

1. Mesh Planning Optimization for Urban Distribution Network with High Reliability

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Abstract: Modern distribution network has a huge volume and a wide range of points, so the difficulty of construction and transformation of distribution network often lies not in technological innovation, but in the operability of planning scheme, adaptability and flexibility of network structure. Therefore, an optimization model of mesh planning for high reliability power supply in urban power grid is proposed. Firstly, the planning process is optimized to avoid the cyclic adjustment of power supply mesh and power supply unit division. Secondly, a target network architecture and power supply unit partition model for medium-voltage power grid are proposed, which can meet the double power demand of important power users and ensure no cross-supply between units. Finally, an example of mesh planning in a city center in Hubei Province of China is given, and the application of the optimization method is described in detail. The results show that the method is easy to carry out, and effectively improves the reliability of power supply in urban power grid.

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