

Wind Power Applications

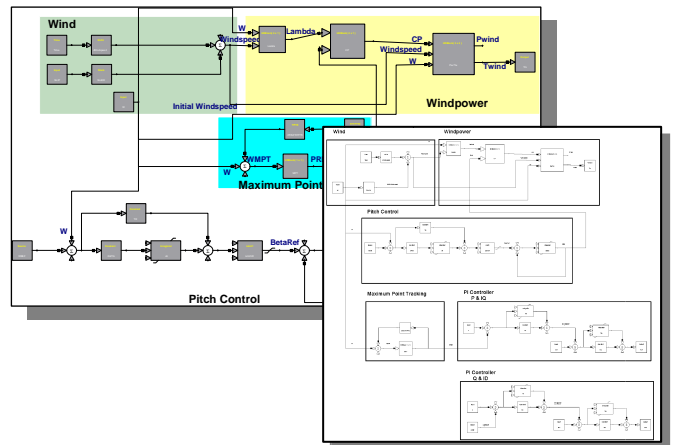
Modeling

- DFIG Double fed induction machine
- Simplified model with voltage controlled rotor
- Detailed model with PWM and DC network
- Asynchronous machine
- Converter driven synchronous machine
- Predefined standard controllers (e.g. turbine, pitch, wind speed, crowbar, PWM controllers)

Customized Models

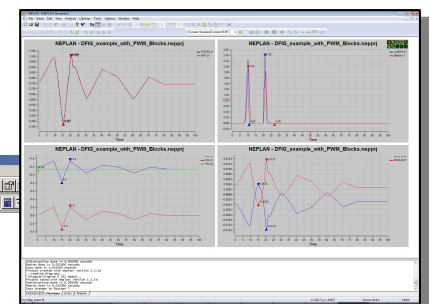
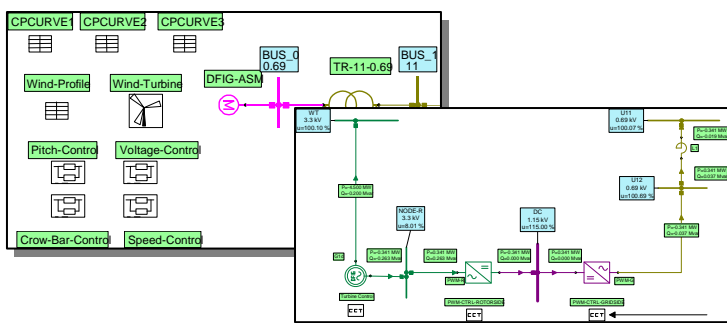
The user may have the following possibilities to define own models for all components and for controllers:

- Function block editor
- Define the model in Matlab® with DSAR equations. The model will generate automatically a binary DLL file to protect the customers know how
- **Use directly the Simulink® model** and connect Simulink to the NEPLAN simulator



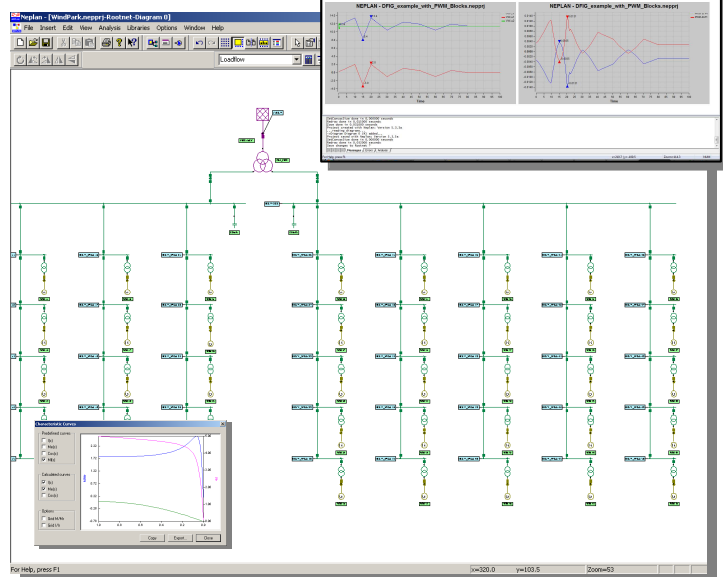
Calculation modules

- Load flow
- Short circuit
- Dynamic analysis (e.g. Transient stability, EMT, PHDYN)
- Voltage stability
- Protection modules
- Harmonic analysis
- Flicker analysis
- Quasi stationary analysis with load, wind and generator profile
- **Stochastic and Reliability analysis**



Typical applications

- Verification of connection conditions
- Steady state and dynamic simulation of whole wind parks
- Determination of optimal connections in regard of technical and economical aspects
- Increase of short circuit currents
- SC capacity of cables and equipment
- Protection settings
- Reactive power compensation
- Harmonic level calculations
- Power quality survey
- Functions to represent different wind conditions
- Pitch control representation
- Tower and blades mechanism
- Dynamic stability aspects in power system and wind park



More information and free DEMO at www.neplan.ch