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ATC in Competitive Electricity Market Using TCSC

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Abstract : In a deregulated power system structure, power producers, and customers share a common transmission network for wheeling power from the point of generation to the point of consumption. All parties in this open access environment may try to purchase the energy from the cheaper source for greater profit margins, which may lead to overloading and congestion of certain corridors of the transmission network. This may result in violation of line flow, voltage and stability limits and thereby undermine the system security. Utilities therefore need to determine adequately their Available Transfer Capability (ATC) to ensure that system reliability is maintained while serving a wide range of bilateral and multilateral transactions. This paper presents power transfer distribution factor based on AC load flow for the determination and enhancement of ATC. The study has been carried out for IEEE 24 bus Reliability Test System.

Keywords : available transfer capability, FACTS devices, power transfer distribution factors, electric
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