

Integrated Power System Analysis Software

Generation•Transmission•Distribution•Industrial

PowerFactory incorporates extensive modelling capabilities with advanced solution algorithms, to provide the analyst with tools to carry out the most complex power system studies. Especially in wind power applications, DigSILENT PowerFactory has become the de-facto standard tool, as all required models and simulation algorithms are providing unmet accuracy and performance. Namely the integrated EMT functionality, harmonic analysis, support of AC/DC modelling, flexible control structures and long term simulation capability allow for an integrated analysis of fault response, control principles, blade and tower dynamics and stochastic wind model impact. The constantly growing size of wind turbines and wind parks is today's most challenging aspect in power system analysis.

SILENT DIG

PowerFactory

Power System Planning,
Analysis and Optimization
for Windows

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Wind Power Applications

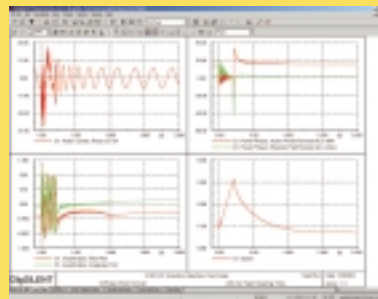
Generator Models

- Squirrel-cage induction generator
- Double-fed induction generator
- Direct driven synchronous generator



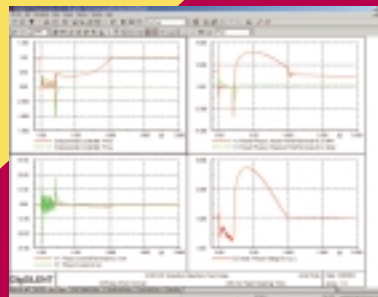
Enhanced Features

- Rectifier and inverter models
- PWM converter
- Softstarter
- AC/DC system representation
- Various generator control modes
- Pitch control
- Tower and blade mechanics
- Stochastic wind models
- Protection modelling



Stability Analysis and EMT

- Large scale model validity
- Long-term stability
- Fast, adaptive step-size algorithm
- Flexible DSL-modelling
- Iterative calculation of initial conditions
- Electromagnetic Transients (EMT)



Typical Applications

- Wind park design studies
- Verification of connection conditions
- Generator control design
- Harmonic penetration analysis
- Voltage stability analysis
- Fault recovery studies
- Integrated wind park modelling



Supported PowerFactory Functions:

... balanced and un-balanced power flow, fault analysis, harmonic analysis, stability and EMT transients for arbitrarily meshed AC/DC systems with 1-, 2- and/or 3-phases; protection co-ordination with all levels of device response tests, level I-III reliability, eigenvalue analysis, network reduction, DPL script language, DOLE and ODBC interface for GIS/NIS and SCADA links, interface to PowerFactory Monitor, ATC calculation, open-tie optimisation, capacitor placement, generic optimisation procedures, enhanced PSS/E compatibility....