Maintenance scheduling in restructured power systems

A technically sound coordinating mechanism based on incentives/disincentives among producers and the operator is proposed, which allows producers to maximize their respective profits while the operator ensures an appropriate level of reliability. This paper addresses generation maintenance scheduling in a competitive electric energy environment.

In restructured power systems, the traditional approaches of unit maintenance scheduling (UMS) need to undergo major changes in order to be compatible with new competitive structures. Performing the maintenance on generating units may decrease the security level of transmission network and result in electricity shortage in power system; as a result, it can ...

In this GAMS code, you can run the generation maintenance scheduling (GMS) in restructured power systems based on the methodology developed in [1]. The market consists of an ISO and several GENCOs ...

@article{Latify2013AnIM, title={An integrated model for generation maintenance coordination in a restructured power system involving gas network constraints and uncertainties}, author={Mohammad Amin Latify and Hossein Seifi and Habib Rajabi Mashhadi}, journal={International Journal of Electrical Power & Energy Systems}, year={2013}, ...

The generation maintenance scheduling problem for restructured power systems has been studied in [8, 9], using a mixed-integer linear programming model. Coordination between generation maintenance ...

In a monopolistic power system, maintenance scheduling is being done only upon the technical requirements of power plants and preserving the grid reliability, while in restructured power systems, technical viewpoints and system reliability are taken into consideration in maintenance scheduling with respect to the economical viewpoints.

Generation maintenance scheduling (GMS) plays an important role in power system operations. The restructuring of the power industry has forced changes to the traditional maintenance mechanism. On one hand, the generation companies seek to maximize their profit. On the other hand, the independent system operator (ISO) strives to maintain the operational reliability of ...

Yearly maintenance scheduling of power generating units is an important scheduling problem that has to be solved within a restructured power system. Solving period of this problem usually is a one year basis. In this paper, a bi-level approach is used to solve maintenance scheduling problem. The upper level of this bi-level problem represents the profit maximization ...

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In restructured power systems, regard to the independence of generation companies, the procedure of maintenance planning has become more complicated compared with traditional power systems. ... Maintenance scheduling in restructured power systems. Springer Science & Business Media. Voropai, N.I. and Fedotova, G.A., 2010. Planning maintenance of ...

2016. This paper presents generator maintenance scheduling of a power system based on minimization of the objective function considering the economical and reliable operation of a power system while satisfying the network constraints along with crew/manpower, generation limits, precedence constraints, demanded load, maintenance window, loss of load probability ...

Maintenance planning and reliability are closely related which affect each other in several ways. In traditional power systems, this issue is mostly modeled as reliability constraints in maintenance scheduling problem. In restructured power systems, different institutions have separated role in ensuring the reliability of the system and equipment.

This paper addresses generation maintenance scheduling in a competitive electric energy environment. In a centralized setting, the system operator derives a maintenance scheduling plan that attains the desired reliability while minimizing cost and imposes it to all producers. In a competitive environment, this is not possible because the operator is still in charge of ...

Generation maintenance scheduling has system level and equipment level aspects. At the system level, large-scale integration of wind power brings about significant challenges for classical generator maintenance scheduling. At the equipment level, forced outages of power equipment caused by wear affect maintenance decisions.

This paper addresses generation maintenance scheduling in a competitive electric energy environment. In a centralized setting, the system operator derives a maintenance scheduling ...

Generation maintenance scheduling plays a crucial role in power system operation and planning; as it makes a significant effect on the outage time of generating units, and subsequently, to have a ...

BENDERS DECOMPOSITION IN RESTRUCTURED POWER SYSTEMS Mohammad Shahidehpour and Yong Fu Electric Power and Power Electronics Center Illinois Institute of Technology Chicago, Il 60616 ... (Benders cut) for revising the proposed maintenance schedule that would satisfy GENCOs" and the ISO"s constraints. Earlier in the 1960-1970, many of the ...

The overall goal of this book is to introduce algorithms for improving the economic posture of a utility company in a restructured power system by promoting cost-effective maintenance schedules. Today, cutting operations and maintenance (O& M) costs and preserving service reliability) are among the top priorities for managers ofutility companies.

Through iterations among power producers and the ISO, an appropriate schedule can be obtained to balance the producers" benefits and the system operating costs. Note that the system operating costs consist of three terms of the reliability cost, the production cost, and the maintenance cost.

Power industry restructuring has brought new challenges to the generation unit maintenance scheduling problem. Maintenance scheduling establishes the outage time schedul-ing of units in a particular time horizon. In the restructured power systems, the decision-making process is decentralized where each generating company (GENCO) tries to ...

Generator maintenance scheduling in power systems using metaheuristic-based hybrid approaches. Electr Power Syst Res (2007) ... A reliability-based approach for integrated generation and transmission maintenance coordination in restructured power systems. Electric Power Systems Research, Volume 206, 2022, Article 107737.

Maintenance scheduling of generating units in restructured power systems is a collaborative and interactive process between independent system operators (ISOs) and generating companies (GENCOs). The ISO should comply with GENCO maintenance preferences subject to targeted system reliability levels. This process might be multistage ...

Generation maintenance scheduling (GMS) is one of the most important scheduling problems in the restructured power systems. The maintenance time interval of generation units is the crucial factor of GMS for an operation lifespan of generation units, particularly within the smart grid which needs high reliability.

Maintenance scheduling of generating units in restructured power systems is a collaborative and interactive process between independent system operators (ISOs) and generating companies (GENCOs).

Abstract: Maintenance scheduling establishes the outage time scheduling of units in a particular time horizon. In a monopolistic power system, maintenance scheduling is being done only ...

The restructuring of the power systems has forced changes to the traditional maintenance scheduling practices because one organisation no longer controls all of the facilities that must be maintained. Therefore, the GMS in deregulated power ...

In Conejo et al. [27], the authors studied the maintenance scheduling in restructured power systems. In another study, the maintenance management of generation units in oligopolistic electricity ...

Coordinated preventive maintenance scheduling of both GENCOs and TRANSCOs in restructured power systems is presented. Theoretical problem formulation and solution methodology of the integrated approach with the inclusion of the transmission line constraints into the unit commitment problem forms the major

emphasis of the work.

In a restructured power system, the problem of maintenance scheduling is different from the traditional centralized power system. This paper is demonstrated how GENCOs (generating companies) in a competitive environment prepare the maintenance schedule of their facilities. Taking into account that in the new structure the main purposes of GENCOs are selling ...

The generator maintenance scheduling (GMS) problem is the difficult combinatorial optimisation problem of finding a schedule for the planned maintenance outages of generating units in a power system.

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