

## عنوان مقاله:

Transmission Congestion Management Considering Uncertainty of Demand Response Resources' Participation

## محل انتشار:

مجله نوآوری های مهندسی برق و کامپیوتر، دوره 3، شماره 2 (سال: 1394)

تعداد صفحات اصل مقاله: 12

## نویسندگان:

Abbas Tabandeh - *Department of Electrical Engineering, Shahid Bahonar University, Kerman, Iran*

Amir Abdollahi - *Department of Electrical Engineering, Shahid Bahonar University, Kerman, Iran*

Masoud Rashidinejad - *Department of Electrical Engineering, Shahid Bahonar University, Kerman, Iran*

Ali Hajebrahimi - *Department of Electrical Engineering, Laval University, Quebec, Canada*

## خلاصه مقاله:

Under the smart grid environment, demand response resources (DRRs) are introduced as a virtual power plant which enhance power system adequacy. DRRs often fail to reduce their load due to some external factors. In this paper, a reliability model of a DRR is constructed as multistate conventional generation units, where the probability, frequency of occurrence, and departure rate of each state can be acquired. DRRs as a consequence of demand response program implementation can be applied to transmission congestion management. Therefore, this paper presents an optimal model of congestion management (CM) by means of multi-state DRRs, namely CM\_DRR. In the proposed approach, in addition to DRRs, independent system operator relieves the existing transmission line congestions using the combination of generating unit rescheduling and involuntary load shedding. The hourly historical data associated with the Connecticut region in New England is employed to achieve the DRRs' participation regime. Moreover, the impact of different capacities of DRRs on the congestion management cost and load shedding cost is evaluated. Results of applying the aforementioned model to the 24-bus Reliability Test System (RTS) indicate the efficacy of CM\_DRR framework.

## کلمات کلیدی:

Congestion management, Demand response resource, Customer's uncertainty, Multi-state model, Smart grid

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/685806>

