Integrated Power System Analysis Software

Generation•Transmission•Distribution•Industrial

PowerFactory comes with fully integrated optimization functions for minimizing losses or production costs of modern power systems. The optimization is based on state-of-the art models and algorithms guaranteeing that the most economic solution is found without violating any system constraint. Objective functions, system constraints and set-points can be defined in the most flexible way. The optimization model is fully backward compatible to the standard PowerFactory load flow.

DIGSILENT

PowerFactory

Power System Planning, Analysis and Optimization for Windows

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Economic Dispatch/OPF

Objective Functions

- Loss minimization
- Fuel cost minimization
- Profit maximization (fuel costs/load tariffs)

Constraints

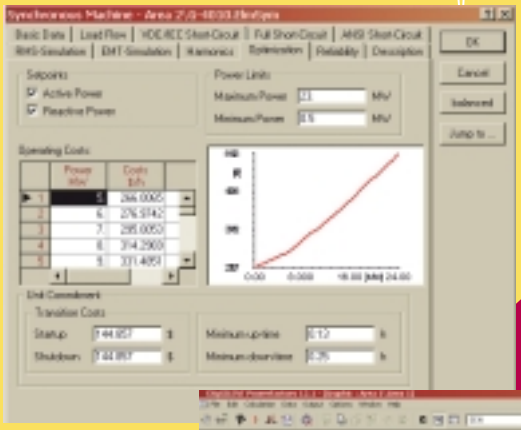
- Branch flow limits (branch loading)
- Bus bar voltage limits
- Reactive power limits
- Active power limits
- Stator current limits
- Minimum reserve

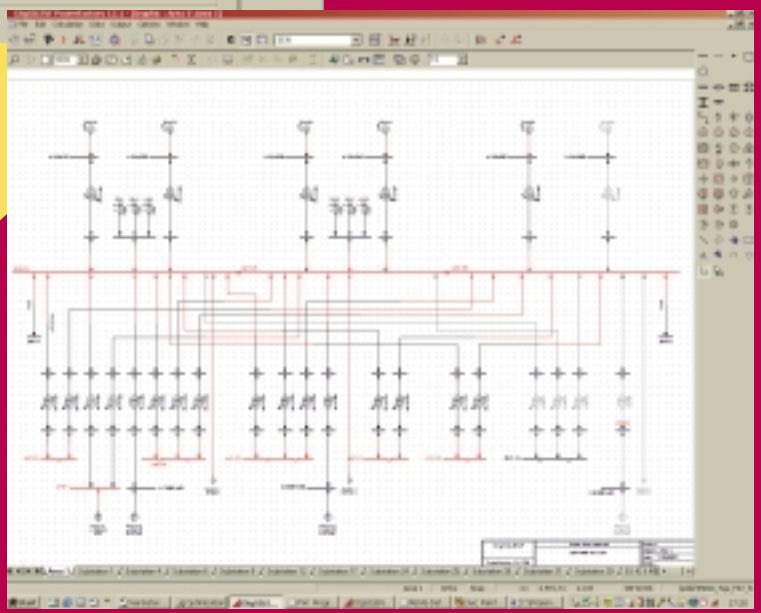
Set-points

- Generator reactive power
- Generator active power
- Transformer tap position
- Switchable shunts

Models and Algorithms

- Linear programming for active power dispatch
- Newton Raphson for reactive power dispatch
- Interior point algorithm for combined active/reactive power dispatch
- Nonlinear fuel-cost curves
- Automatic or user-defined generator capability curves





Supported PowerFactory Functions:

.... balanced and unbalanced power flow, fault analysis, harmonics, frequency scans, stability, EMT simulation for three-, two- and single phase AC systems and DC systems.; protection simulation and co-ordination, distribution-, transmission- and generation reliability, small signal analysis (eigenvalues), static and dynamic voltage stability, active and reactive power dispatch, state estimation; open tie optimization, optimal capacitor placement, cable sizing; built-in automation interface (DPL), ODBC driver, interfaces for GIS and SCADA integration; PSS/E compatibility...