ENERVEN™

Energy Infrastructure

Case Study

South East Substation to Snuggery Substation

Project Details

Client name
ElectraNet

Order date
April 2007

Delivery date
December 2007

Contract Type
Design & Construct

Contract value
$14 million

Key Personnel
Project Manager- Dean Smit
Construction Manager - Lawrence Smith
Substation Construction Manager - Jason Semmler
Substation Design - Serge Bondarenko
Telecommunications Design - Bod Landon

"The project involved construction of a new 132kV transmission line from Snugger Substation to the South East Substation to enable the windfarm at Lake Bonney to export up to 240MW

The Customer

ElectraNet delivers safe, affordable and reliable solutions to power South Australian homes and businesses. Their transmission network is a crucial part of the electricity supply chain and is used to safely deliver electricity throughout South Australia including regional and remote areas. ElectraNet specialise in asset and project management, contract management and their clients include SA Power Networks, Enerven and large directly connected clients.

The Opportunity

ElectraNet had a required to construct 43km of 132kV transmission line from the Snuggery Substation to the South East Substation to enable the windfarm at Lake Bonney to export up to 240mW

The Solution

As part of this project, 43km of new line was installed from the Snuggery Substation to the South East Substation. With 252 stobie poles installed, weighing up to 21 tonnes each, over 3000 cubic metres of concrete was used for the footings.

Ground conditions in the South East were also a challenge with both rock and swamp encountered along the length, to ensure site safety an additonal 3km of access tracks were installed.

One of the main features of the project was the design and installation of a 3-way differential protection scheme to allow for the increased load generated by the windfarm.

The three sites involved were:

- Mayurra Substation - the customer connect substation for Lake Bonney Windfarm
- Snuggery Substation - one mesh bus circuit breaker replaced to accommodate single pole reclosing as well as line modification to accommodate the introduction of the South East line and the relocation of the Blanche line exit
- South East Substation - installation of an Operations Wide Area Network (OPSWAN) on connection of the Optical Ground Wire (OPGW).

The design also included a telecommunication component to ensure the scheme operated as intended.

Apart from the OPGW connection and terminations there was also a requirement for a new 13GHz radio system between Mount Burr and Mayurra - requiring a new pole structure to be constructed on a ridge outside the Mayurra substation at the Lake Bonney Wind Farm.

The solution continued...
New multiplexer equipment was required at all three substations and included the installation of DN2 and DB2 loop protection functionality. Multiplexer work was also required at Mount Burr radio site and Tailem Bend Substation.

Key Project Successes

- Zero LTIs or MTIs over 78,000 man hours worked
- 43km line installed with 252 stobie poles from 21m-26m weighing up to 21 tonnes
- 3km of additional access tracks built because of tricky ground conditions
- Undergrounding 35 instances of existing infrastructure in parallel with the main project
- Design of telecommunications links between substations

Key Capabilities

This project highlights Enerven's ability to deliver quality design & construction projects through established procurement processes, professional project management, competent engineering, and our ability to collaborate with our customers and contractors to deliver custom solutions.

Why Enerven?

Our experience in the market place, combined with expertise and industry knowledge, makes Enerven attractive to industry leaders such as Oz Minerals, Lendlease, AGL and BHP Billiton for their energy infrastructure needs.

Enerven invest heavily in the latest technology and the professional development of our staff, which means we combine experience and history with innovation and technology to deliver solutions that address the evolving energy distribution requirements of the community.

With a strong supplier and partner network behind us, our highly skilled staff work closely with you to fully understand your specific needs and vision, and will tailor a solution to suit.

Delivering the highest standard of work in a safe and environmentally sustainable manner is our top priority, and we have an outstanding track record to prove it.

We focus on building long-term relationships with our clients, we're committed to working with you for the lifecycle of your project and beyond.

Who We Are

Enerven, an SA Power Networks Company, provides a range of construction and maintenance services, included HV transmission line construction, to clients both within SA and nationally. We believe innovations and technology will continue to drive efficiencies, but no more so than the experience, knowledge and capabilities of our people.

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