

Mervyn Davies' Enquiry: Power and Water's Progress Report

Summary

May 2009

Overview

Power and Water Corporation delivers electricity in one of the toughest natural environments in the world. This environment accelerates the ageing and deterioration of electricity generation and network assets. In September and October 2008, approximately 15,000 customers were affected by separate power outages as a result of equipment faults in and around the Casuarina 66/11kV zone substation. The equipment faults involved an 11kV circuit breaker, two 11kV cable boxes and three 11kV cables.

This caused community disruption and concern about the performance of Power Networks' assets. As a consequence, the Northern Territory Government commissioned an Enquiry, led by Mervyn Davies, to investigate these faults and Power and Water's substation maintenance practices. The Enquiry provided its Final Report in February 2009 (the Enquiry Report), in summary recommending:

- A move to a more 'condition based' approach to substation maintenance management;
- A significant Human Resources Development program;
- A condition assessment and remedial program for all zone and distribution substation equipment; and
- Casuarina Zone Substation 11kV switchboard should be replaced.

Power and Water immediately committed to implementing the Enquiry Report's Recommendations as soon as possible. This document is a summary of Power and Water's first report on recent progress and plans, detailing 37 major milestones that give effect to Mervyn Davies' recommendations and incorporating the urgent work associated with the Remedial Asset Management Program (RAMP). RAMP will ensure safe access to substations in order to carry out remedial works and replace the Casuarina Zone Substation 11kV switchboard.

Power and Water is committed to transparent reporting to stakeholders, including customers, the Northern Territory Government, the Utilities Commission and the wider community. An extended technical document is also available at www.powerwater.com.au. Feedback on these reports would be welcomed.

Power and Water expects every milestone and Recommendation to be complete by December 2010. There has already been significant progress in the months since the Casuarina events and the Enquiry Report, with each Recommendation on track including:

- Condition-based maintenance commencing on assets, with training underway on test gear and new training managers being appointed.
- A wide-ranging restructure of the Power Networks (PN) business.
- A Leadership Programme has just commenced in the Power Networks' business to improve collaboration with the workforce.
- Staff communication has improved through a number of communication channels.
- A 'round the clock' condition assessment and remedial program has commenced.
- A temporary switchboard has been installed at Casuarina to restore the substation to its original capacity, and plans for its permanent replacement are well advanced.

Power and Water is determined to complete these Recommendations safely and with minimum disruption to customers. On completion, Power and Water will offer a more reliable, much improved service, with a well-funded, well-trained and well-led workforce to keep it that way. This will ultimately benefit all Power and Water's customers.

What does this mean for our customers?

Short term, reliability will continue to be a challenge

RAMP will drive significant maintenance activity. Careful planning will, to some extent, minimise the impact on customers:

- Customer outages will be avoided wherever possible.
- Where a planned customer outage is unavoidable, advance notice to affected customers will be given using letterbox leaflets, newspaper or radio advertising. Those customers will be given at least 7 days advanced notice of any planned interruptions.
- Where maintenance action gives rise to the risk that an item of equipment cannot be returned to service within a reasonable period, arrangements will be developed prior to the outage to limit the impact on customers. Week night and weekend work will be utilised to reduce the need for planned outages during weekdays.

At this stage in the remedial maintenance planning process, there are no anticipated interruptions for maintenance work scheduled over the period to the end of March 2010. This outcome is primarily due to the design of the network, which at most levels can withstand the loss of one piece of equipment without causing interruptions to any customers.

At a later stage, it may become necessary to plan interruptions to maintain items of equipment which are dedicated to servicing individual customers or small groups of customers. Any planned interruptions that become necessary to carry out the remedial maintenance work will be at least conducted in accordance with the above principles.

Power and Water is doing all it can to put in place adequate contingency plans to minimise the impact on customers.

.....but long term, reliability will improve

An increased emphasis on maintenance will provide customers with a substantial improvement through the reliable operation of power network equipment. Specifically, there will be increased emphasis on:

- education for trades people, technicians, supervisors and the management team;
- a streamlined maintenance cycle;
- increased accountability of maintenance activities;
- improvements in maintenance documentation;

- increased resources to perform the work; and
- specific requirements for reporting maintenance performance to the Board and executive management,

This will ensure that maintenance practices, in line with established industry asset management practices, are kept up to date and plant failures minimised. The costs of these improvements will be far outweighed by the community benefits of a more secure and reliable electricity supply.

