

عنوان مقاله:

A Two-Stage Chance-Constraint Stochastic Programming Model for Electricity Supply Chain Network Design

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خلاصه مقاله:

Development of every society is incumbent upon energy sector's technological and economic effectiveness. The electricity industry is a growing and needs to have a better performance to effectively cover the demand. The industry requires a balance between cost and efficiency through careful design and planning. In this paper, a two-stage stochastic programming model is presented for the design of electricity supply chain networks. The proposed network consists of power stations, transmission lines, substations, and demand points. While minimizing costs and maximizing effectiveness of the grid, this paper seeks to determine time and location of establishing new facilities as well as capacity planning for facilities. We use chance constraint method to satisfy the uncertain demand with high probability. The proposed model is validated by a case study on Southern Khorasan Province's power grid network, the computational results show that the reliability rate is a crucial factor which greatly effects costs and demand coverage.

کلمات کلیدی:

Electricity supply chain, capacity planning, location, two stage stochastic programming, chance constraint programming

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