

عنوان مقاله:

Optimal Design of an Interruptible Load Program from the Viewpoint of an Industrial Customer

محل انتشار:

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نویسندگان:

Mahdi Samadi - *Department of Electrical and Computer Engineering, University of Hakim Sabzevari, Sabzevar, Iran*

Karim Karami Nezhad - *Department of Electrical and Computer Engineering, University of Hakim Sabzevari, Sabzevar, Iran*

Elahe Zakikhani - *Department of Electrical and Computer Engineering, University of Hakim Sabzevari, Sabzevar, Iran*

خلاصه مقاله:

The interruptible load program (ILP) is one of the most common demand response programs, which is often used by industrial customers. The purpose of implementing this program is to reduce the customer's peak demand in response to the incentives set by a contract. If no attention is paid to characteristics of the industrial customer's production process, the participation in ILP will not be possible. Therefore, complying with customer's technical constraints and optimal design of the program is of great importance. This study aims to present a new model for the optimal design of ILP from the perspective of a cement manufacturing company as an industrial customer. In this regard, the manufacturing process and the constraints of operation of a cement plant are fully modeled and all relevant constraints and requirements are considered. The objective function is the maximum profit, so the ILP is designed such that the cement plant's profit can be maximized without disrupting the normal performance of the production process. The proposed optimization problem is a mixed-integer non-linear one for which a suitable genetic algorithm is designed and used. In the proposed approach, the optimal incentive level is determined by assuming a specific budget level (related to the power company). The implementation of the proposed optimal design will satisfy the power system operator for reducing peak demand and the customer for earning more profit.

کلمات کلیدی:

Interruptible Load, Optimal Design, Cement Production Process, Industrial Load, Peak Reduction

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