

## Executive Summaries

### 2008 Bursary Vacation Placements in **Tasmania**

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**STUDENT:** Robert Stevenson (UTAS)  
**COMPANY:** Transend Networks



I spent four weeks at the end of first year (2008) with Transend Networks, Tasmania's Transmission Network Service Provider (TNSP).

My area of interest is alternative energy technology, and before starting work at Transend, my impression of transmission was that it was basically a maintenance industry – fixing lines after storms – that kind of thing. I was amazed to discover how dynamic and varied the field is, and the extent to which transmission issues are central to the area of alternative energy.

There is a significant challenge ahead if even modest cuts to carbon emissions are to be made over the next decade. Few locations well suited to alternative energy production are serviced by available transmission lines. Building new transmission lines is extremely costly – around \$1m per kilometre is not unusual. Everyone wants access to power, and everyone loves wind farms – but even if the money is available to build them, nobody wants transmission towers near them (for three times the price lines can be placed underground.)

In transmission there are large areas wide open for innovative research – for instance it is very difficult to accurately model real loads, so educated guesswork is typically employed. This works, but only to the point where something unexpected happens, and then circuits can trip with unfortunate consequences. Transend is involved in research to collect data and model real customer loads more accurately, so that currently unexpected events can become modelled events, leading to greater efficiency and stability in the transmission network.

Another interesting area is dynamic line rating. Most transmission lines are statically rated – meaning that a set of industry standards is used to determine how much current can be sent down a line depending on the ambient temperature before it overloads. With good engineering and well placed weather stations, lines can be rated dynamically – taking into account the cooling effects of wind and other variables. Lines can be run far closer to their actual maximum rating (up to 20% more current delivered) resulting in far more efficient use of resources.

My time at Transend made it much clearer to me why we don't see more alternative energy in the grid. I was amazed by the complexity of the markets and the difficulty of decision making in the transmission industry. There are large numbers of stakeholders with a right to make submissions before even quite simple decisions can be made, and significant business and government resources are devoted to network planning.

When the power system in Melbourne collapsed in the heat I was able to ask experts in all areas of the business why such events occur and what options existed for fixing them or building more sustainable solutions. I had very open access to Transend's management, engineers, technical staff and business development teams and was privileged to be given many expert guided tours of Tasmania's transmission system.

Thank you to my direct supervisors (Bess Clark, Steven Jarvis and Kirstan Hoppitt) and to everyone at Transend who made my time there so enjoyable and educational!

**STUDENT:**  
**COMPANY:**

**Osama Ali (UTAS)**  
Norske Skog Paper Mills (Boyer, TAS)



The following report is a summary of the work experience undertaken by me as part of the Australian Power Institute Bursary. My vacation employment was with Norske Skog paper Mills, based in Boyer, Tasmania and was over the summer break starting December 2008.

It was brilliant to have been given the opportunity to put my first year at university into a totally different perspective. The API afforded me the chance to gain some industrial experience as part of the bursary program, especially considering it was my first year at University.

Norske Skog is a global paper manufacturer, the third largest in the world by volume of newsprint. Their Boyer, New Norfolk (TAS) mill supplies almost 60% of paper produced in Australia for Newsprint purposes and this is done mainly using Radiata pine and re-growth eucalypt plantations.

My month at Norske Skog mainly involved working with their huge assortment of HV switchgear and transformers, some of which are over fifteen (15) years old and require effective and regular maintenance to ensure their continued reliable operability.

I was assigned the task of creating maintenance procedures for the various HV Switchgear around the plant. The work involved visually inspecting/operating, documenting as well as referring manufacturers and documentation to compile concise, accurate and easy to use maintenance procedures.

During the latter part of my time at Norske Skog, an Oil Filtration Rig for transformer filtration had been sourced and purchased to deal with transformer maintenance. Working closely with Stuart James (Mechanical Project Engineer - Boyer), specifications were made for relevant equipment to operate the filtration rig as well as standardized documentation for correct operation of equipment costing in excess of AUD 300,000.

