

**Numerical simulation and analysis of a patented desalination and power co-generation cycle.**

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**Abstract**

A patented cycle for water desalination and power generation was evaluated with regard to thermal efficiency and water prodn. The inventor of the patent claimed that the patented cycle provides a thermal efficiency of 41%, which is higher than current combined water and power generation steam plants. A simulation program was developed to evaluate the thermal efficiency and water productivity of this cycle. Simulation parameters were selected from data provided by the patent as well as data generally used in the design of combined power and desalination plants. Results of the simulation were compared with a simulation of the Jubail-II combined plant. The simulation proved that the patented cycle is far inferior to current dual-purpose MSF desalination plants in terms of water prodn. The patent had a much lower efficiency than what was claimed by the inventor.