Centre, Tasmanian Parks and Wildlife Service, Republic Bar and Café, The Lark Distillery, Co-op Bookshop, Tattersall's Hobart Aquatic Centre, **Cadbury Schweppes Chocolate Factory**, New Town Station Nursery, Da Angelo's, Beauty and the Bees, Ray Appleby Cycles, Ricoh, Searson Buck, Aurora **and the Hobart Function Centre.**

Working for a stronger Young Engineers team

by Nathan Campbell, Student Rep Team

The Young Engineers Australia National Summit is a major event on the young engineer's calendar. This year, Old Parliament House played host to 250 young and senior engineers from a broad range of disciplines from across Australia. This year's summit was a single day event that encompassed a range of interactive workshops, professional learning sessions and lectures. Aside from the formal side to the summit, ample time was put aside for networking with colleagues and senior engineers.

Themed "state of play" the summit focused on the ever changing generational roles of young engineers in today's business environment. There were a series of lectures that discussed the increasing need for employers to be highly dynamic in order to retain quality younger generations of engineers. The studies that were presented to us suggested that younger engineers favoured a greater variation in work (and location) and that employers will need to strive to become employers of choice and retain company loyalty from the upcoming Generation Y.

YEAT page cont …..

The program of events was well mixed – lectures were spaced with interactive workshops that helped the group to mingle and socialise, and during the morning session we were presented with a series of case studies of Australian engineering excellence that were both informative and inspiring. The afternoon session included a personality test where the group was split into 4, and the traits and relationships between each group were explored.

Attendees at the YEA National Summit

I found the summit hugely beneficial – my professional network has grown significantly through contacts I made at the Summit and I have come back to Tasmania with a huge amount of enthusiasm and pride in the engineering profession. I highly recommend that as an engineering employer you encourage your young engineers to attend, and as a young engineer seek out opportunities like the summit to add to you professional development.

I must also thank Coffey Mining for their generous sponsorship that without, I would not have been able to attend the Summit.

Nathan Campbell, StudIEAust

Have your say

Suggestions? Comments? Write to us at yeat@ids.org.au and share your ideas.

YOUNG PROFESSIONALS NETWORK TASMANIA

On Thursday, 5 October, the Young Professionals Network Tasmania (YPNT) held a professional development seminar focussing on the recent IXL development at Sullivans Cove. The seminar was held at the Henry Jones Art Hotel. The evening provided attendees with an opportunity to further expand social and professional networks, while gaining a greater understanding of the variety of issues involved in a complex development of this kind.

The seminar comprised of three speakers, each having played a key role throughout the development. The evening began with a presentation by architect Robert Morris-Nunn, who provided the audience with an overview of the development and also highlighted the major architectural components and challenges of the project. Robert particularly focussed on the interactions that occurred between the various professional groups and the roles that each of these played to achieve an impressive project outcome. He also included an insight into the neglected state of the building prior to construction commencing, balanced with the need to ensure that the original features of the structure were retained.

The next instalment of the evening was presented by Town Planner Brian Risby, who highlighted some of the major planning issues commonly associated with a project such as the IXL development, and explained how these were overcome. Brian stressed the importance of involving planners from the beginning of a project such as the IXL development; especially to ensure community satisfaction is obtained.

The final presentation of the evening was from the lead structural design engineer for the development, Jim Gandy, who played a pivotal role in making the IXL atrium a reality. Jim spoke of the particular uniqueness of the development from an engineering perspective in that the existing, and in some parts unstable structure, was to be retained. Jim also spoke about some of the fire safety requirements needing to be satisfied and how this was achieved.

The seminar presentations were concluded with an interesting tour of the IXL building led by Jim Gandy and Brian Risby, where some specific structural design details were identified, and where some of the planning challenges were highlighted. The evening was capped off by drinks and nibbles, which provided a further chance for discussion and networking between attendees.

The night was a great success with impressive presentations being well received all round. We would like to extend our appreciation to the presenters for providing a rare opportunity for all those present to gain a better understanding of the wide variety of services that professionals deliver in a development of this type.

It was great to see a good mix of attendees from various professions, and we hope to see even more young professionals at the next YPNT function!

Our first event for 2007 is highlighted on page 12 - we encourage all Young Professionals to attend.

