Power and Utilities

Wonderware®

9REN Group
Madrid, Spain

Goals
- The company needed to increase the production levels of its renewable energy generation installations in Europe
- 9REN wanted to reduce its field operations maintenance costs by minimizing manual supervision of plant operations

Challenges
- Geographic dispersion of the company's power generation sites throughout Spain and Italy demanded a centralized approach to system monitoring across differing time zones and weather patterns.
- 9REN required a solution that could easily scale with the projected installation of new renewable energy Infrastructure in new regions

Results
- Monitoring technology that provides instantaneous information from all photovoltaic plant installations has considerably reduced the cost of 9REN's field operations
- 9REN improved company profitability and power availability from its renewable energy plants, and reduced maintenance costs by limiting the need for on-site control

Industry: Power and Utilities

"9REN has improved the availability of this system using the very reliable solution from Schneider Electric. If you want to offer the market a better solution, you need to use an up-to-date monitoring system. Schneider Electric gave us this capability."

Francisco Alija
Monitoring and Control Manager
9REN Group

9REN Group
Madrid, Spain

Goals
- Increase the production levels of the company's renewable energy generation installations
- Reduce on-site maintenance costs by minimizing manual supervision of operations

Challenges
- The company's operations monitoring Infrastructure are geographically dispersed throughout Spain and Italy -- this dynamic required a solution that could adequately address complex communications protocols for data transmission and differing time zones

Results
- The Schneider Electric solution has enabled 9REN Group to generate approximately 425 MWh a day at its power generation plants in Spain and Italy
- Staffing has been reduced by 15% - from three to one - for control room operation, allowing the company to focus its personnel on other important tasks
- Event recognition has increased by 50% and time to obtain performance monitoring reports has been reduced from one month to two days
- Solar trackers production has improved by 5%

Industry: Power and Utilities

"Wonderware software lets us access all our installations in real time. Because of this, we only require one person to control the operation of all of the 568 plants, regardless of location."

Antonio Palacios Higueras
Technical Services Manager / 9REN

Bermuda Electric Light Company Limited

Bermuda

Goals

- Provide reliable electric power to the entire island chain.
- Deploy new capabilities and integrate new equipment self-sufficiently.
- Attain ISO 14001-2004 certification.

Challenges

- Bermuda's remote location in the Atlantic Ocean means that in-person support is not quick to arrive and sometimes not possible.
- Island development will require increased power generation in the future.
- BELCO was attempting to be the first organization in the territory to achieve ISO 14001:2004 certification.

Results

- With the help of the Wonderware software, BELCO's generating plant and transmissions and distribution system provide consistent electricity to the 65,500 residents and 465,000 tourists who visit Bermuda each year.
- BELCO achieved the prestigious ISO 14001:2004 certification for environmental management, in part because of the data collection and reporting capabilities of the Wonderware Process Historian and Wonderware Mobile Operator Rounds.

Industry: Power and Utilities

"The major advantage we've experienced is that it's very easy to develop and integrate the Wonderware software with the wide variety of equipment we have here. Plus their support is global and very timely."

John Blizman
Vice President, Plant Management

Federal Electricity Commission (CFE)

Hermosillo, Mexico

Goals

- Implement diverse information technologies and telecommunications like graphical systems, and SCADA Systems that involve mobile workforce operations.
- Centralize visibility and control over 38 transmission substations and 140 sub-transmission substations throughout Northwestern territory.
- Generate, distribute and market electric power for almost 35.3 million customers and roughly 100 million people throughout Mexico and bordering nations.

Challenges

- Respond to and comply with governmental energy reform standards.
- Keeping up with growing energy demands both within and outside of Mexico.
- Structure its assets, workforces and operations to align with the Smart Grid Maturity Model (an international policymaking standard).

Results

- Orchestrated dynamic energy transmission models in real time.
- Archived maintenance data to monitor asset health.
- CFE making predictive decisions, mitigating risks and reducing costs.
- Punctually identifying technical features traditionally handled on an SAP system.
- Integrated Mobile Operator Rounds with its SAP system to more effectively and transparently view energy assets, and share real-time information with its mobile workforces.

Industry: Power and Utilities

“The main benefits of these are that we have information in real time. We can make predictive decisions, mitigate risk, and reduce costs… We have calculated a rate of return on investment. For every dollar we invest, we can recover up to $10.”

