

## **Paulina Bielska: System Strengthening the Current Return Circuit of the Metro Line**

The first part of the article describes the process of metro line power supply in 750 V DC system, beginning with the urban power grid, then regional supply points and traction substations and finishing with substations as a return circuit. The current return circuit has been presented as a component of metro line power supply for rail vehicles. Moreover, undesired phenomena accompanying the power supply system such as stray currents have been mentioned. A solution for the system strengthening the current return circuit which improves the power supply quality of the metro line has been shown. The developing of this system, its components, place and way of its assembly, as well as the impact on the supply system and its advantages have been presented. The final part of the article outlines tests of the system strengthening the current return circuit of the metro line which were carried out by the Electric Power Department of the Railway Research Institute. The outcomes of these tests have been presented in a graphic and verbal way.

**Keywords:** metro line, return circuit, strengthening system, stray currentse