

Executive Summaries

2009-2010 Bursary Vacation Placements in 'Tasmania'

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STUDENT: Andrew Koolhof (UTas)
COMPANY: Aurora Energy



In December 2009 I took part, along with three fellow university students, in an eight day operation and distribution familiarisation program with Aurora Energy, Moonah, Tasmania. The objective of the program was to give us as first year engineering students an insight into what it was like to be an engineer in the workplace and the structure of companies such as Aurora: "The aim of the program is to familiarise undergraduates with an electricity distribution business and give an insight into engineering careers." (Email from Bruce Amor, Manager of System and Asset Management, 23/9/09). The purpose of this report is to provide information to sponsors of the API Power Engineering Bursary program and relevant organisations of the nature of the activities undertaken by bursary holders and the perceived value of these experiences.

During the program we worked with numerous engineers in varying fields of the Network Assets Division and saw the general layout of the work they undertook on a day to day basis. Initially we were given an overview of the company structure of Aurora, as a domestic, commercial and industrial electricity retailer as well as the owner and caretaker of many of Tasmania's electrical powerlines and the related infrastructure. This included visits to the retail and operations centre in Battery Point, the Network Services base out in Cambridge and a tour of the Network Assets Division based in Moonah.

Field trips were a major component of our time with Aurora giving us a great opportunity to see and understand the vast array of work carried out by Aurora and how Aurora fitted into the wider power industry. We visited power stations and transmission sub-stations as well as seeing numerous re-closers and transformers and the work done on these devices. During our placement we were also given the opportunity to tackle a small challenge of our own, which involved transferring data from an Excel spreadsheet into one of Aurora's controlling pieces of software.

Throughout our field trips I found myself applying the electrical principles I had learned at University last year and increasing my understanding of how the theory applies in the field. This was a valuable outcome of the program.

STUDENT: Sebastian Cook (UTas)
COMPANY: Aurora Energy



This report is a summary of my vacation work placement being an Australian Power Institute Bursary recipient. In December 2009, at the end of my first year at university, I spent two weeks at Aurora Energy where I undertook an operation and distribution familiarisation programme.

I was grateful for the opportunity to see what it is like to work in the industry and to learn more about the operation of a electrical distribution network. During my two weeks of placement I also had the fortune to visit some power generation stations and transmission substations.

Aurora Energy, owned by the Tasmanian Government, is Tasmania's electrical distributor and the predominant electrical retailer. Aurora delivers energy from the transmission network to the state's 250,000 customers. Recently Aurora is involved in the rollout of the Federal Government's National Broadband Network in Tasmania.

During my time at Aurora I was mainly in the Network division which is where many of the engineers are employed. Network is responsible for the management, development and operation of the distribution system. In this division I was shown many of the things which a professional engineer may be required to do, such as project management, asset management and setting up Christmas decorations.

I was shown around Aurora's Cambridge facility, the home of Network Services. Network Services is the division of Aurora which oversees the construction, operation and maintenance of the company's assets. I was fascinated by the live-line work I witnessed, where a pole and recloser were replaced without interrupting the power to customers.

Thanks go to my supervisor, Aurora Energy, Transend Networks, Hydro Tasmania, Clark Energy and the Australian Power Institute for the opportunity to experience work in the industry.

STUDENT: Thomas Veit (UTas)
COMPANY: Aurora Energy



This summer I worked at Aurora Energy for two weeks. The objectives of my placement at Aurora were to learn about the workings of the Aurora distribution department, and also to learn about the maintenance and retail sections of Aurora. I was supervised by Francisco Pontes along with two other UTAS students, Andrew Koolkof and Sebastian Cook.

Aurora Energy was founded on July 1st, 1998 after the Tasmanian Hydro-electric Commission was broken down into three state-owned companies: Hydro Tasmania to generate power, Transend Networks to transmit high-voltage power, and Aurora Energy to distribute and retail power. Since then Aurora's retail and distribution sectors have become more individually defined. Today Aurora Energy can be seen as three separate sectors of one business: Aurora Retail, Aurora Distribution and Network Services, which is made up of contractors who work under the Aurora name.

Our role at Aurora Energy was purely observatory. We were based at the Aurora Asset Management Team and shown the function and challenges faced by individuals at the company. We attended staff meetings and were shown all Aurora departments. We were given the chance to observe repair work being performed on power lines where the process of replacing unsafe/unsuitable power poles was explained with great detail. We were also shown facilities belonging to Transend Networks and Hydro Tasmania. Though our timetable was solely based on learning as much about the Tasmanian power industry as possible, Franc was very flexible in adapting the schedule to incorporate what we were more interested in. We were keen to try to get some practical experiences and were given a dummy-task of coming up with a process for entering recloser sim numbers into the remote network control software. This helped us learn much about the technique of planning and executing projects in the workforce.

The time I spent at Aurora Energy was irreplaceable. I have gained a far better understanding on the workings of the Tasmanian Power Industry, in particular Aurora. Since this was the objective of my placement I can conclude that my experience at Aurora was a complete success and given my level of engineering proficiency a great effort was made to give me practical experiences.

