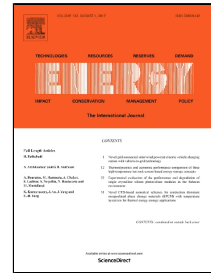


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# Novel shortcut optimization model for regenerative steam power plant

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## Abstract:

Even though the regenerative steam Rankine cycle is widely used in modern steam power plant, the specific explorations of regenerative scheme optimization are still quite deficient. The existing optimization methodologies are complicated and relied on the detailed simulation of whole power plant. While in this paper, a novel shortcut model is proposed for optimizing the regenerative steam Rankine cycle configurations. Based on the temperature-enthalpy diagrams and rigorous derivations, the relationships between profit changes through regenerative scheme retrofit and every split ratio are obtained, as well as all boundary constraints. Thereafter, a series of shortcut optimization models are developed. Based on proposed models, the regenerative schemes can be optimized without building simulation and optimization algorithm in the case from single to multiple steam extractions. And, the accuracy and validity of proposed shortcut model is proved by

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