Fossil Power Simulation

FOSSIL FUEL POWER PLANT SIMULATORS & TRAINING SOLUTIONS

GSE SYSTEMS®
Your performance improvement partner
Simulation is an essential technology used in industries that require a higher degree of knowledge and human performance. High-fidelity simulators from GSE Systems improve the performance and profitability of power plants on a daily basis.

Improve plant safety, efficiency and profitability with:
- Faster plant startup and unit load changes
- Fewer abnormal situations and unplanned plant outages
- Verification of plant design prior to construction
- Verification of control strategies to ensure optimal plant control
- Verification of plant modifications to ensure the expected operating results prior to implementation
- Validation of plant procedures, both normal operating procedures and alarm response to ensure the expected plant performance

Learn by Doing

GSE’s simulation provides an exact replica of the generating unit, with realistic plant response across the entire range of operations from cold start up through normal and off normal operation without swapping to a new initial condition.

Many plant upsets occur not when the plant is operating normally, but when infrequent operating conditions such as unit startup or equipment malfunctions are encountered. Without a simulator many operators do not experience these infrequent events enough to gain a high level of competence and confidence. With a simulator they can practice recovery procedures in an effective training environment.

Beyond Training

Today’s GSE simulators test plant automation systems before they are deployed in the actual plant. Control strategies and equipment set points are validated on the simulator prior to plant startup to ensure the control systems are working properly and the expected plant performance is achieved. GSE’s high-fidelity simulators provide a more thorough test and finds problems that cannot be uncovered by the typical DCS “tie back” or algorithmic model. Performing these tests on a high-fidelity dynamic simulator saves days or weeks in plant startup, thereby reducing cost and ensuring quicker revenue generation by the utility.

After startup these realistic simulators train operators to run the plant efficiently and ensure the operators are ready to handle any potential upset. They also continue to provide the engineering staff with a high-definition tool for evaluating plant modifications.

Plant Type:
- Subcritical
- Supercritical
- Ultra-Supercritical
- GT & CCGT
- IGCC
- Central Heating and Power
- Circulating Fluidized Bed
- Bio-mass Fired
- SCR, FGD & BET’s
JADE Simulation Platform

- High-Fidelity & High-Definition Boiler and BOP models
- True 2-phase, 6-equation and non-homogeneous model capable of counter flow of steam and water
- Electrical and generation network models with real/reactive power, dynamic fault propagation and island operation
- Highly efficient instructor station designed for and by fossil power trainers

DCS Systems Experience

GSE has extensive experience with virtual and emulated control systems.
- ABB Harmony, Melody & 800xA
- Alstom P320
- Emerson Ovation & DeltaV
- GE Mark V & Mark VI
- Honeywell TDC3000 & Experion
- Invensys Foxboro IA & Triconix
- Mitsubishi DIASYS
- Siemens TXP & T3000
- Toshiba TOSMAP
- Other DCS & PLCs

A Worthwhile Investment

A GSE fossil fuel power plant simulator pays for itself. When you consider the daily operating profits of a typical plant, preventing even a small number of turndowns or shutdowns, or bringing the plant on-line a day or two faster than normal will cover the cost of your simulator investment.

Visit www.GSES.com/simulation for more information
Application Specific and Task-Based Training

**EnVision**
PC based Application Specific Computer Based Learning/Tutorials & Simulation Models
- Boiler
- Furnace
- Plant Equipment

**3D Visualization**
Task-Based and Interactive Part Identification Training for Field Operators & Maintenance Personnel
- Improve the effectiveness of training for technical and physical tasks
- Teach complex concepts by Making the Invisible, Visible