POWER ENGINEERING SOFTWARE SOLUTIONS

CYME INTERNATIONAL T&D

TRANSMISSION & INDUSTRIAL SYSTEM ANALYSIS

Transient Stability | Power Flow | Short-Circuit | Harmonics | Voltage Stability | And more...

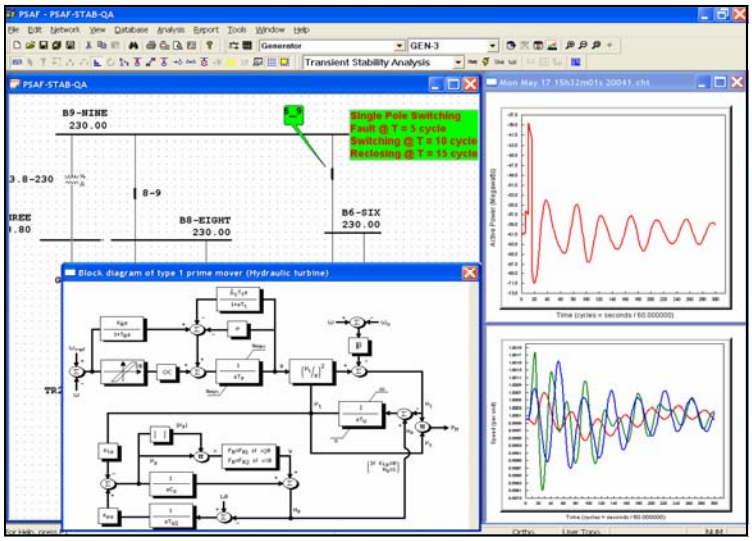
CYMSTAB, Transient Stability

CYMSTAB is the PSAF simulation module dedicated to simulating electromechanical transients in three phase electric power systems. It features an extensive library of equipment and controller models, the capability to include user-defined controls, a very flexible user-interface and powerful graphics.

CYMSTAB utilizes the simultaneous implicit trapezoidal integration solution technique for network, machine and controller equations. The program supports the capability to test the step response of controllers and User Defined Modeling for system equipment and controllers.

CYMSTAB includes an extensive library of equipment such as:

- Turbo and salient pole generators
- IEEE Excitation Systems including saturation modeling.
- Power System Stabilizers.
- Governor models comprising hydraulic, thermal, Diesel, and Gas Turbines.
- Static Var Compensators.
- Under-Voltage, Under-Frequency and Frequency Droop relays.
- Power Swing and Impedance relays.
- Induction motor models with frequency dependent modeling.

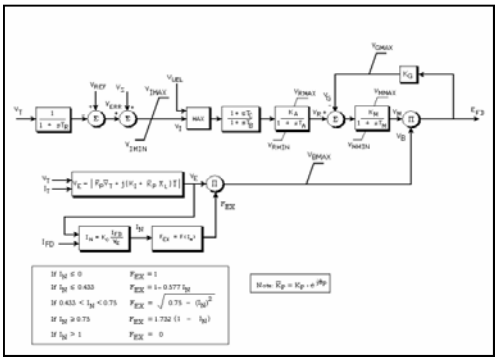


In addition to the above built in library the program includes a comprehensive Library of User-Defined excitation systems, governors and stabilizers.

Analytical Capabilities

- LLL, L-G, LL and LL-G Fault application and removal
- Line switching and line re-closing.
- Single Pole re-closing including line charging effects.
- Load shedding and Load increase.
- Generation shedding.
- Disconnection of Lines, cables and transformers.
- Frequency-dependent modeling.
- Networks with multiple frequencies.
- HVDC modeling.
- Possibility to monitor specific equipment during the simulation.
- Generalized Load modeling at individual bus bars or throughout the system.
- Disconnection of static Var Compensators.
- Addition and Removal of shunts.
- Direct on-line or assisted induction motor starting and stopping.
- Automatic validation of maneuvers sequencing.
- Verification of equipment and controller data
- Series capacitors and controls.
- Possibility to vary the integration step during the simulation.
- Possibility to interrupt the simulation temporarily and restart.
- Range checking for controller settings and simulation parameters.
- Synchronous motor starting.

