

## MUNTENIA NORD ELECTRICAL DISTRIBUTION NETWORK ANALYSIS AND OPTIMIZATION

### Goal of the project

Distribution network real technical losses evaluation for Electrica Muntenia Nord Distribution System Operator. Power flow computing for various operating condition of the Central, South and South-Eastern part of the Romanian Power System (peak and minimum type regimes).

### Short description of the project

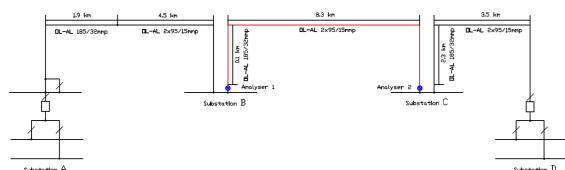
The study was conducted for Electrica Muntenia Nord Distribution System Operator. An algorithm is proposed by the authors being able to compute the load dependent and non-dependent technical losses. The analysis has been performed for the Central, South and South-Eastern part of the Romanian Power System. Quantitative and qualitative on-field measurements are provided and discussed, followed by the technical losses computing based on the provided algorithm. Different necessary scenarios for the distribution network operator have been taken into consideration highlighting the optimal operating conditions.

### Project implemented by

- Servelect Cluj-Napoca, Electrica Muntenia Nord

### Implementation period

January - June 2013

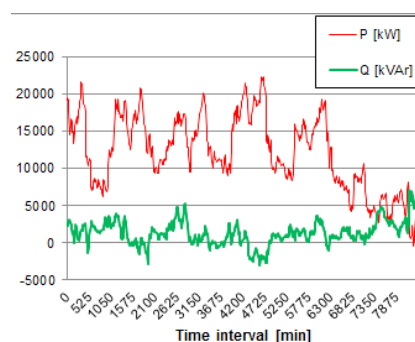


### Main activities

- on-field power flow monitoring in case of several overhead lines;
- algorithm development for technical losses evaluation;
- electrical distribution network modelling;
- optimal power flow considering different scenarios;
- comparison and analysis based on the these approaches.

### Results

- algorithm used for technical losses evaluation;
- electrical distribution network simulation model;
- technical losses' reduction methods.



### Applicability and transferability of the results

The algorithm used for technical losses evaluation is able to be applied in case of any distribution network operator. Also, based on the achieved experience, other (or similar) technical losses reduction methods could be highlighted in case of other distribution operators.

### Fields of interest

- distribution network analysis;
- technical losses computing;
- loss reduction methods;
- distribution system operators.

### Research Centre

Research Centre for Power Systems Analysis and Optimization

### Financed through/by

Servelect Cluj-Napoca, total value: 12.000 RON

### Research team

Stefan KILYENI, Constantin BARBULESCU, Attila SIMO, Annamaria KILYENI

### Contact information

Prof. Dr. Eng. Ștefan KILYENI/ Ș. L. Dr. Eng. Constantin BARBULESCU  
 Department of Power Engineering  
 Address: Bd. Vasile Pârvan, No. 2, RO300223, Timisoara  
 Phone: (+40) 256 403 430/ (+40) 256 403 416  
 E-mail: stefan.kilyeni@upt.ro/ constantin.barbulescu@upt.ro