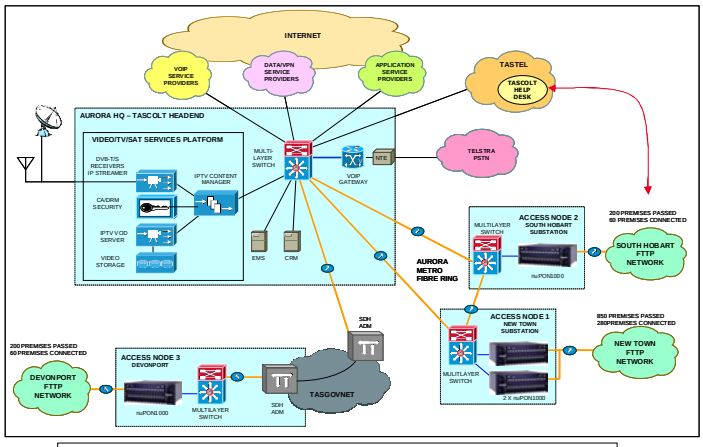
BEN HANSLOW, GradIEAust

"TasCOLT"- Tasmanian Collaborative Optical Leading Testbed

Presentation by Richard Wiatr to the November meeting of the Hobart Joint Electrical Program

Richard Wiatr commenced his presentation by describing the TasCOLT project as a $10m, 3.5 year project to demonstrate the business case for major fibre to the premises (FTTP) deployment in Tasmania of around 50k premises.

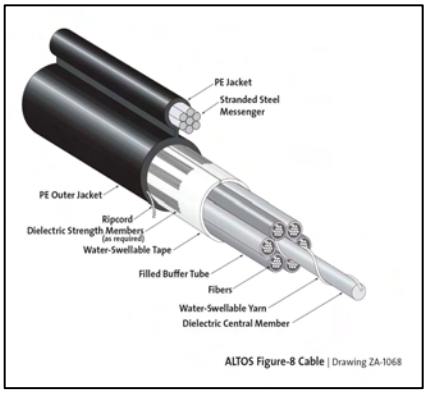
The project resulted from a study commissioned by the Government and carried out by the Tasmanian Electronic Commerce Centre (TECC). It is funded by the Tasmanian Government through the Department of Economic Development (DED) and by heavily discounted materials & in-kind support from the founding members (DED, CEOS, TECC, Aurora Energy, TasTel) and technology partners (Hitachi, Corning, Intel, Acer, Minerva, Entone, Latens, Macrovision). It is supported by the TECC.



TasCOLT Network Topology

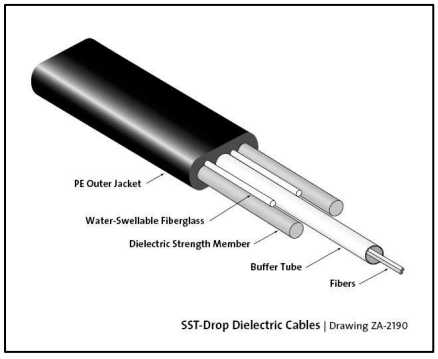
CEOS (Customer Equipment & Optical Solutions**)** is the network architect and supplier of all active equipment plus external plant materials. The network, which is being constructed by Aurora, will also be owned and operated by Aurora, with TasTel being the exclusive retailer during the trial period.

He stated the project was a State Government initiative for the advancement of Tasmanian telecommunication facilities and services through collaboration between Government, world class vendors, network and service providers, local SMEs, healthcare facilities and the education sector. The objective is to make Tasmania a showcase of the benefits of an FTTP ultra-broadband network tailored to meet the requirements of cities & regional towns in Tasmania and provide a globally competitive environment for investors and developers to conduct trial and research activities in Tasmania as well as supporting developments within the local ICT industry. TasCOLT will be used to demonstrate the business case for major FTTP deployment in Tasmania of around 50,000 premises.