STUDENT: Sonia Lawrie (UTas)
COMPANY: Transend Networks



My name is Sonia Lawrie and I am just starting my third year of an Electrical power engineering course at the University of Tasmania. I worked as a vacation student at Transend Networks over a period of 12 weeks between November 2009 and February 2010. My aim for my work placement was to learn as much as I could about the power industry, about Transend itself and to become an asset to the team I was working with.

I worked within the substations team who are responsible for operating, monitoring and maintaining the substation assets and providing expertise to other departments within Transend. I was primarily involved with the condition monitoring of the power and instrument transformers. Part of the condition monitoring involves taking oil samples from transformers and running tests to determine the inner state of the asset. I worked with a number of groups to upload the latest results into Transend's internal database. I also wrote a report on the latest test results for the instrument transformers. These tasks aided me in my main project which was creating a template for a condition assessment report of power transformers. This required me to find issues and condition reports for each transformer and to summarise these findings into tables.

Two other tasks I did were ensuring that there were operating manuals for various assets and checking ratings of circuit breakers. I also had the opportunity to visit a number of substations which was the most educational and enjoyable part of my placement. Each of the tasks I completed was a new learning experience and they allowed me to familiarise myself with the role of the substations team and the various tools and systems within Transend.

This vacation work has been a wonderful experience and has convinced me that the power industry is my career of choice. There is a great deal of people who I would like to thank, but I would particularly like to thank the substations team who have taught me so much and made my time at Transend so enjoyable.

STUDENT: Andrew Godfrey (UTas)
COMPANY: Transend Networks



My name is Andrew Godfrey, I am a third year Engineering, majoring in power Engineering at the University of Tasmania. As a recipient of an API bursary in 2008 I was fortunate enough to be offered work experience over the summer at Transend Networks. Due to overseas travel I was only able to complete 2 weeks out of my 4 week rotation, though I wish I could have completed more as it was a fantastic experience and one that I cannot wait to have the opportunity to complete again.

I was able to spend some time in many different areas of the company which allowed me to get a broad understanding of the company and of how important an asset Transend is to Tasmania. Perhaps the most interesting part of my few weeks at Transend was spending a day in the operations centre which is responsible for the operation of the entire Tasmanian transmission network, which in turn is connected to mainland Australia by Basslink. The decisions that are made every day in the operations have the capacity to affect the entire population of the state.

I also spent a day with the safety team; we travelled to Waddamana where the new substation is being built for the Waddamana to Risdon high voltage 220kV line to supply the expanding population on that side of the Derwent River. It was fantastic to get a real insight into such a large project which provides such great job prospects for Tasmanian companies. It was also an immense eye opener to the vast size of the project at hand and the many safety issues that are involved with high voltage equipment.

The vacation work has been a fantastic experience and one that makes me think that all the hard work at University will be worth it to have the chance to work in such a diverse industry. Thanks must go out to everyone at Transend who are so accommodating to all young aspiring engineers, providing fantastic support and opportunities that should not be passed up. Thank you also to the Australian Power Institute for providing the bursary and the valuable work experience.



STUDENT: Osama Ali (UTas)
COMPANY: Transend Networks

Transend Networks Pty Ltd owns and operates substations and power lines around the state. Their assets include 3650 circuit kilometres of transmission lines, 47 substations and 9 switching stations. Transend Networks is also registered with AEMO (Australian Energy Market Operator). I spent four weeks at Transend Networks at their offices in Maria St and Birdwood Avenue, and was given the opportunity to work in four different groups, spending a week in each of Works Planning (Week 1), System Performance (Week 2), Strategic Grid Planning (Week 3) and Project Estimation (Week 4). I spent my first week in the Works, Planning and Environment Group at Transend. This division is responsible for arranging and co-ordinating scheduled and unscheduled outages for works on Transend assets. I was given the opportunity to analyse transmission network throughput for a planned outage and this really helped me appreciate the importance of careful managing of the power grid.

I spent the following two weeks with the System Performance and Planning groups. These groups are responsible for power grid performance, making plans to adapt the Tasmanian power grid to new technologies as well as addressing maintenance, grid end of life replacement and so on. I was lucky enough to be given an introduction to system performance testing using PID control. I was also given a project to complete, which was to carry out some background research into Methods of Reactive Power Support and specifically, the use of Synchronous Condensers. The project provided a great learning experience into different methods adopted by power companies. My final week at Transend was spent almost entirely outdoors! I was given the opportunity to travel around Tasmania to see various Transend substations and works. I was also introduced to the Transend Project Estimation group that deals with estimating for capital works. It was fantastic to see how budgeting is carried out for large scale projects and the various factors that are considered in costing.

On the whole, I found my four weeks at Transend to be absolutely brilliant. I felt productive to the point of my abilities with two years of an Engineering degree under my belt. I also met some great people who took the time out of their busy schedules to answer my questions and help me fit in. I would like to congratulate the Australian Power Institute for the opportunity I was afforded and thank them for their vision. Also, to Transend Networks and all their brilliant staff for the welcoming, learning atmosphere they provided. I would specifically like to thank Prof. Michael Negnevitsky from the UTAS School of Engineering for his dedication to arranging my work experience as part of the API Bursary Program.