Transmission congestion is the major challenge in the operation of competitive power market. Sufficient transmission corridor is necessary for realization of power transaction. This paper proposes an efficient approach for transmission congestion management using the Black Hole Algorithm (BHA). Congestion is relieved by rescheduling of real power from the market clearing schedule. BHA is a recently introduced nature inspired algorithm with less number of parameters. The algorithm is easy for implementation, takes less number of iterations and tuning for a particular application. The strength of the algorithm is validated by comparing its performance with that of Particle Swarm Optimization (PSO) and Big Bang Big Crunch (BBBC) algorithms available in the literature. Modified IEEE-30 and Modified IEEE-57 bus systems are taken for the simulation purpose.

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