Gas Turbine Combined Cycle and Cogeneration Plant Opportunities

Operational and strategic challenges:

volatile fuel prices and markets… fluctuations in power pricing… complex power generation facilities… equipment and systems inefficiencies… environmental constraints… inaccurate heat rate information… lack of management visibility… fragmented information… loss of experienced personnel

PE-Advisor™ Models and optimizes (*Historical, Real-time and Predictive)*:

- Operations and equipment performance
- Commodity supply and off-take agreements
- Interfaces with cogeneration plant hosts
- Accurate heat rates and power generation capacity
- Conceptual design of infrastructure improvements and capital projects

Overall Integrated Site Model

The integrated site model allows accurate real-time monitoring and prediction of the performance of all equipment on the site and the system as a whole. Fundamental gas turbine models fitted to the plant data gives accurate results under a wide range of conditions and at different loads. The impact of supply and sales contracts is included in the model, allowing comprehensive analysis of the true financial impact of operating decisions and design improvements.

Environmental Challenges and Opportunities

Power plants are increasingly constrained by NOx and CO emission limits and other environmental factors. PE-Advisor utilizes the plant's environmental models or detailed metered equipment data, as available, in conjunction with the overall system model to provide an accurate view of environmental performance in real-time and predictive modes. This enhances the ability to track limits, trade credits and optimize plant operations around such environmental issues.

Bottom-line view of energy and utilities consumption, cost and movements.

Saves Fuel and Improves Reliability

PE-Advisor™ in Combined Cycle and Cogen Plants:

PE-Advisor™ helps owners and operators maximize profits through improved operational and strategic decision making.

Gain Real-time Insight into Equipment and System Performance

- Monitor the performance of the integrated systems by tracking efficiencies, financial performance, emissions and other parameters.
- Diagnose measurement errors with comprehensive mass and energy balance cross-checking for more accurate information about your plant, leading to better decision making.
- Track equipment operating characteristics (e.g., degradation in efficiency) and optimize equipment cleaning and maintenance cycles.
- Improve personnel efficiency and productivity through use of a common set of trusted data and comprehensive analytical framework.
- Capture best practices and experience.

Improved On-line Information for Fuel Purchase and Power Dispatch Decisions

- Predict fuel supply requirements to manage supply contracts and hedges
- Incorporate real-time impacts of complex cogeneration steam sale agreements.
- Predict heat rates and power capacity under a wide range of conditions, such as weather forecasts and current equipment conditions.
- Use the accurate real-time heat rate and generation capacity information to improve dispatch decisions.

Optimize Operations and Perform "What-if" Scenarios

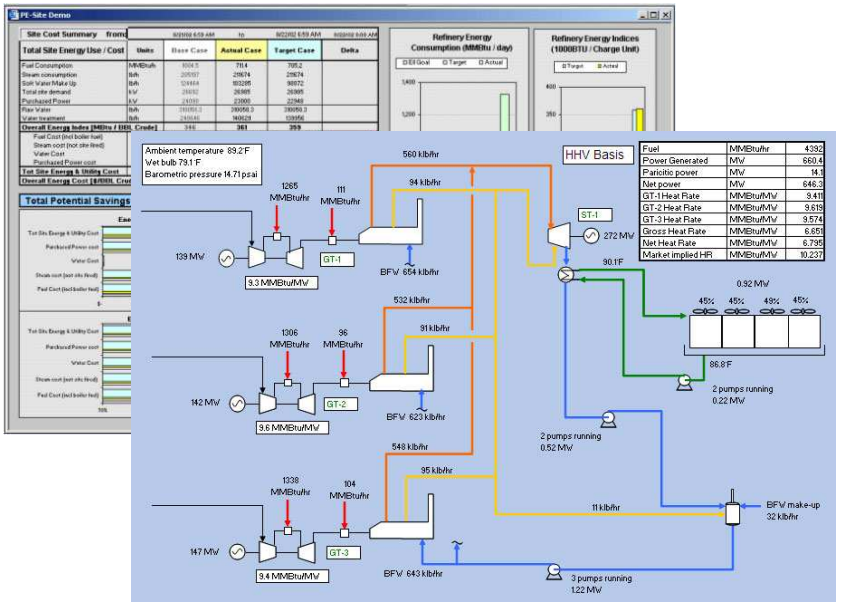
- Optimize operations through available options:
  - Adjusting gas turbine and steam turbine loads
  - Peak firing
  - Duct firing
  - Cooling water system operation – fan speeds and number of cooling water pumps running
  - The use of inlet air chilling
  - The use of augmentation steam
- Investigate the effect, including the net cost, of operating changes before taking action.

Identify and Analyze Projects

- Easily evaluate proposed projects using the operations framework as a basis, automatically taking into account the interactions of site-wide systems.
- Use historical operating conditions to analyze project impacts over time.
- Analyze trade-offs between initial capital and ongoing operating costs.
- Determine site-wide environmental impacts.
- Accurately evaluate projects, such as:
  - fuel heating
  - inlet air chilling
  - installation of NOx control equipment (and the performance penalty associated with resulting pressure drop)

User Interface

PE-Advisor is intuitive and highly flexible and was designed with the end-user in mind. Graphical and tabular inputs and results are easily managed and presented in a way that meets the needs of operators, plant engineers and management. "What-if" results are displayed on the same screen as plant measurements, which make it easy to compare results. Session runs and views can be saved and shared with colleagues, making collaborative work easier.



Contact Information:

Roger Hurst, *President*
LightRidge Resources, LLC
1111 N. Loop West, Suite 200, Houston, TX 77008
Phone: 713/862-0202 x242, Fax: 713/862-0211
roger.hurst@lightridgeresources.com

www.lightridgeresources.com