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Editors

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Chapter 72

An Optimal Demand Response Strategy Using Gray Wolf Optimization



Ankit Kumar Sharma, Akash Saxena, Dheeraj Kumar Palwalia,
and Bhanu Pratap Soni

1 Introduction

To encounter the total load demand in the power system, there are two heterogeneous strategies: either expanding the electricity generation which fulfills the newly generated demand side needs or applying managerial policies that provide virtual resources and its management. The first strategy is employed to fulfill the added energy requirement which emerged due to economic modernization. To avoid such financial investments, the second strategy used broadly with the aim of penny-pinching using necessary managerial policies [1]. This implementation of managerial measures made a role in emerging the concept of demand side management (DSM). The term demand side management (DSM) was first given by Clark W. Gellings in the 1980s and concept of DSM has been found in [2–4].

For the future smart grid, DSM is an important function to manage the energy [5, 6] and also support the various functions in smart grid such as controlling the electricity market, decentralize energy management, and electric vehicle. By controlling the energy demand, also can control the peak, can alter the demand curve and can increase the sustainability of the grid by suppressing the energy cost and carbon emission level.

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