



Pacific Gas and Electric Implements Collaborative Solution to Optimize Substation Designs

Bentley's ProjectWise[®] Produces Efficiency Savings of 35 Percent on Capital Designs

CREATING A COLLABORATIVE, STREAMLINED WORK PROCESS

The California-based Pacific Gas and Electric Company (PG&E) owns and operates more than 1,000 transmission and distribution substations. Incorporated in 1905, PG&E is now one of the largest combined natural gas and electric energy companies in the United States. The investor-owned electric utility provides energy services to approximately 16 million people throughout a 70,000-square-mile service area in northern and central California, spanning two thirds of the state. PG&E is part of the larger California electricity generation system, which produces more than 296,000 gigawatt hours each year.

The utility industry in California has experienced near constant growth in demand for energy over the past 50 years. The number of California households has nearly doubled from 6.5 million in 1970 to 12.5 million today. To meet this increased demand, PG&E must design and manage many new energy and utilities projects. With approximately 60 percent of the organization's projects contracted to alliance partners, PG&E sought to create a collaborative contractor process to manage information security, create a centralized database of project documents, and reduce administrative bottlenecks. Information security and the security of the power grid were of the utmost importance, so PG&E commissioned their IT department to choose a software solution that would provide a secure and reliable data management infrastructure.

IMPLEMENTING PROJECTWISE FOR A CONNECTED DATA ENVIRONMENT

PG&E's Substation Engineering Services team sought to improve document control, ensure design

consistency, and reduce cycle times for all PG&E contracted projects. To meet these demands, the team needed efficient, integrated technology operating in a secure environment. Having already realized an annual USD 5 million savings by internally deploying Bentley applications, PG&E chose Bentley's ProjectWise and OpenUtilities Substation to expand information mobility with contracted engineers. This adoption allowed all project participants to simultaneously work in Citrix, PG&E's environment, and access the same databases in real time. By incorporating all project participants into this system, PG&E expedited collaboration, improved information security, and streamlined workflows.

IMPROVING COLLABORATION AMONG PROJECT PARTICIPANTS

By using ProjectWise as the connected data environment, PG&E ensured that all project participants, including contractors, could access databases and systems in real time and remotely work in the live environment. It created the ultimate degree of information mobility, connecting project participants from offices located around the country. Multiple engineering firms could remotely collaborate on the same substation facility by accessing a secure PG&E database.

Additionally, ProjectWise allowed the team to access 3D substation models on laptops during on-site design reviews. Field personnel could view the models in real time to better visualize the designs, ultimately reducing errors and rework in the field. ProjectWise connected project participants across offices and in the field, enabling virtual collaboration. Today, teams no longer need to travel to project sites or various offices to collaborate, reducing the project's effects on the local and global environment.

PROJECT SUMMARY

ORGANIZATION

Pacific Gas and Electric Company

SOLUTION

Utility Substation Design

LOCATION

San Ramon, California, United States

PROJECT OBJECTIVES

- ◆ Securely extend the use of ProjectWise and OpenUtilities[®] Substation
- ◆ Create a collaboration solution for all project participants

PROJECT PLAYBOOK

ProjectWise, Descartes, OpenUtilities Substation, Navigator

FAST FACTS

- ◆ By implementing a connected data environment, PG&E improved document control, ensured design consistency, and reduced cycle times.
- ◆ PG&E contractors can now securely access and share substation drawings in ProjectWise and OpenUtilities Substation.
- ◆ The Bentley-based solution improved information mobility, reduced design errors, and optimized project delivery time.

ROI

- ◆ By extending the benefits of Bentley software to all participants, PG&E saved USD 65,000 annually in operating costs.
- ◆ With ProjectWise, PG&E saved 35% on each capital order design.
- ◆ PG&E ultimately expects to realize savings of USD 5 million annually.

“As a result of our partnership with Bentley, we are collaborating more effectively, efficiently, securely, and confidently with our contractors in order to achieve greater success in overall project delivery.”

— Josue Martinez, Senior Project Manager, P.E., Pacific Gas and Electric Company

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STREAMLINING WORKFLOWS AND SECURING INFORMATION

In addition to improving project collaboration, ProjectWise allowed the organization to streamline drawing control and centralize drawing databases. These changes optimized project workflows and reduced the time that participants spent sending information back and forth via unsecure methods. Project participants received training and documentation to increase their efficiency with Bentley applications, allowing them to work more efficiently, seamlessly, and securely on capital substation projects. Teams now work in the same environment and share drawings among different design teams, both internal and external, streamlining project workflows.

By housing all project information in ProjectWise, PG&E created a high level of information security, reducing risk to the power grid. PG&E also reduced the risk of rework and design errors. With ProjectWise, team members can confidently access the most recent version of a file and avoid file duplication. With the new system, PG&E eliminated duplicate versions of the same drawing within a substation and experienced a marked reduction in the number of change orders.

SAVING TIME AND COST FOR ALL FUTURE PROJECTS

PG&E realized significant benefits by implementing Bentley's ProjectWise and other Bentley applications. Allowing contractors direct access to drawings and databases in a secure environment, PG&E greatly reduced project delivery times, facilitated efficient collaboration, and reduced errors that would previously occur due to inadequate drawing control. By managing drawings via a consolidated database, design teams reduced project delivery time and eliminated the lag time caused by manual drawing administration. ProjectWise also allowed more efficient interactions between different designers working on the same substation facility.

Before implementing ProjectWise, PG&E relied on drawing administrators to manage the drawings of all project participants. This manual process created a bottleneck and cycle time delays. By extending the benefits of Bentley software to all participants, PG&E eliminated the need for dedicated drawing administrators, saving the organization USD 65,000 annually in operating costs. With savings of up to 35% due to improved efficiency on each capital order contracted for design, PG&E ultimately expects to realize savings of USD 5 million annually.



With ProjectWise, PG&E teams can access substation models on laptops during on-site reviews.