

## ***Switchboard and Transportable Building Delivered and Installed at East Tamworth Substation***

**Project:** Design, Manufacture, Testing, Delivery and Installation of an 11kV Switchboard housed in a transportable building at East Tamworth Substation

**End Customer:** Country Energy

**Location:** Tamworth, New South Wales

Residing in a vast electricity distribution network in rural New South Wales, Country Energy's East Tamworth substation required upgrading due to the escalating age of the electrical assets. Enter Siemens, a leading supplier of power transmission and distribution solutions and equipment. Together, Siemens and Country Energy worked to retrofit the substation, providing a new switchroom and 11kV switchboard.

In 2004, Siemens Australia Ltd was awarded the contract to design, manufacture, test, deliver and install an 11kV switchboard at the East Tamworth substation. The unique aspect of this project is that the switchboard is housed in a transportable substation.

In line with modern practice, Country Energy planned to separate the secondary control equipment from the switchboard. This would result in the original switchroom solely housing the SCADA and control system, and providing a safe environment for operators to remotely control the primary equipment.

In response, Siemens developed an offering to supply and install the 11kV switchboard in a transportable building. Siemens' successful awarding of the contract was attributed to the group's ability to offer a technically innovative solution, as well their ability to manage large scale projects.

As lead equipment contractor, Siemens worked with suppliers and subcontractors to design and custom build the 17m (L) x 3.9m (W) x 2.7m (H) transportable building. Requirements of the end customer were understood and materialised, with the size of the switchroom developed in accordance with site specifications, and the building designed to include air conditioning systems for heat loading requirements in addition to appropriate provisions for high voltage cables for the 11kV switchboard. As a strategy for reducing the time required for site construction, the transportable switchroom was built offsite and then transported to the East Tamworth substation via road.



**Above:** The new Siemens Simoprime A2 switchboard after installation

As part of the project, Siemens custom designed and manufactured an 11kV switchboard to meet the customer's technical specification. Throughout the process, Siemens ensured that Country Energy's very specific CT requirements and protection strategies were met with the innovative solution.

Manufactured offshore and supplied by Siemens for the project, the 11kV Simoprime A2 switchboard was designed to contain 24 panels in three separate sections. The Simoprime A2 switchboard is proven to be a safe and reliable design, providing operators and maintenance staff the best safety features available. The Simoprime A2 switchboard allows all operations to be conducted behind closed doors, ensuring maximum operator safety. The switchgear is based on a fully type-tested design and is rated to withstand internal arcing.



**Above:** The custom built transportable building after being transported to the East Tamworth substationsite

As part of the innovative solution, Siemens carried out local configuration of the switchboard by completing the low voltage wiring design supply and installation in Australia. The low voltage wiring required the production of detailed schematic wiring diagrams and low voltage compartment layouts based on Country Energy's standard specifications.

The circuit breakers supplied were vacuum type and free of major maintenance, extending the asset life and lowering life cycle costs. As with other Siemens circuit breakers in operation throughout power networks in Australia, the reliability of the equipment means Country Energy's maintenance programs can be reduced in the plant, with considerable savings achieved.

Siemens delivered the new 11kV switchboard and transportable building in the defined 12 month timeframe. A unique aspect of the project was the amount of work undertaken off site to construct the transportable building, in order to reduce actual construction time on site. The transportable building was designed to support the weight of the switchboard during lifting and transportation, allowing the complete building and switchboard to be relocated if required in the future.

As part of the project, a number of challenges were encountered. In conjunction with Country Energy, Siemens accommodated all modifications relating to the primary equipment as well as alterations to the building position and design, and worked to the customer's extended timeframe. Installation and commissioning of the switchboard was also carried out successfully by Siemens.

Siemens' experienced project management group ensured that the project was delivered to the specification of the customer. Country Energy commended Siemens on the excellent post installation support provided, and was satisfied that all project requirements were met.

After months of planning, engineering and delivering the large scale project, commissioning of the switchboard marked an important milestone in Siemens' 130 year history in Australia. Not only was the project delivered successfully, Siemens was also able to work on a strategic level with Country Energy to meet the growing power demand in north east New South Wales, to ensure a that highly reliable standard of electricity is maintained.

The project has allowed Siemens to build on their knowledge and experience of managing projects involving the installation of a switchboard in a custom designed transportable building. As a result, Siemens is also involved in similar projects for Country Energy's Goddard's Lane and Oxley Vale substations at Tamworth.

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