German Power Plant Uses Simulator for Virtual DCS Commissioning

KWS, with help from GSE, finishes DCS commissioning for RWE Power AG Neurath lignite plant retrofit

The retrofit of an existing power plant unit challenges the operator and the contractor with high complexity and a serious amount of unpredictability. Reducing project risk is key to ensuring that the downtime of the unit is minimized and ultimately the retrofitted unit goes into operation on time and performs in the way it should.

RWE Power’s Neurath power plant retrofit marks the first time a simulator was used for advance-commissioning of the main DCS for a plant retrofit. The 600MW units D and E (which have been in service for more than 30 years) were retrofitted with the Siemens SPPA-T3000 control system and commissioned by KRAFTWERKSSCHULE E.V. (KWS) using a full-scope simulator delivered by GSE and Siemens.

For the advance-commissioning of the DCS, KWS and GSE adapted the process models of a comparable 600MW existing full-scope simulator that GSE had delivered to KWS for RWE Power’s Niederaußem power plant. The process models were adapted to suit unit D of Neurath power plant and the engineering of the reference plant was transferred unchanged onto the Siemens SPPA-S3000 commissioning simulator.

The adapted simulator performed successfully in checking both the interfaces and the consistency of the engineering, as well as improving the open and closed loop controls for the Siemens SPPA-T3000 control system. The virtual control system could be commissioned independently from the retrofit works, prior to the efficient, fast and safe start-up of the real unit. By involving the operators in the virtual commissioning, personnel were prepared to support the real commissioning in an optimal manner and to operate the unit with the new control system afterwards.

The main objectives of this virtual commissioning of the main DCS were met; ensured time of the real commissioning, fast and safe testing of the plant with high complexity, minimum use of resources and minimum wear life-span of the plant during commissioning and optimization, and maximum profit of production by ensured high availability since the first synchronization.
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