Progress Report

The following information details the progress to date as Power and Water works towards fulfilling the 37 milestones.

1 Remedial Asset Management Program (RAMP)

Dr Keith Beven has been appointed General Manager, RAMP (GM-RAMP) and reports directly to the Managing Director. The RAMP team has been charged with identifying the state of Power Network's electricity related assets and undertaking immediate remediation of any equipment that does not meet established standards.

1.1 Condition assessment and Remedial Works Plan

The Remedial Works Plan addresses the need for urgent action in zone and distribution substations and on busbar protection.

- Milestone 1:** The completion of the initial risk assessment recommended by the Enquiry Preliminary Report to be noted by the Board by February 2009. **COMPLETE**
- Milestone 2:** The approval of the Remedial Works Plan by the Managing Director by April 2009. **COMPLETE**
- Milestone 3:** The completion of roughly a third of the Remedial Works Plan, and the consequent formal Review of progress and lessons learnt, by July 2009.
- Milestone 4:** The clearance of each substation in line with the schedule contained in the full Progress Report following testing and remediation as required, with all substations cleared by March 2010.

1.2 Restoring Casuarina Zone Substation

- Milestone 5:** The GM-RAMP to approve a final Project Execution Plan and detailed installation plan by the end of June 2009.
- Milestone 6:** The General Manager, Power Networks (GM-PN) to approve the new switchboard for service during the fourth quarter of 2009.
- Milestone 7:** The GM-PN to approve the new transformer for service during the third quarter of 2010.

2 Long Term Plan

Power and Water has prepared a detailed Long Term Plan to ensure that Recommendations set down by the Mervyn Davies Enquiry Report are implemented. A snapshot of this Plan is detailed below.

Recommendation 1 - Move to 'condition-based maintenance'

'Condition based maintenance' refers to the practice of only carrying out intrusive maintenance on switchgear when testing indicates that it is required. The Enquiry Report endorsed Power Networks' policy of 'objective need, capacity to deliver' but stipulates the basis for maintenance planning be 'condition based' – that is, intrusive maintenance action should be carried out only when required.

Power Networks is incorporating this approach in its business plan developed during the 2010-11 Statement of Corporate Intent process. It will be informed by the findings from the RAMP testing and remediation programme.

Milestone 8: The first draft Power Networks 2010-11 Five Year Business Plan and 20 Year Outlook maintenance forecasts to include a summary of planned maintenance as well as costs, based on a 'condition based maintenance' approach by August 2009.

Recommendation 2 - Implement condition-based maintenance in substations as quickly as possible

Power and Water has acquired more modern test equipment and provided training to its workforce on its use. It is basing its day-to-day maintenance on test results. In short, it has already commenced 'condition-based maintenance' in substations.

Power and Water has also engaged heavily with the Industry Working Group on switchgear and transformers and this has contributed strongly to the Corporation's knowledge about its assets.

Milestone 9: Source external assistance from another utility to aid with maintenance training and support by February 2009. **COMPLETE**

Milestone 10: Complete agreements with workforce to ensure that Job Model and Remuneration arrangements support 'condition based maintenance' by June 2010.

Recommendation 3 - Bed down organisational changes

Power Networks is in the process of appointing managers to key positions either vacant or held on an acting basis. Mervyn Davies' appointment to the Power and Water Board will enable the Managing Director to discuss broader organisational changes that incorporate these new appointments.

Milestone 11: Appoint the Manager Strategy and Planning and the Manager Capital and Maintenance Delivery by May 2009. **COMPLETE**

Milestone 12: Confirm appointment of new trades positions by May 2009.

Milestone 13: Appoint the next level of management by July 2009

Milestone 14: The Managing Director to approve a revised organisational structure for Power Networks (following discussion with Mervyn Davies) by July 2009.

Recommendation 4 - Deliver improved systems and processes

Power and Water's Asset Management Capability (AMC) project will support wider changes required across the business. It is critical that Power Networks mobilises to engage with this 'whole of Corporation' project.

