

## Feasibility study on tri-hybrid desalination system

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### ABSTRACT

In the present study, the feasibility of a tri-hybrid desalination system for the production of electricity, energy for heating and cooling and water was studied. The tri-hybrid desalination system is a combination of a cogeneration and a desalination system. The system is composed of a generator driven by a gas engine, a gas boiler, a turbo-refrigerator, an absorption refrigerator for cogeneration, and an RO and an MED for the desalination system. The excess heat was calculated based on the electrical, heating and cooling load data and assumed that would be used for the production of water. The quantitative analysis of the product water and the energy consumption rate was compared on a month-by-month basis, and the feasibility of the tri-hybrid desalination system is explained.

*Keywords:* Cogeneration; Tri-hybrid desalination system

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