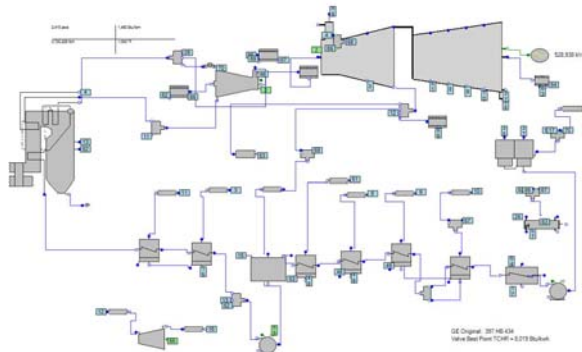


## GP RELEASES VIRTUAL PLANT™ THERMODYNAMIC MODELING FRAMEWORK

Aug. 9 (Amherst, New York) - General Physics is pleased to announce the release of Virtual Plant™, a powerful new product for assessing power plant performance. With Virtual Plant, users can quickly and easily build first principles models of conventional *fossil* and *combined cycle* power plants that work directly with existing EtaPRO Systems. GP's performance engineers use Virtual Plant for advanced applications such as on-line modeling, thermal audits, acceptance testing, and capacity forecasting. This exciting new technology is now available to EtaPRO end-users.



Rankine Cycle Virtual Plant Model

Virtual Plant is a completely new product developed by General Physics Corporation that allows detailed mass and energy balances to be performed for conventional fossil and combined cycle power plants. Virtual Plant models are an extension of the hardcopy heat balances provided by plant designers, and are more suited to the everyday needs of plant owners and operators. Virtual Plant may be used in *off-line* mode for “what-if” analyses or in *on-line* mode for real-time prediction of plant performance. GP uses Virtual Plant models for:

- Estimating expected real-time performance in new-generation EtaPRO Systems
- Forecasting plant capacity and heat rate in Energy Management Systems
- End-user interactive “what-if” analyses
- Evaluating steam path upgrades
- Conducting thermal audits
- Supporting acceptance testing

### How Virtual Plant Can Help You

Virtual Plant models allow the impact of operating and maintenance activities on heat rate and capacity to be quickly and accurately quantified. Examples of “what-if” analyses include:

#### FOSSIL PLANTS

- Changes in feedwater heater performance (TTD, DCA, bypassing)
- Rerouting of drains and leakages
- Changes in throttle steam conditions
- Changes in fuel constituents
- Changes in condenser pressure, cleanliness, cooling water flow, or temperature
- Changes in excess O<sub>2</sub> & burner level loading
- Evaluation of boiler surface changes
- Evaluation of steam path upgrades
- Increases in turbine seal clearances/leakages
- Miscellaneous leakages to the condenser

#### COMBINED CYCLE PLANTS

- Varying ambient conditions
- Changes in fuel constituents
- Changes in evaporator effectiveness and operation
- Changes in condenser pressure, cleanliness, cooling water flow, or temperature
- Changes in duct burner flow
- Changes in HRSG section effectiveness
- Bypassing individual HRSG sections
- Changes in turbine section efficiencies
- Increases in turbine seal clearances/leakages
- Miscellaneous leakages to the condenser
- Changes in condenser tube materials
- Inlet fogger operation

Virtual Plant models are readily built from “scratch” or you can start with one of our sample cycles. Each component is characterized with its design information and then interconnected by “drag-and-drop” techniques. Boundary and operational conditions are set, and when executed, the model



