

MICRO-HYDRO POWER PLANTS INTEGRATION IN THE ROMANIAN POWER SYSTEM. CASE STUDY FOR CARAS-SEVERIN AREA

Goal of the project

Power system analysis and optimization for the micro-hydro power plants' integration in the Caras-Severin area of the Romanian Power System (Enel Banat Distribution Operator).

Short description of the project

The renewable energy sources represent an important issue for the Romanian and EU energy policy and sustainable development strategy. The projects refer to micro-hydro power plants integration in the Caras-Severin area of the Romanian Power System (Enel Banat Distribution Operator). The analysis has been performed for the North-Western, Western, Central and South-Western part of the Romanian Power System. Various operating condition, with the consumption forecast for 2020 and 2025, were considered, taking into account all the renewable energy sources (wind, solar, biomass, hydro). The medium voltage network for the interest area has been modelled in detail.

Project implemented by

S.C. Cons Electrificarea Instal S.R.L., Timisoara

Implementation period

2016-2017

Main activities

- power system data base validation;
- Enel Banat distribution network modelling; operating condition computing and analysis;
- power consumption and renewable energy generation forecast;
- power flow computing for various operating condition of the North-Western, Western, Central and South-Western part of the Romanian Power System (peak and unloaded type operating condition for 2016, 2020, 2025 years);
- contingency analysis, in the presence / absence of the renewable energy sources.



Results

- power flow corresponding to 2016 year and forecasted 2020 and 2025 years;
- power flow corresponding to the medium voltage electrical network (Enel Banat Timisoara area);
- voltage value without / with the new generating units;
- quick / slow maximum voltage variation value for critical buses;
- transformer loading without / with the new producers;
- power flow through the power system elements and loading level;
- integration solution validation and system reinforcement recommendations.

Applicability and transferability of the results

Knowledge transfer to other renewable power plants developers and designers, or to the electrical distribution network operators (Enel, CEZ, EON, Electrica in Romania).

Financed through/by

S.C. Cons Electrificarea Instal S.R.L., Timisoara

Research Centre

Power Systems Analysis and Optimization Research Centre

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