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Mirko Stojiljković, Mladen M. Stojiljković, Bratislav D. Blagojević

MATHEMATICAL MODELING AND OPTIMIZATION OF TRI-GENERATION SYSTEMS WITH RECIPROCATING ENGINES

ABSTRACT

Tri-generation systems are used to simultaneously produce electrical, heating, and cooling energy. These systems are usuall systems for separate production and have smaller distribution lo closer to the consumer. For achievement of the best technical a generation plants have to be properly, i. e. optimally designed a optimization is used for short term production planning, control and as a part of design level optimization. In this paper an appro tri-generation plants with reciprocating engines is presented with model. It is also explained how this algorithm might be embedde procedure. In this approach, the importance of the part load pe tri-generation systems is emphasized, especially of co-generatio and thus it relies on manufacturers' data and is characterized wit examined. Mathematical model is based on the equipment perfo demand satisfaction based constraints with the possibility to ad Objective function for optimization is benefit-cost function. Opt days for each month are obtained and analyzed. Impact of electr period and primary energy saving is analyzed. Primary energy sa compared to maximal value that could be obtained.

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