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Saudi Electricity Company

ProjectWise Increases Efficiency by Enabling Fast Access to 10 Million Engineering Documents

FAST FACTS

Challenges

- Design and construction records spread across numerous facilities, often duplicated in different units and locations
- Staff take days to find and verify engineering records
- Impaired emergency response due to lack of rapid access to accurate asset information

Objectives

- Standardize formats and federate engineering content management to centralize access to over 10 million documents
- Implement enterprise-wide engineering content management policies and procedures to maintain high-quality documentation
- Reduce the time needed to find and access engineering documents

ROI

- Reduced the average time to access a document from three days to one minute
- Improved accuracy and trustworthiness of engineering documents
- Faster responses to customer needs and emergencies

With no standard data format or system for storing, accessing, and maintaining information on 52 power plants, nearly 900 grid stations, and 430,000 power lines, finding trustworthy engineering content was a time-consuming challenge for the staff at the Saudi Electricity Company (SEC). “They spent days looking for and vetting information, which hurt productivity, increased costs, and impaired our emergency preparedness,” stated Abdulaziz Al-Hamed, Engineering Applications Group Leader at SEC. “So we made it a strategic priority to manage our kingdom-wide physical assets more effectively – which required implementing a robust engineering content management system that enables access and integrity.”

But this was no small undertaking; it meant standardizing, cleansing, digitizing and consolidating information in over 10 million documents spread across the kingdom of Saudi Arabia. Leveraging ProjectWise and the services of a trusted Bentley partner, they established a single, trusted source of truth about SEC’s transmission, generation, and distribution assets, resulting in huge efficiency improvements.

Content, Content, Everywhere...

One of the largest electricity companies in the Middle East, SEC was created by merging 14 different electricity companies into one large firm. As a result of these mergers, data about transmission, generation, and distribution assets existed in a wide range of formats and locations. Complicating matters further, each location used its own indexing methods, storage devices, and lifecycle management practices. “These inconsistent systems, which varied from simple indexing record books for managing hardcopies of design files to the latest IT systems optimized for managing digital files, made it impossible to search and access information quickly and cost effectively,” added Al-Hamed. This was particularly problematic during emergencies and outages, as workers often needed to refer to design files to identify and fix issues.

Having multiple IT systems and servers for managing engineering data also increased IT complexity and costs – for example, because the company had to pay for multiple software maintenance contracts. Furthermore, data was often duplicated across multiple systems, making it difficult for people to know which file was the most current and accurate. And data quality was often poor, as there was no enforced process or policy regarding updates.

A Kingdomwide Solution

“We needed consistent processes and a single enterprise system – one with a unified architecture spanning the entire kingdom – for managing and accessing all engineering content,” stated Al-Hamed. “This would help us achieve our overall corporate mission: to provide customers with safe and reliable electricity services, to meet shareholder expectations, to care for our employees, and to ensure optimum use of our available resources.”

“ProjectWise plays a crucial role in helping us provide reliable services to customers. We can design and upgrade assets faster than ever and maintain them more effectively.”

– Abdulaziz Al-Hamed, Engineering Applications Group Leader, SEC

SEC selected a team of people to evaluate different solutions and select the best one for the company to standardize on. “We chose ProjectWise because it met our complex requirements for a high-end, enterprise class engineering content management solution, complete with high availability and load balancing for distributed processing, support for open standards, and integration with other enterprise systems,” explained Al-Hamed. An added benefit of choosing ProjectWise was its tight integration with Bentley’s MicroStation, which was already the CAD standard in many parts of the company.

The implementation and migration process was completed with eight data migration projects in several phases. They deployed eight ProjectWise servers across the kingdom, mostly in clusters to provide high availability, as well as a Windows client (using ProjectWise Explorer) and web browser interfaces (via the ProjectWise Web Server) for ProjectWise users. ProjectWise Explorer is the primary desktop application for connecting with information stored on the ProjectWise Server. Web browser-based access for ProjectWise supports casual users who are in remote, potentially low-bandwidth locations. Together, these secure access points would enable a wide range of potential users – both internal and external – to use ProjectWise and collaborate efficiently around critical engineering content.

After deploying ProjectWise, SEC used the software to sort through multiple versions of documents stored in archives, identify the most current version, eliminate duplicates, and convert files to standard formats. By the end, nearly 10 million files were converted to DGN, PDF, or Microsoft Office formats.

Unprecedented Efficiency Improvements

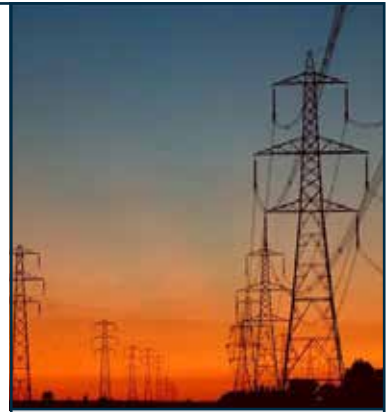
Today, the company’s ProjectWise network is a single source of truth that enables over 3,700 active users from eight different divisions to quickly find and access over 10 million as-built drawings and documents. “We’ve reduced the average time to access a document from three days to one minute,” noted Al-Hamed. Equally important, users trust the documentation as the most current and accurate, so they reuse documents with confidence to start projects faster, eliminate redesigns, and reduce the risk of accidents.

At the same time, all hardcopies stored in local archive facilities are now stored in a central location, freeing this space for other, more strategic purposes. “We’ve also standardized our content management policies and procedures to maintain accurate, high-quality documentation of all physical assets,” explained Al-Hamed.

All design files and document images for all power generation, transmission, and distribution assets are in approved digital formats and readily available for faster communication and more efficient collaboration. As a result, employees, as well as contractors, no longer have to travel long distances to get documents; now they simply log into ProjectWise anytime, anywhere, and access what’s needed to work on a project or solve a problem. Equally important, management can efficiently exchange digital documents with contractors for more efficient outsourcing. For example, contractors no longer need to submit hardcopies of designs, which saves them time and money – and enables stakeholders to evaluate and mark up submittals more quickly.

Poised for Success

With this solid foundation of engineering content, SEC can successfully meet new market demands and challenges. The company recently extended electricity services to 4,200 additional towns and villages – and did so with ease leveraging ProjectWise. “ProjectWise plays a crucial role in helping us provide reliable services to customers,” concluded Al-Hamed. “We can design and upgrade assets faster than ever and maintain them more effectively. When emergencies and downtime do occur, we can quickly access high-quality documentation and resolve issues more swiftly.”



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