Judas Salcedo

Head of Regional Department of Control
CFE, Northwestern Transmission

Datang Power
Datang City, China

Goals
- To help China’s plan of reducing energy consumption by 20%
- Expand plant capacity by constructing two new power generating units

Challenges
- Increase energy production while implementing energy-saving measures
- Lower costs of production while adjusting to fluctuating market conditions

Results
- The solution helps provide 600 MW of additional power to Shanxi province
- Significant cost savings realized via resource and performance optimization
- Faster load-following capability through adaptive, non-linear, multivariable coordinated control
- Improved asset reliability and reduced maintenance costs
- Maximize asset return of investment of asset by balancing the availability and utilization of equipment, energy, fuel optimization and improvement
- Improved plant availability and greater production efficiencies

Industry: Power and Utilities

“Schneider Electric Operations Management has been an important partner, offering us a cost-effective process control solution and has helped to sharpen our competitive edge.”

Mr. Jinjian
Operations

Eskom Holdings Ltd.

Johannesburg, South Africa

Goals

- Standardizing all power generation Infrastructure on a single software solution
- Enhance capture of plant information for better plant optimization and resource allocation
- Deliver better information in real-time for more effective operations management

Challenges

- Each plant operated its own control and operational systems, no standard in place
- Effectively merge IT systems to handle both transaction and plant information
- Make masses of plant-level data as usable information.

Results

- Established a standard software platform across all power plants
- Centralized data acquisition enabling authorized staff to access and use for daily job performance
- Successfully linked IT and the plant floor operations to effectively collect and assess data to make critical business decisions
- Improved overall plant performance and incident response capabilities
- Solution enables company to maintain ISA-95 standard

Industry: Power and Utilities

“Wonderware software provides our engineering and management teams with access to usable data that before was not readily available. We can now make decisions in real-time on our electricity generation capabilities, enabling Eskom to continue to improve the quality of life of more than 50 million people.”

John Viljoen,
Corporate Consultant for Generation Business Eskom Holdings Ltd

Eskom Lethabo Power Station

South Africa

Goals

- Install simulation system to help boost safety, efficiency and profitability at the plant

Challenges

- Improve productivity and plant operations, while increasing operator plant understanding, safety and reducing operating costs

Results

- The simulation system has reduced operating costs, while plant understanding and personnel safety have improved
- Assists in providing continuous electricity to 95% of South Africa (around 60% of the total electricity consumed on the African continent)

Industry: Power and Utilities

“Simulation Platform delivered the Simulator on time and to budget. We are completing our training program on the Simulator and have been amazed at how easy the system is to learn and work with.”

Abrie Venter
Eskom Training Manager

GenOn Energy

New Florence, Pa

Goals

- GenOn Energy needed to develop a training program to enable the easy transfer of technical knowledge and real-world experience from veteran power plant operators to new trainees in the shortest possible time period
- The company required a training solution that could deliver a high-fidelity model of the Circulating Fluidized Bed (CFB) waste coal-fired combustion process

Challenges

- New equipment and upgrades required the testing of alternative procedures and processes, which needed to be conducted without impacting live plant operations

Results

- The simulator is successfully being used to qualify new trainees and simulation training has standardized responses to specific problem or error conditions
- All control changes are first made and tested on the simulator before implementing on the plant, improving operational efficiencies and adding higher levels of confidence to control room management

Industry: Power and Utilities

“The Schneider Electric solution has helped us significantly, that’s the pure dollars and cents of the project. But there’s also been quality of life improvements regarding overtime for the control room operators.”

Alan Metzler
Operations Manager
GenOn Energy’s Seward
Generating Station

Intermountain Power Service Corporation
Delta, Utah

Goals

- Replace the existing simulator as part of a DCS upgrade project to help prepare operations for the new user interface and control logic changes.
- New simulator to replicate the actual dynamic response of the operations and without any significant loss of megawatt production.

Challenges

- Validate the control logic against actual operations
- Build operator knowledge and confidence in the new DCS prior to going online
- Eliminate unplanned downtime or emergency shutdowns

Results

- Validated control logic and identified and fixed critical errors prior to going online
- Controls placed in automatic within 24 hours of start-up after DCS Upgrade
- Avoided potential losses to plant due to shutdown estimated at $1,000,000 a day
- Assists in maintaining a constant plant output of 13 million megawatt (MW) hours a year

Industry: Power and Utilities

“The Simulator paid for itself as a result of the DCS-Checkout alone.”

Bill Morgan
Project Manager on DCS Project

Portland General Electric
Portland, Oregon

Goals

- Supply ample and affordable power to 2 million residents of Portland
- Create reliable solution that can be reused throughout the plants owned and operated by Portland General Electric

Challenges

- Megawatt cost skyrockets when there is power shortage from the grid
- Find a way to have an efficient and optimized plant with less emission

Results

- Dispatchable Standby Generation (DSG) links 32 generators at 21 customer sites ensuring grid reliability at peak power demands.
- Improved efficiency of customer generators
- The system has enabled PGE to avoid buying wholesale power from the Western grid when prices are skyrocketing
- The system provide distributed real time monitoring, live video camera feed and an alarming system based on the IEEE-61850-420-7 object standard for all the sites

Industry: Power and Utilities

“The Wonderware solution is working great. To my knowledge there are no other utilities in the world that have the ability to start 40 megawatts of paralleled power generation located at numerous customer sites with a single mouse click.”

