



Australian Government

Department of the Environment, Water, Heritage and the Arts
Australian Antarctic Division

ELECTRICAL PROJECTS ENGINEER

Overview

As the Electrical Projects Engineer you will co-ordinate the operations of the energy supply system at Mawson Station. The energy supply consists of two 300kW Wind Turbine Generator's (WTG), five Diesel Generators, grid reactive electric boilers, fuel fired boilers and a power station control system. You will ensure smooth operation of the energy supply system by carrying-out programming, fault-finding and optimisation of control system logic.

You will also be involved in developing and implementing energy efficient control strategies for building services such as heating, lighting, etc.

Depending on your experience and capabilities you may be involved with supervisory responsibilities.

What will you actually do on the job?

You will provide specialist knowledge and skills in order to monitor and develop strategies to maximise the benefits of the energy supply system. In particular, you will:

- Carry out the analysis and programming of improvements in system performance, with particular emphasis on energy efficiency.
- Develop the SCADA system to produce reports and trends.
- Develop and produce monthly operating reports.
- Scrutinise and modify documentation of the installed system.
- Supervise any modifications required.
- Co-ordinate routine maintenance of the turbines/diesel generators/boilers.
- Train station based employees in the operation of the energy supply system and associated equipment.
- Review procedures for the safe operation of the equipment.

You will also be required to carry out work on the Building Monitoring and Control System (BMCS) and C-Bus lighting system. In particular:

- Development of SCADA system graphics, trends and reports on the usage of energy, water, fuel, etc.
- Development and programming of energy efficient control for the heating and ventilation of buildings.

- Programming of the control for external lighting.

You will also be required to carry out and co-ordinate work on the Computerised Maintenance Management System (CMMS), Maximo. In particular:

- Operate and maintain the system.
- Review Standard Operating Procedures.
- Review current Preventative Maintenance tasks.
- Assist in the development of condition based monitoring procedures and the implementation of predicative based maintenance programs.

Other:

- If required, co-ordination of the activities of a multi-disciplined trade group on station over winter.
- If required, monitor and report on progress of the winter work program.
- Provide specialist engineering input to other projects.
- Undertake the tasks associated with the position, in Antarctica, as required.
- You are required to maintain a personal and practical commitment to the AAD's OHS and Environmental Policies. The safety and environmental roles and responsibilities relevant to your position will be communicated to you by your supervisor.

As well as these specific job roles you will also be required to, in common with all other expeditioners, perform duties rostered by the station leader to support the community life of the expedition, such as general kitchen duties, garbage clearance, water duties, and assisting other expedition members with official programs.

Required Skills, Knowledge and Attributes

- Power generation and a sound technical knowledge of power system protection and control strategies.
- Programming and interfacing field devices to PLC and SCADA systems. Sound technical knowledge of plant and equipment control strategies.
- Operating Computerised Maintenance Management Systems.
- Maintenance aspects including Asset Management, Asset Performance, Risk Assessment, Risk based Preventative/Predictive Maintenance Programs, Standard Job Procedures, etc.
- Oral and written communication skills, in particular system documentation and the production of reports through the interpretation of data/trends.
- Communicate with and provide technical advice to people from a diverse range of backgrounds, including the ability to supervise trades personnel, where required.
- Ability to be technically resourceful, solve problems and operate with a minimum of supervision.
- Building services automation and HVAC control.
- Computer operating systems, industrial communication protocols, interfaces and devices.

You will have professional engineering qualifications, preferably in an electrical discipline.

Personal Qualities Requirements

As the member of a small community there are also personal attribute requirements which the Australian Antarctic Division assesses very closely. You will need to meet the personal qualities criteria listed below.

To be successful you will:

- Demonstrate a strong work ethic.
- Demonstrate that you can make a positive contribution to community and team.
- Demonstrate that you respond to authority and are compliant with the law, legislative requirements and AAD policies and procedures.
- Demonstrate a commitment to Australian Antarctic program specific requirements.

Medical, Psychological and Security Screening

If you are assessed as meeting the above job related and personal quality requirements, you will be required to undergo medical, psychological and security screening. Meeting the requirements of these is mandatory.

- Our Polar Medicine Unit will decide on your medical fitness for duty in Antarctica following tests conducted on our behalf by a nominated medical practitioner (currently Health for Industry).
- Psychological assessments are conducted on our behalf by the Directorate of Psychology, Department of Defence.
- Security checks vary depending on the role required. This may be limited to a police records check.