



CYMFLOW - Power Flow Analysis

CYMFLOW is the power flow analysis module of the CYME power engineering software for the analysis of three-phase electric power networks. It is equipped with powerful analytical options and alternative solution techniques.

Program Features

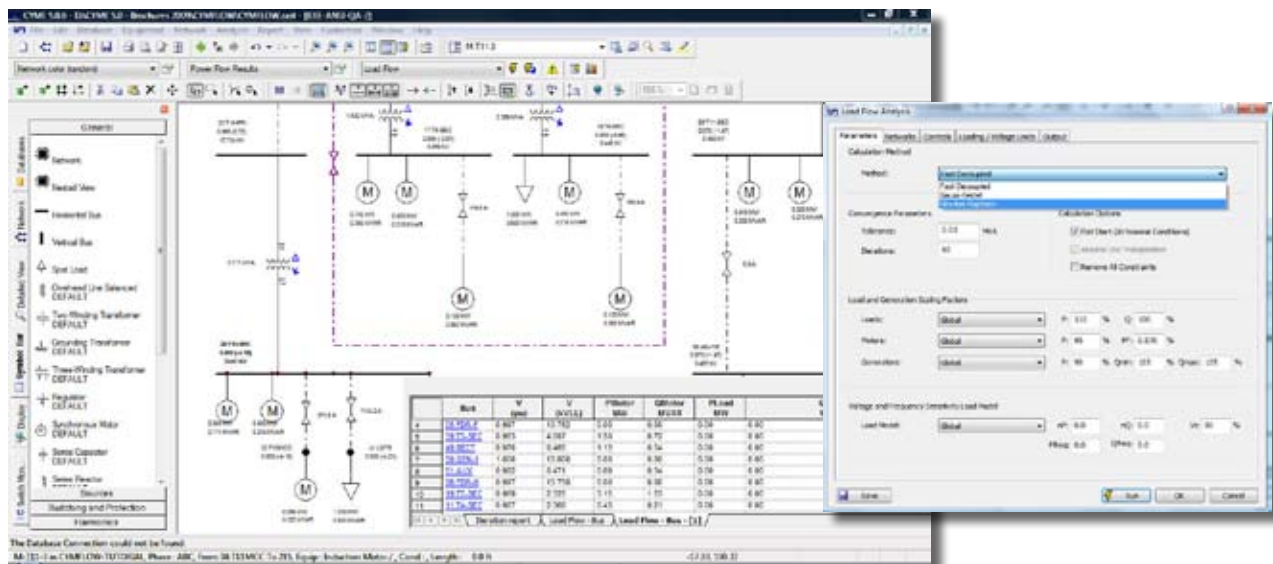
The objective of a power flow program is to analyze the steady-state performance of the power system under various operating conditions. It is the basic analysis tool for the planning, design and operation of any electrical power systems, be they distribution, industrial or transmission networks.

CYMFLOW utilizes state-of-the-art sparse matrix/vector methods and multiple solution algorithms:

- Full Newton-Raphson
- Fast Decoupled
- Gauss-Seidel

CYMFLOW is the main CYME module for the analysis of industrial and transmission power systems, and it has a seamless interface with other modules such as:

- CYMFAULT to communicate the pre-fault voltage profile, current flows and transformer tap positions, for fault studies taking into account pre-fault system loading
- CYMHARMO to communicate the fundamental frequency voltages and currents for harmonic distortion indices calculations
- CYMSTAB to communicate the initial condition of the system as required for transient stability studies
- The Motor Starting module to account for system wide voltage drops during motor start

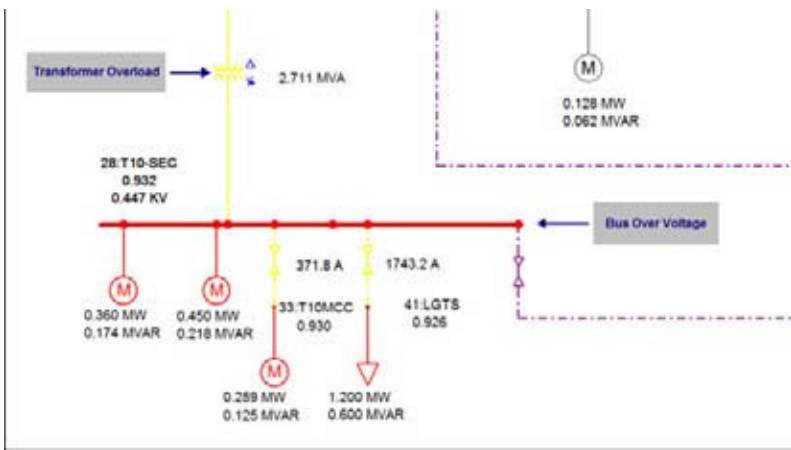


CYMFLOW - Power Flow Analysis

Power flow analysis of three-phase electric power networks

Analytical Capabilities

- Analyzes networks with thousands of buses and branches
- Multiple swing buses allowed
- Automatic swing bus selection for isolated subsystems
- Simultaneous solution for islanded networks
- Synchronous generator reactive power limits and remote voltage control
- Local or remote control of voltage and reactive power flow through tap changing transformers
- Cogeneration modeling including:
 - Induction generators
 - Wind Energy Conversion Systems (WECS)
 - Photovoltaic (PV Cells)
 - Fuel cells
 - Micro-turbines
- Customer load model library manager for any type of load model including:
 - Constant power, constant current and constant impedance
 - Composite load model
 - Voltage sensitivity exponent load model
- Capacitors with the following control types: voltage, current, reactive current, reactive power, power factor, temperature and time-controlled
- Scaling factors applied to the generators and to the loads on the whole network or by zone
- Global parameters to include or exclude any types of equipment from the analysis
- Three limit categories for nominal, planning and emergency loading criteria
- User-defined units for bus voltages, generator productions and branch flows on both one-line diagrams and tabular reports
- Tabular reports can also be directly exported to other spreadsheet programs such as Microsoft Excel®
- Color coding on the network one-line diagram as per user-defined criteria; for example:
 - Overloaded equipment
 - Voltage violations of buses and nodes
 - Visualization of conductor rating that may reflect, for example, improperly sized cables
 - System voltage levels



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