Wiatr answered his rhetorical question of "Why Fibre To The Premises" (FTTP) by stating fibre is the ultimate telecommunication medium. Data rates over a single glass fibre strand using light as the "carrier" of data have increased from 155 Mbps to 10Gbps using one wavelength of light to 1.7Tbps (1,720Gbps) using 172 wavelengths of light (DWDM). To put this in perspective, he said the total data rate from Melbourne to Sydney is around 1.5Tbps. We could, with today's technology, deliver this entire traffic to a single home over a FTTP network. In addition, the cost of FTTP networks has fallen significantly over the past 10 years and the ROI is now of the order of 7 to 8 years.

While TasCOLT is currently an aerial FTTP network erected on Aurora's power poles with only customers with an overhead electrical service cable initially being offered a connection, new fibre laying technologies such as micro-trenching (a narrow, 100 to 150mm deep trench beside the kerb)and directional drilling are making underground provision of fibre much more economic. Some local councils are mandating that property developers lay pits and pipes (P&P) for new estates with ownership of the P&P infrastructure being transferred to the council. The P&P infrastructure will be offered to consortiums who wish to construct FTTP networks in these estates. Some governments see fibre networks as the fourth utility. State Government land development authorities are now installing FTTP networks on their own property developments resulting in the benefits of greater customer take-up, increased property values, etc. It is anticipated that this trend will accelerate in the coming years.



Initial TasCOLT installations will cover areas of South Hobart, New Town and Devonport. Residential packages are still being finalized but are expected to incorporate fast internet, VOIP, video on demand and digital broadcast TV (5 channels). Appropriate packages for business, health and education are also being developed. There will be a commercial trial for a two year period.

Wiatr continued on to explain the main components employed within the network and developed a typical layout for a distribution area. He said that typical distribution cables would have up to 144 fibres with 32 customers sharing a fibre via a 32-way passive optical splitter. He indicated that the South Hobart area is expected to be completed and handed to the Government early in 2007 with the Devonport area following shortly after.

DAVID BRUMBY, FIEAust CPEng

HERITAGE MEETING

DATE: Thursday 8 February 2007

TIME: 7.30pm

PLACE: Royal Engineers Building
2 Davey Street, Hobart

SPEAKER: **MR ROBIN BLACK,**
BE MEngSc FIEAust
Chair, Engineering Heritage Australia

ENGINEERING HERITAGE & HISTORY IN THE SUNSHINE STATE"

Firstly this illustrated talk will show how history, geography, and climate have influenced engineering practice in Queensland. The discovery of gold, the world's first mainline narrow gauge railway, the on-going mining boom, long remote highways are major features.

Secondly it will show how difficult it is to retain heritage in an environment where many historic structures use timber, where white ants, cyclones and vandals abound, where tourists are satisfied by fakes and where progress and modernity rule. Despite all this there will be pictures of our 3km long timber bridge, our 1880 concrete arch dam, our 1896 reinforced concrete bridge, 1897 hydro electric plant 500km from the nearest mountains, our WW2 three-pin nailed arch igloos, along with assorted mines, ships and steam engines.

Robin Black began his two-year term as Chair of Engineering Heritage Australia on 1st January 2007. He is a retired hydraulic engineer who has chaired the Queensland Division's heritage panel for eight years and was a key organiser of the Toowoomba Engineering Heritage Conference in 2003. He is a lively and entertaining lecturer.

Light refreshments will be served following the meeting.

RSVP: Catherine Reading 6234 2228 or creading@engineersaustralia.org.au

JOINT ELECTRICAL & MECHANICAL BRANCH

SITE VISIT

ROYAL HOBART HOSPITAL DEPARTMENT OF EMERGENCY MEDICINE

DATE: Tuesday, 13 February 2007

MEET: 5.30pm at Hinman Wright & Manser Site Office**.** Corner of Argyle & Liverpool Streets. Entry at the corner or at the first fly-over bridge opposite City Police Station

ARTHUR REID, MIEAust &
ALAN COOTE, MIEAust CPEng
Kingston & Associates

This significant piece of Tasmanian Infrastructure will be nearing completion and it will be an opportune time to view the latest advances in Building Services adapted to a medical environment. (and preferable to having an enforced visit after it opens!)

Enquiries concerning the tour can be answered by calling 6234 5522 or 0419 382 120 on the night.

Attendees are welcome to return to the Royal Engineers Building after the site visit for informal discussion and questions and also to enjoy some wine and cheese.