Milestone 15: Identify process owners and ensure they have sufficient time to contribute to the AMC project by May 2009. **COMPLETE**

Milestone 16: Confirm that the Future State Design does, in fact, address the requirements of Recommendation 4.2 by December 2009.

Milestone 17: Confirm that the AMC as implemented does, in fact, address the requirements of Recommendation 4.2 by December 2010.

Recommendation 5 - Enhance policies and policy documentation

Work is underway on the revision of substation maintenance policies to reflect new practices – to be checked by our workforce – and embed them in training programmes. Appointments are imminent to expedite this process.

Milestone 18: A revised Maintenance Policy based on 'condition based maintenance' will be approved by the GM-PN by August 2009.

Milestone 19: A Review of high priority Maintenance Procedures, including detailed consultation with the workforce, resulting in a revised set of Maintenance Policies will be completed by September 2009.

Milestone 20: A Review of high priority Work Instructions, including detailed consultation with the workforce, resulting in a revised set of Maintenance Policies will be completed by June 2010.

Recommendation 6 - Develop substations maintenance planning and works programme

The new structure ensures decisions on the level of maintenance required; when it is scheduled and executed remain separate. This distinction is reflected in Position Descriptions. This will also be reflected in maintenance plans and work schedules once the Maintenance Policy and Procedure work is completed.

Milestone 21: Set high-level and detailed quantum plans for substation maintenance for 2010 and the following five years by December 2009.

Recommendation 7 - Report on maintenance delivery, asset condition, risks and failures

Power and Water commenced work in November 2008 to institute a maintenance delivery and condition reporting framework for the Board. An example report was received by the Board in February, which reported on five priority asset classes. This reporting will be extended to all asset classes by August.

Milestone 22: Provide example maintenance delivery and asset condition report to the Board for five asset classes by February. **COMPLETE**

Milestone 23: Provide full maintenance delivery and asset condition reporting to the Board by August 2009.

Recommendation 8 - Enhance workforce training, numbers and equipment

Power and Water is improving its training, recruiting more staff and obtaining better equipment for its workforce. Management will formalise these processes to ensure they are embedded across the Corporation.

Milestone 24: Appoint a Training Manager to the RAMP programme with strong technical knowledge by May 2009. **COMPLETE.**

Milestone 25: Appoint a Training Manager in Power Networks with strong technical knowledge by June 2009.

Milestone 26: Coordinators' development needs will be confirmed during the My Plan Performance review by July 2009.

Milestone 27: Improved supervisory training will be provided to all coordinators from November 2009.

Milestone 28: A revised framework for trades and technical training will be approved by October 2010.

Recommendation 9 - Improved leadership and communication

Changes to the structure and practices inside Power Networks will ensure improved leadership and leadership/mentoring and personal development programs. It will also enable better communication across the Corporation. Power Networks' Leadership Communication forums bring together the wider leadership team every two months. A Leadership Development Program will provide targeted training and development to improve the skills of leaders.

Milestone 29: Commence first steps in Leadership Development by May 2009. **COMPLETE**

Milestone 30: Individual development plans will be formulated for each manager, which align with and contribute to their current performance development plans by July 2009.

Milestone 31: Suitable external leadership development opportunities will be assigned to each person by August 2009.

Milestone 32: Development courses will commence by September 2009.

Milestone 33: All relevant managers receiving at least one session of development by December 2009.

Recommendation 10 - Review incident management and outstanding investigations

Power and Water is reviewing its incident management protocols and completing a number of outstanding investigations. Clear accountabilities for incident investigation have been identified. Two of the three outstanding investigations have been progressed. The completion of the investigation into the Casuarina events will only be possible once the remaining Casuarina switchboard is decommissioned.

Milestone 34: Complete RISQ Investigation 1768 by April 2009. (See technical report) **COMPLETE**

Milestone 35: Commence ameliorative action in light of Manton investigation¹, and further information on Yorkshire switchboards by July 2009. (See technical report)

Milestone 36: Review incident management procedures and approve resulting Work Instruction by August 2009.

Milestone 37: Complete investigation into Casuarina events on access to the old switchboard by September 2009

¹ The Manton Investigation was an internal PAWC investigation into the bus bar failure on the YSF6 22kV switchboard at Manton Zone Substation on the 21st March 2008