Mark Osborn
PGE Distributed Resources Manager

PT Indo Matra Power

Jakarta, Indonesia

Goals

- PT Indo Matra Power required an easy-to-use software portal that would enable engineers to run the plant more effectively and efficiently
- Access accurate, real-time data and enable trending, tracking and reporting of downtime to meet government compliance mandates
- Implement the project within a short timeline and on a small budget

Challenges

- Unplanned downtime was negatively impacting the plant's compliance with regulatory requirements as well as affecting customer trust
- Plant engineers needed an easier and faster system for tracking production KPIs and scheduling maintenance and downtime.

Results

- The operations department is meeting production targets more consistently due to better accuracy of data, which is now received in real time
- Unplanned downtime is practically eliminated, so customers are happier and the plant is achieving compliance Goals
- With improved ability to analyze trends, the plant is benefitting from cost reductions, increased output and lower fuel consumption.

Industry: Power and Utilities

"We chose Wonderware because it has the most extensive features of all the products we tested. In addition, the support is excellent. This is important as the power plant location is in Indonesia."

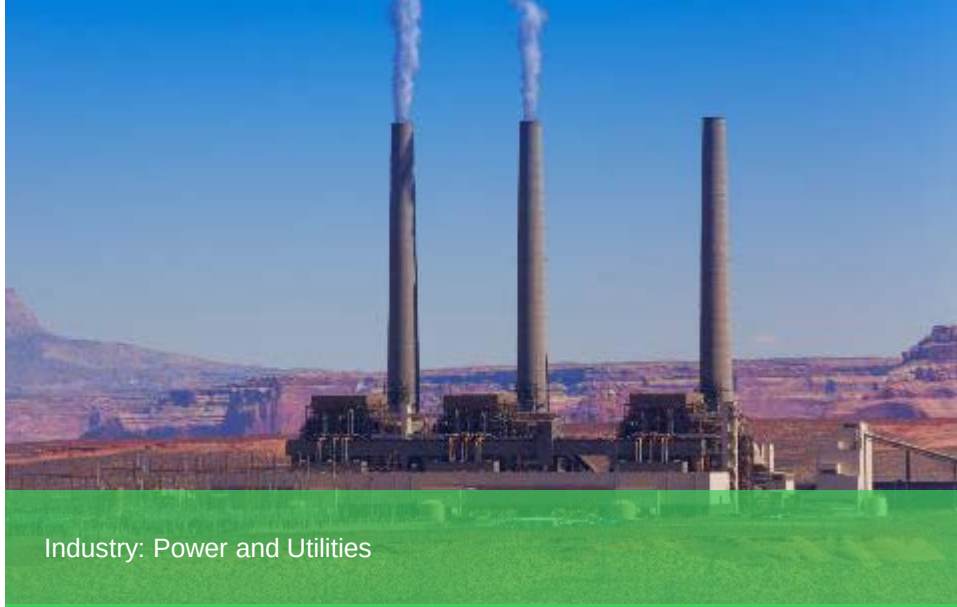
Berman Immanuel Purba,
Operations and Maintenance Manager,
PT Indo Matra Power

Salt River Project
Phoenix, Arizona

Goals
- Improve the performance of the Santan and Navajo plants by reducing the number of alarm floods

Challenges
- Reduce the increasing number and frequency of occurring process alarms while keeping the power plant safe and profitable

Results
- Implementing the alarm system design at the nine Santan units dramatically reduced the frequency of alarms. Plant startup previously took two operators up to four hours to complete can now be performed by one operator in less than two hours
- New system resulted in a 44% reduction of configured alarms



Industry: Power and Utilities

“Now we have valid alarms that mean something to operators so they can respond appropriately. This increases efficiency and reliability. Operators now see the alarm system as a tool they appreciate, instead of a necessary annoyance.”

Ron Bewsey
I&E supervisor and I/A administrator

Southern Mississippi Electric Power Assn.

Hattiesburg, Mississippi

Goals

- Improve heat rate and boiler efficiency while maintaining low NOx emissions

Challenges

- Reduce the increasing number and frequency of occurring process alarms while keeping the power plant safe and profitable

Results

- Expected heat rate improvements of 1.5% , providing a project payback of less than one year
- Expert System at soot blower maximizes heat transfer area in the furnace
- Model Predictive Control provides increases boiler efficiency while maintaining steam temperatures and remaining within NOx specifications

Industry: Power and Utilities

“Depending on the load, potential heat rate improvements up to 1.5% are expected. This benefit will provide a project payback of less than one year.”

