Comparison of methods for calculating the value of available transmission capacity of bilateral and multilateral transactions by applying metaheuristic methods was analysed in the paper by Darko Sosic and Ivan Skoljev, from the Faculty of Electrical Engineering, University of Belgrade. Given that a universal metaheuristic method has not been made so far providing best solutions for each given problem, the authors compared the results obtained by applying the three methods: Genetic Algorithm (GA), Black Hole Algorithm (BH) and the Gray Wolf Optimizer Algorithm (GWO). In their paper Determination of the Transmission Capacity Value Available for Transactions by Applying New Optimization Methods, the authors present the results on a standard test network, IEEE 30 busbar system, mostly used in professional literature to resolve such problems. This paper was presented at the CIGRE Serbia Conference, organised for the 32nd time by the Serbian National Committee of CIGRE on Zlatibor in May 2015.

One of the basic divisions of metaheuristic optimization methods is based on the idea of genetics, evolution, principles of physics and animal behaviour. Sosic and Skokljev describe one method from each group: Genetic Algorithm, Black Hole Algorithm and the Grey Wolf Optimizer Algorithm. After analysing the available transmission capacity, which is a measure of the remaining transmission capacity for further trade besides the already established and reserved capacity, the paper presents the results of research.

Comparison of optimization methods was performed using the results obtained by applying the method of recurring power flows. By using the AC coefficients of sensitivity, the upper limit of the independent variables in the optimization process was determined. When calculating the value of the ATC, individual outages of all transmission system branches were respected. Each of the optimization algorithms incorporates the possibility of automatic correction of the independent variables upper limit.

Although the calculation of individual transactions optimization methods require more time than using the RPF method, this method can be easily upgraded in order to calculate the optimal allocation of generation and consumption of multilateral transactions in order to transfer large quantities of electricity, as well as for troubleshooting transmission network congestions, transmits Serbia-energy.eu