On a later visit to the Boyer Mill, I was informed the documentation I had written up had proved effective and had resulted in time and money saved on the part of the company. The filtration rig had been worked smoothly by plant operators using instructions written by myself.

I would like to extend my personal thanks to Norske Skog, and especially to Leigh Johnston (Electrical Maintenance Team Leader), Patrick Dooley (Project Manager) and Michelle Brooks (HR Manager), who looked after my interests and have certainly altered my career choice, moving me towards a focus on Power Engineering.

Congratulations are in order for the Australian Power Institute for a much needed bursary program in an extremely promising field. A special thanks to Professor Michael Negnevitsky from the UTAS School of Engineering for his effort, support and enthusiasm with regards to the API.

**STUDENT:** Andrew Godfrey (UTAS)  
**COMPANY:** Aurora Energy LTD



I completed my first year work experience at aurora energy. Owing to unforeseen circumstances I was only able to complete one week of work experience. Due to this short period of time I was only really able to touch on what aurora has to offer as Tasmania's Premier Power retailer. I worked under Darryl Munro who is the Metering Installations Manager in the Network area of Aurora. I would like to thank him for a great experience one where I worked under a fantastic group of people and it was an ideal way to get a first glimpse of working as a engineering in the real world.

**STUDENT:** Samantha Connelly (UTAS)  
**COMPANY:** Hydro Tasmania



I Samantha Connelly, was placed at Hydro in the business development section for my API work experience, Hydro is responsible for the power generation process in Tasmania.

My work experience involved a trip to the Gordans Dam power station and a mini project on energy storage which I had to research and put a small presentation together. I enjoyed the experiences greatly and it was great to see the theory we learn in use.

I got an impression that power engineers are in high demand and face many different challenges, for example when I was in hydro there was a project going on that involved power on king island, they were trying to figure out ways for king island to not rely on diesel generation. It was very interesting and seemed like a great challenge.

This work experience has also taught me that office jobs can be a little repetitive at times but I think that was because I went in as a first year and I do not know a lot of the theory involved. I mostly read documents and web pages over the two weeks which was a little repetitive but overall it was a great experience.

I would like to acknowledge Dr Marian Piekutowski for being my supervisor and all the staff at hydro who helped me.

**STUDENT:** Sonia Lawrie (UTAS)  
**COMPANY:** Transend Networks



I worked with Transend Networks for a period of four weeks during the summer of 2008-2009 as part of the API bursary program. I had just completed my first year of a Bachelor of Engineering at the University of Tasmania. Still having three years to go in my course, the work experience was a brilliant chance to see what Power Engineering is like on a day to day basis and a great chance to further my understanding of the field.

Transend Networks owns and operates the electricity transmission system in Tasmania. They own 3650 circuit kilometers of transmission lines, 47 substations and 9 switching stations.

At Transend networks, I spent two weeks in the Transmission Operations Group and two weeks in Revenue Regulation.

Working in Transmission Operations gave me the chance to talk to a number of senior and graduate engineers allowing me to gain from their experience and understanding. This was especially useful considering my aim to work in the power industry. On an individual level, I was involved in the task of creating a policy and ensuring specifications matched Australian Standards.

Also, the two weeks spent in Transmission Operations at Transend gave me the opportunity to visit substations, and power stations all around Tasmania. I also got the chance to observe a tree removal inspection for a new transmission line in Northern Tasmania. The chance to go out of the Transend Office and into the field really opened my eyes and ears to what engineers do on a daily basis.

In the Transend Network Regulation Department, I learnt about the compliance framework, the revenue proposal and regulation of the Electricity Supply Industry. I was responsible for reviewing an introductory document relating to the NEM and NEMMCO. Working with my fellow vacation student, Robert Stevenson, we put together a presentation on how to draw graduates into Transend and towards a rewarding career in Power Engineering.

Only having done one year of university study, I'm very grateful for Transend Networks to have taken me on. I learnt a lot and have been motivated and inspired to continue studies in power engineering. It was a great experience and I look forward to another year of University followed by a chance to put my knowledge into practice.