Tata Power

India

Goals

- Avoid asset failures and reduce equipment downtime
- Identify subtle changes in system and equipment behavior
- Gain advanced warning of emerging equipment issues
- Monitor the health and performance of critical assets fleet-wide in real time
- Improve maintenance planning
- Enable knowledge capture to optimize information sharing between plant personnel

Challenges

- Avoid asset failures and reduce equipment downtime
- Identify subtle changes in system and equipment behavior
- Gain advanced warning of emerging equipment issues
- Monitor the health and performance of critical assets fleet-wide in real time
- Improve maintenance planning
- Enable knowledge capture to optimize information sharing between plant personnel

Results

- Early warning identification of equipment problems, days weeks or months before failure
- Dynamic insights and deep-dive diagnostics for equipment behavior changes
- Improved equipment reliability and performance
- Better maintenance planning and cost control
- Knowledge capture of equipment failure modes

Industry: Power and Utilities

“We found Schneider Electric to be an effective tool in the predictive diagnostics space for detecting functional deviations and impending failures at an early stage for initiating suitable prioritized maintenance actions for enhanced reliability of critical power plant equipment.”

Praveen Chorghade,
Chief - Core Technology and Diagnostics, Tata Power

Vectren Corporation

Evansville, Indiana

Goals

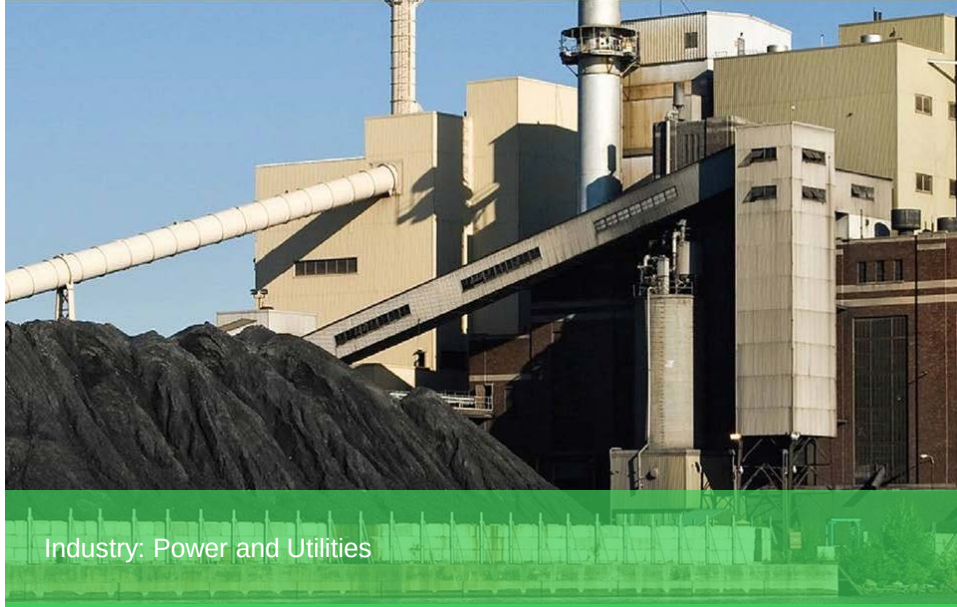
- Eliminate inefficiencies in scheduling maintenance
- Track completed work
- Reduce operations, maintenance, and capital spending

Challenges

- Reduce overall operations, maintenance and capital spending, while maintaining high availability within plants and continuously and efficiently serving customers.

Results

- Supplies continuous and efficient power to two-thirds of Indiana and 16 counties in Ohio
- Enabled management to capture and analyze data about maintenance work.
- Efficiently tracks 6,000 unique assets and more than 33,000 individual spare parts, keeping track of work orders and labor time
- Ascertains key performance indicators and benchmarks throughout the maintenance operation



Industry: Power and Utilities

“Being able to track info about planned and unplanned work was one of the key performance indicators we were trying to improve on. Because of the way Schneider Electric interfaces with the workforce time-tracking program, we are able to get to this data much more easily.”

David Reherman
Reliability Engineer

Weldwood of Canada

William Lake, Canada

Goals

- Enhance production efficiency with new computerized maintenance management system

Challenges

- Update outdated management system did not integrate the maintenance functions with plant purchasing systems, which required larger inventories of spares to be on hand

Results

- Diverse operations in both type and geography are now tied together
- Enhanced productivity through more efficient maintenance activities, helping to produce nearly 230 million square feet of plywood each year
- Achieved ISO 14001 certification at Williams Lake

Industry: Power and Utilities

“Many spare parts are no longer inventoried, but are simply ordered when a repair is scheduled and its work order is cut — which is a new capability that we gained, since the new system combines both work scheduling and parts purchasing.”

Hank Dickey
Maintenance Superintendent

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