

Coupling Power Generation with Syngas-Based Chemical Synthesis: A Process Chain Evaluation from a Power Plant Viewpoint

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Abstrak

Coupling power generation with syngas-based chemical synthesis according to the so-called 'Polygeneration-Annex' concept offers economic and technical benefits. Clemens Forman assesses the integration of incoming streams by the Annex plant from a power plant point of view across its full load range. Analyses are done by load-dependent flowsheet simulation. The pulverized lignite combustion power plant process is covered by two generic technical states: an existing 650 MW(el) power plant and a near future 1,100 MW(el) power plant with duo block design and dry lignite co-firing. Modeling comprises both the flue gas path and the water-steam circuit. Appropriate stream interfaces are identified and determined depending on the load status. The technical feasibility of integration can be proven.