

Caspoc

Fast and Easy Power Electronics and Electrical Drives Simulation

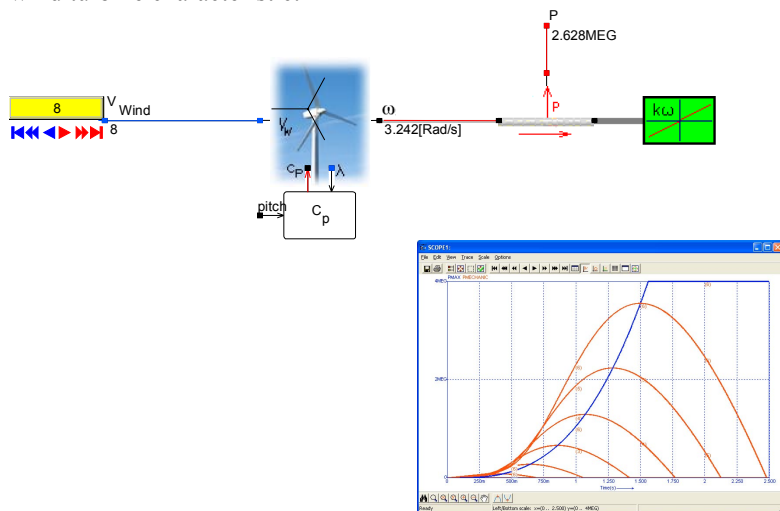
Wind Turbine, Generator, MPP and Grid Converters

The *Wind Turbine* library is especially developed for the design of nowadays Green Energy Wind Turbine systems.

Complete wind energy systems including wind turbine with C_p , power control and grid connection. Include generator with maximum power control and grid-converter with P-Q control in one model. Simulate variable wind speed cycles and observe the power management in the entire system.

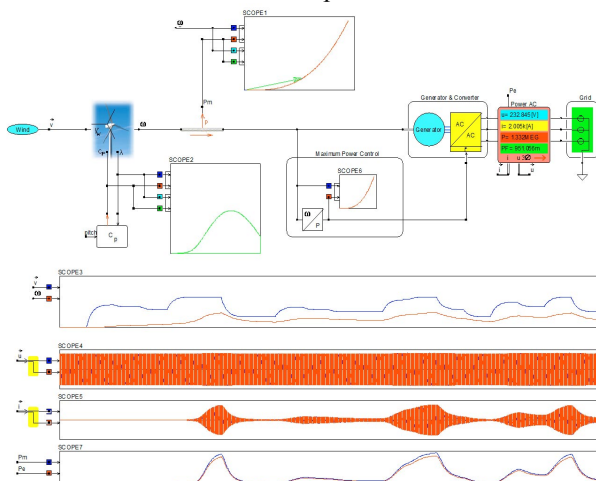
Detailed Wind Turbine with variable power coefficient

Various power coefficient models are available for customizing the wind turbine characteristic.



Power control with Grid Inverter

The simulation below shows the maximum power controller. The grid inverter is controlled by the amount of real power to be fed into the grid. Various controllers for variable wind speed can be tested.



*Summarizing;
detailed wind power system modeling with control
and three phase grid-inverter
quick and easy.*

Features:

- Wind turbine mechanical model
- Power coefficient C_p models.
- Drive train components including gearbox with backlash and shaft torsion.
- Induction generator, doubly fed induction generator and permanent magnet synchronous generator models.
- Back to back converters with P-Q control.
- Rotor side converters with Field Oriented Control.
- DFIG rotor side converters with P-Q control.
- Single Phase and Three Phase grid inverters
- Grid synchronization for Single and Three phase inverters
- Modulation; Pulse Width Modulation (PWM), Space Vector Modulation (SVM), Centerline, Continuous and Discontinuous
- Deadtime compensation
- Park and Clark transformations
- Vector Control blocks
- Mosfet inverters with Space Vector Modulation (SVM)
- IGBT inverters with Space Vector Modulation (SVM)
- Mosfet inverters with Space Vector Modulation (SVM) and thermal model
- IGBT inverters with Space Vector Modulation (SVM) and thermal model
- IGBT six-pack inverter with thermal model and temperature dependency of the IGBT's

In depth literature on wind-energy modeling with many Caspoc Tutorials

Example package on *Green Energy* is for tutors who have a need or desire to comprehend and apply the theory and simulation methods which are applied by Green Energy specialist throughout the world.

