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CONGESTIONS IN ELECTRICITY TRANSMISSION SYSTEM CASE STUDY

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Rezumat. *În lucrare se prezintă problema congestiilor din sistemele electroenergetice de transport şi din reţelele transfrontaliere. Metodele de management al congestiilor sunt următoarele: limitarea accesului la reţeaua de transport, lista de priorităţi (primul venit, primul servit), raţionalizare pro-rata, licitaţii explicite, licitaţii implicite, divizarea pieţei, redispecerizarea şi redispecerizarea coordonată transfrontalieră. Studiul de caz se referă la un sistem real, de mari dimensiuni, reprezentat de subsistemul aflat în gestiunea Sucursalei de Transport Timişoara a C.N.T.E.E. Transelectrica.*

Abstract. *This paper aims to present the congestion problem within the power transmission systems and cross-border transmission networks. The worldwide congestion management applied methods are the following ones: limited access to transmission network, priority list (first come, first served), pro-rata rationing, explicit auctions, implicit auctions, market splitting, redispatching and cross-border co-ordinated redispatching. The case study is represented by a real, large scale power system, operated by Timisoara Transmission Subsidiary of C.N.T.E.E. Transelectrica.*

Keywords: congestion, transmission system, redispatching method, transmission system operators

1. Introduction

European electric power systems, initially interconnected for reliability reasons, are used for commercial purposes too, through energy trading in electricity markets at national, regional or inter-regional level [1], [2]. In any market power is necessary to avoid limiting transactions. This limitation is due to limitations of equipment used in the production and transmission of electricity. It became clear that in order to stimulate competition and provide open access to electricity transmission network, there will be situations in limit operation or even exceeded these limits (congestion). The congestion appearance on network elements leads to visible increasing the values marginal prices and redispaching of power generated is no longer done only in terms of the offer price, including in discussion the "cost" of congestion too. Independent system operator will intervene to eliminate congestion. If the system has lacks of sufficient resources to solve the congestion, it may appeal to one of the following situations:

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