User Defined Modeling

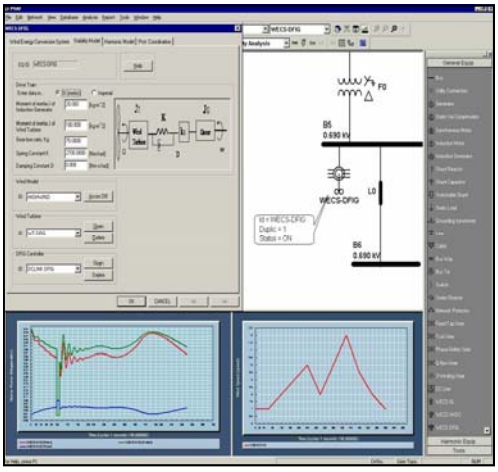


CYMSTAB features a unique ability to supplement the already wide array of hard-coded models for system equipment and controllers, by providing the user the additional possibility to model any desired control system by virtue of User-Defined modeling.

The User-defined modeling approach rests on the premise of interpreting, at run time, the User-defined equations.

The program is provided with an extensive Library of elementary functions and building block controls to model any control scheme, including system-wide operations.

WECS, Wind Energy Conversion Systems

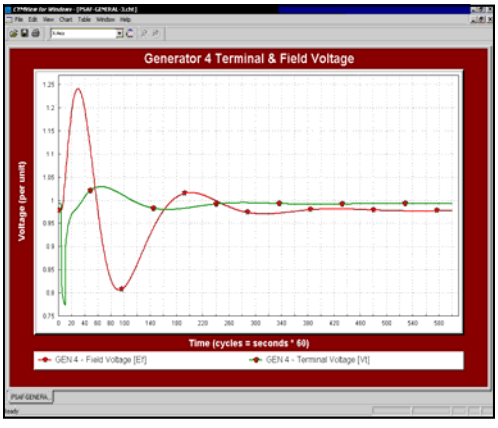


CYMSTAB now includes extensive modeling capability of Wind Energy Conversion Systems (WECS) dynamics. The advanced solution algorithms provide the user with the necessary tools to carry out power system studies comprising wind farm installations.

Three types of wind-turbine generation systems are supported, namely

- WECS-IG, for induction generators directly coupled with the AC grid.
- WECS-HVDC, for induction generators connected to the AC grid through a Voltage-Source Converter (VSC) DC link.
- WECS-DFIG, for doubly fed induction generators, featuring not only a direct stator connection to the AC grid but, also, a VSC-based DC link rotor energy recovery system, for variable turbine speed operation.
- Wind modeling, accounting for “cut-in” and “cut-off” capability
- Two-mass drive train turbine-generator shaft model.
- Blade Pitch control.

CYMVIEW, Simulation Results Management



CYMVIEW, is common to all simulation modules that generate any kind of charts. CYMVIEW is capable of managing the outputs of different modules.

- Real-time plotting of variables.
- Complete system-wide tabular reports generated with complete echo of the data used for the simulation.
- Plotting of the variables specified in the User-defined models.
- Capability to compare results from different simulations.
- Capability to customize Units, Labels and Plots appearances.
- Algebraic manipulation of plots and variables during plotting.
- Unlimited number of graphs.

Canada & International
1485 Roberval, Suite 104
St-Bruno, QC Canada J3V 3P8
Tel. (450) 461-3655
Fax (450) 461-0966

U.S.A.
67, South Bedford St, Suite 201 East
Burlington, MA 01803-5177 USA
Tel (781) 229-0269
Fax (781) 229-2336

U.S.A. & Canada
1-800-361-3627

www.cyme.com
info@cyme.com