RSVP: Please confirm your attendance with Catherine Reading 6234 2228 or creading@engineersaustralia.org.au by Friday, 9 February 2007

THIS MEETING WARRANTS 1.5HRS CPD

CALENDAR 2007

FEBRUARY

Thursday 8 - Heritage - Engineering Heritage & History in the Sunshine State - Robin Black (Chair, Engineering Heritage Australia) - 7.30pm - Royal Engineers Building, 2 Davey Street Hobart - RSVP to Catherine Reading on 6234 2228 or *creading@engineersaustralia.org.au* (Refer to page 11)

Tuesday 13 - Joint Electrical & Mechanical - SITE VISIT - Royal Hobart Hospital, Department of Emergency Medicine - Arthur Reid & Alan Coote (Kingston & Associates) - 5.30pm meet at the Hinman, Wright & Manser Site Office - Informal discussion & networking in the Royal Engineers Building following tour - RSVP to Catherine Reading on 6234 2228 or *creading@engineersaustralia.org.au* by Friday, 9 February 2007. (Refer to page 11)

Thursday 15 - Australian Institute of Environmental Health Field Day Trip to the Coal River Recycled Water Scheme - 10.30am to 3.00pm - $60 AIEH Members, $90 Non Members - Register with *jcolavecchio@gcc.tas.gov.au*

Friday 23 - YPNT - Networking Event - 5.30pm - Marina Room, Hobart Function Centre - $10 per person - **Tickets MUST be purchased prior to the event** from Catherine Reading 6234 2228 or *creading@engineersaustralia.org.au* (Refer to this page)

Thursday 22 & Friday 23 - EEA - Writing Winning Technical Documents Short Course - Telephone 9236 9777 or visit *www.eeaust.com.au*

MARCH

Monday 5 - Superannuation Strategies under the new Rules - 5.15 for 5.30pm - Presented by Mark Gashi from Prudentia Financial Group - Royal Engineers Building, 2 Davey Street Hobart - For full details and to register, contact Catherine Reading 6234 2228 or *creading@engineersaustralia.org.au*

CPEng Workshops

Lyal Douglas, a National Accredited Assessor will be visiting Tasmania to conduct combined CPEng & Career Episode reporting workshops.

HOBART - Tuesday 6 - 5.30pm - Royal Engineers Building, 2 Davey Street Hobart - Register with Catherine Reading 6234 2228 or *creading@engineersaustralia.org.au*

LAUNCESTON - Wednesday 7 - Venue to be confirmed - 5.30pm - Register with Catherine Reading 6234 2228 or *creading@engineersaustralia.org.au*

Young Professionals Network Tasmania

"Fostering strong networks for Tasmania's future"

YPNT is proud to invite all young Engineers Australia members to our first networking event for 2007, to be held on Friday, 23 February in the Marina Room at the Hobart Function Centre from 5:30pm to 7:30pm. Drinks and food are provided, and a lucky door prize will be drawn on the night.

The Young Professionals Network Tasmania is an innovative, Not for profit group that aims to retain, develop and enhance Tasmania's young professional community via a strategic networking forum.

Last year YPNT ran a number of highly successful events, including the launch of the group in Hobart and Launceston, as well as a professional development seminar based around the interaction and work done by professionals in the IXL/Henry Jones hotel development. Plans are already well underway to ensure 2007 has an even greater number of opportunities for professionals to network and expand their knowledge through the YPNT.

These events allowed YPNT to foster links amongst individuals in a broad variety of fields and to assist members to achieve solid networks and support groups, while also contributing more generally toward achieving an integrated approach to issues relating to Tasmania's built environment. In providing this avenue for interaction and networking amongst young professionals, it is thought that YPNT's informal events and seminars have, and will continue to assist in retaining young people within the Tasmanian workforce, benefiting the individuals, their business and the Local and State economies.

Tickets for the event are $10, and **MUST** be purchased prior to the event by contacting Catherine at Engineers Australia, on 6234 2228, or creading@engineersaustralia.org.au .

Please remember that tickets are very limited for this event, and last years function sold out two weeks before the event. Tickets are on a first come, first served basis.

YPNT would also like to extend its thanks to our sponsors who made 2006 such a successful year through their support:

CPA AUSTRALIA GHD Hydro Tasmania

LUKE CROWLEY, YPNT President