

GIS FOR ELECTRIC AND GAS UTILITIES

A More Robust Operational Platform for the Leading Energy Utility Group in Asia Pacific

Highlights:

- Impressive SAIDI and SAIFI ratings
- The case for embarking on a better platform for Singapore Power
- Business benefits and outcome

Impressive SAIDI and SAIFI ratings

SP PowerGrid (SPPG), formed in Oct 2003 is a member of Singapore Power Group. SPPG manages Singapore's electricity and gas transmission and distribution networks. SPPG is a leading energy utility group in the Asia Pacific. A benchmark study in 2007 spanning 26 large cities shows that Singapore has the fewest and shortest electricity outages of cities worldwide. This can also be measured by the System Average Interruption Duration Index (SAIDI) ratings and the System Average Interruption Frequency Index (SAIFI). With the SAIDI rated at 0.310 minutes and 0.142 minutes, it represented SPPG's network reliability of 99.99% while the SAIFI rated at 0.007 and 0.001 interruptions per client for the electricity and gas networks in FY2010 respectively.

SPPG's exceptional network (electricity and gas operations) reliability is due to its strategic use of state-of-the-art equipment and condition monitoring technology, its quality processes and investment in network infrastructure and staff expertise. Currently, SPPG is the largest electricity and gas utility group and serves over a million industrial and domestic customers.

The case of embarking on a better platform for SP PowerGrid

For SPPG to continuously excel in their provision of energy utilities, SPPG saw a need to update their existing geographic information systems (GIS). The existing systems were getting harder to maintain as it is based on proprietary programming language. The existing systems had limited editing functionality and also, it lacks the capability to interface with other existing enterprise systems to support their increasingly challenging work.

SPPG requires a solution that is scalable to meet their business and technological needs. The solution should be able to integrate with SAP Enterprise Asset Management and at the same time the new platform must offer a stable platform that is highly interoperable, standards compliant – especially in the case for SPPG to be SmartGrid ready and be able to support Advance Meters. The New Platform should offer a rich variety of analysis, modeling tools and applications to support effective decision-making for both the mobile workforce as well as decision-makers.

After much evaluation of the solutions offered in the marketplace, the ArcGIS and the Telvent ArcFM (which include the Responder) suite of solutions were selected. The ArcGIS is used as the foundational GIS platform while together with the Telvent ArcFM as the utility specific GIS solution. This provides the New Platform aim to address SPPG's electricity and gas operations – the Energy Utilities Network and can be applied across multiply systems – from Desktop to Sever to Mobile.

Software Used:

- ArcGIS for Desktop
- ArcGIS for Server
- ArcGIS for Mobile
- ArcFM
- Responder

Business benefits and outcome

The New Platform will assist SPPG in the management of daily operations for the Energy Utilities Network. In addition, SPPG will have improved access to outage information and incidents through intuitive user interfaces, and be able to continue to respond to and rectify outage incidents efficiently in the face of growing customer demands.

The New Platform can identify likely causes of outages based on input from the call center, field crews and advanced metering infrastructure. SPPG are now able to work with better accuracy through the capture, record and archive data related to power restoration efforts thus leaving less guesswork for its power engineers during future outages.

Several additional advantages of the new platform include quicker access to information for daily operations, enhanced information for strategic decision-making concerning future

upgrading and expansion of the Energy Utilities Network, and compliance to common technology standards where it allows SPPG to integrate required data from a wide variety of enterprise systems.

With the added advantage, the New Platform will now replace SPPG's current system with more progressive, standards compliant and robust enterprise platform that operates on Microsoft SQL Server.

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