

APROS Success Stories

Dynamic Simulation in Control System Planning and Operator Training - case Västerås

In a recent project, Process Vision Ltd supplied a training simulator to Mälar Energi Ab, Västerås, Sweden for the new CFB boiler by Foster Wheeler Energia Oy. In addition to operator training, the simulation system was innovatively used by Foster Wheeler Energia for control system application planning before the actual DCS system was implemented.

The simulation system consists of Trainer Grades DCS emulator and Control Grades simulation interface by Process Vision, CFB model by Foster Wheeler R&D centre and Apros simulation engine.

In control application planning, Control Grades toolkit was used for efficiently building a simulation model of both the control system and the process in the simulation engine and for testing the control application plan using the models. The toolkit features page templates for documentation, an easy-to-use signal cross-reference mechanism with automatic reference texts and versatile project management tools.

The operator displays for the simulator were built up with the Trainer Grades DCS emulator package utilizing information entered in the previous phase. After that, the dynamic behaviour of the boiler was studied, e.g. the challenging combination of the parallel steam lines of the new natural circulation boiler and the older once-through boiler to the sliding pressure turbine generator. Also the preliminary controller tuning and adjusting of various set point curves and other parameters were accomplished with the simulator.

The system gave a unique opportunity to train the operators well before the commissioning period of the new boiler. It was possible to use a complete copy of the DCS system in the operator training with the look and feel of the plant, although the actual DCS system was not available.

"The utilization of the simulator before the boiler start-up has offered remarkable advantages in the operator training and in adjusting and testing the main control circuits: The operators have been extremely motivated during the training period due to the chance to be able to take part in this task. "

Mr. **Jan Westin**
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