

Energy and Power System Planning Department



The researchers at the Energy and Power System Planning Department carry out long-term energy system planning.

Research is conducted in four basic fields:

- ▶ general power engineering and forecasting the consumption of energy,
- ▶ electricity generation development planning,
- ▶ transmission networks development planning,
- ▶ distribution networks development planning.

In these areas we comprehensively cover long-term planning of the electric power system: from complex predictions of electricity consumption, through covering the predicted consumption with power plants and transmission and distribution networks planning.

AREAS OF WORK

- ▶ Distribution networks development planning and optimisation,
- ▶ transmission networks development planning and optimisation,
- ▶ the development of distribution networks planning criteria,
- ▶ the development of software for analysing distribution and transmission networks within the scope of the GREDOS software package,
- ▶ the analysis of international connections with commercial lines,
- ▶ the inclusion of new production sources to EPS and the optimisation of production companies development,
- ▶ the development of programme tools for analysing the hydrological situation and potential generation of hydro power plants,
- ▶ the costs of electric power production, transmission and distribution,
- ▶ the development of energy consumption and loads,
- ▶ the impact of traffic electrification and heating on the electric power system development.



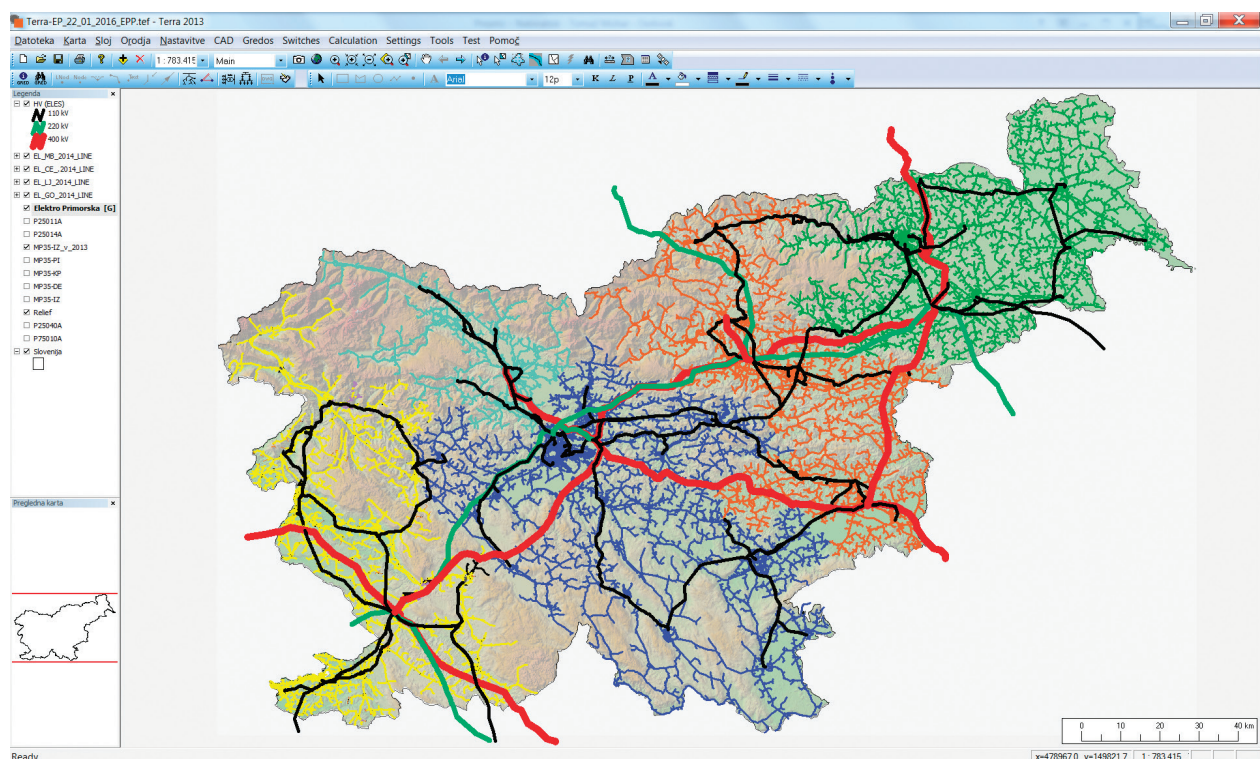
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GREDOS – DISTRIBUTION NETWORKS ANALYSIS PROGRAMME

The beginnings of the Gredos distribution networks analysis programme date back to 1996. Gredos programme combines the analyses of networks of all voltage levels by using a common GIS programme interface and various computing modules.

Gredos programme options:

- ▶ calculation of power flows (AC/DC),
- ▶ optimal decoupling (losses, reliability),
- ▶ optimal overvoltage,
- ▶ reliability analyses,
- ▶ short circuit calculations,
- ▶ AMI interface (advanced measurement systems),
- ▶ DS analysis module (dispersed sources),
- ▶ optimal grid construction (sales agent method),
- ▶ GIS support (ESRI ShapeFile, MySQL),
- ▶ AutoCad DWG support (Taigha Open Design Alliance).



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