

## **Voltage control optimization model to enhance the electrical power grid transfer capability.**

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A multi-criteria optimization model and an automated voltage control algorithm to enhance the power grid's transmission capacity have been developed. The results of computational experiments confirm the effectiveness of the proposed solutions for both power system planning and operation tasks under the cases when transmission capacity is limited with different factors. For the controlled cross section of the Siberian Unified Energy System it has been demonstrated that their transfer capability can be increased by up to 70 % of the magnitude of irregular fluctuations.

*Key words: optimization model, voltage control, power transmission capacity, reactive power, admissible active power flows, controlled cross-section, multi-criteria optimization.*