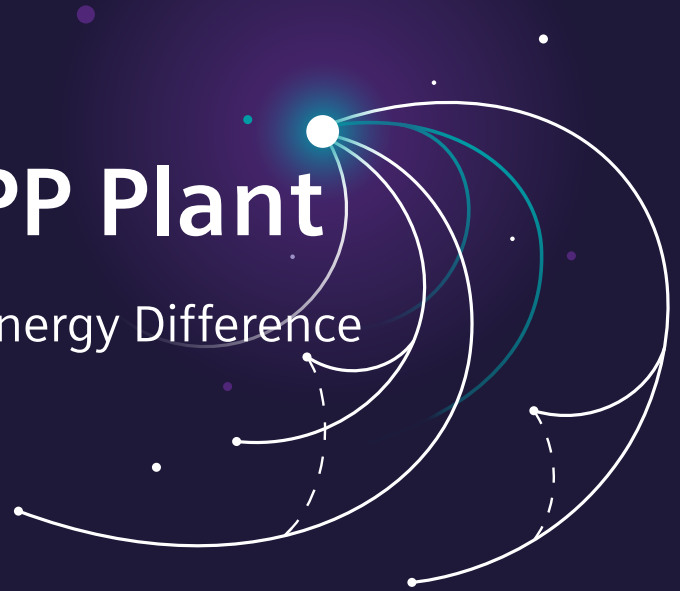


# Shuaibah 3 IWPP Plant

## DCS Migration: The Siemens Energy Difference



### The Project

Shuaibah 3 IWPP Power and Desalination Plant is the first IWPP developed in Saudi Arabia and represents a major development in Saudi Arabia's water and power sector to help satisfy the increasing national demand for power and water. Shuaibah 3 IWPP generates 1.200 MW of power and 880.000 m<sup>3</sup>/day of water. Based on the obsolescence of some I&C components and growing requests for cyber security measures for critical infrastructure, SWEC chose to modernize the control systems. This also ensured that the Shuaibah plant would be prepared to keep pace with advanced DCS technologies and to ensure its maintainability for many years to come. After meetings and exchanges between Siemens Energy and SWEC/NOMAC took place, the solution for Shuaibah was clear. It was the concept of one DCS system for all technologies, in combination with the new version of Omnivise T3000 R8.2.

### The Challenge

In addition to the massive modernization effort, one of the major challenges for the project was to achieve the shortest possible outage time per unit, without a single hour of plant outage and no risk of delay during modernization. Competitors anticipated weeks of outage time, which is typical in the industry, with this magnitude of controls migration.

### The Siemens Energy Difference

Siemens Energy promised to execute the modernization of Shuaibah with a 5-day outage. The project was completed ahead of schedule, with a total unit shut down duration of only 3 days – unheard of in the industry and just a fraction of what competitors estimated. During this time, all installation and commissioning work was performed. The modernization project was executed in three consecutive steps: upgrade units 1, 2 and 3 for Power Island, Water Island and boiler for the T2000 DCS system, turbine control and BMS/BPS which originally had not been an integral part of the T2000 plant DCS. During the modernization of unit 1, the DCS for the common part of the plant was upgraded with no outage of other units, which was a truly remarkable feat.



This was achieved with meticulous planning and execution of the upgrade of separate systems (e.g. pumps), with manual plant operation. Siemens Energy not only met the requirements of this project, but far exceeded them, fulfilling the promise of the shortest possible outage time, more importantly, with absolutely no plant outage. The modernization team's stellar planning and pre-installation preparation ensured its success. No single fault occurred by re-commissioning the plant, despite the extremely short realization phase and the fact that large plant areas were also integrated into the plant DCS. Shuaibah management was very pleased with Siemens Energy's execution and especially, with no delays and no errors. After project completion, SWEC honored Siemens Energy with an appreciation award, "For excellent cooperation given to successful completion of distributed control system."

## Why R8.2?

T3000 R8.2 is the latest release of the Siemens Energy T3000 power plant control system. In the past, stability meant being reliable, solid and robust. Today, and in the future, stability also means being ready, flexible and resilient. This is why Siemens Energy innovated its proven T3000 control system. R8.2 offers integration of systems, less complex service, increased availability and reliability, compliance with the latest cyber security requirements, long-term system security patch capabilities, the latest operating system and it is future-proof. Customers using T3000 R8.2 can bank on investment protection and on the ability to keep the plant running, whatever the future holds.

### T3000 R8.2 advantages at a glance:

- Secure and stable plant operation
- Highest plant availability
- Future-proof investment
- Enabled by features, such as: security patches implemented at any time
- Update online during full plant operation
- Continuous update with security Patches
- Innovative, long-lasting architecture
- Long term supported release
- Scalable to the max

## What made this project execution unique?



Modernization achieved without power plant outage



Extremely short unit outage time (3-5 days)



Integrated DCS solution



OEM improvements integrated in solution



Future ready



No risk of schedule delay

## Your Reliable Partner

Siemens Energy is your trusted partner with the right experience, expertise, and innovative technologies to address the current and future challenges of your plant. We do this with superior products, but more importantly, a world class organization behind those products. Based on 150 years of experience in power generation, Siemens has earned a reputation for supporting customers during the entire lifecycle of their assets. We understand the critical nature of migrations and we are your reliable partner to deliver with minimal outage time, no delays, risk and error free.

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