

Technical and Economical Evaluation of Electricity Generation and Seawater Desalination Using Nuclear Energy

Authors : A. Hany A. Khater, G. M. Mostafa, M. R. Badawy

Abstract : The techno-economic analysis of the nuclear desalination is a very important tool that enables studying of the mutual effects between the nuclear power plant and the coupled desalination plant under different operating conditions, and hence investigating the feasibility of safe and economical production of potable water. For this purpose, a comprehensive model for both technical and economic performance evaluation of the nuclear desalination has been prepared. The developed model has the capability to be used in performing a parametric study for the performance measuring parameters of the nuclear desalination system. Also a sensitivity analysis of varying important factors such as interest/discount rate, power plant availability, fossil fuel prices, purchased electricity price, nuclear fuel cost, and specific base cost for both power and water plant has been conducted.

Keywords : nuclear desalination, PWR, MED, MED-TVC, MSF, RO

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