GTAP v3.0

GAS TURBINE ANALYSIS PROGRAM

Improved Performance and Lower Operating Costs

- Optimized Life Cycle
- Monitoring 50 Gas Turbines Representing 4 Gigawatts
- Created for Utility, Industrial, and Aero-Derrivative Gas Turbines
- Expandable for Plant Wide Analysis

LIBURDI

gas turbine data intellegence

How was GTAP developed

- Originally developed as a design tool used for cooling flow, aerodynamic analysis and performance upgrade design evaluation
- Utilized aero-thermal model of entire gas path developed from actual geometry
- Uses stage-by-stage mean-line aerodynamic analysis for inter-stage temperatures, pressures and flows
- Has instrumentation error algorithms developed over several years using live gas turbine operating data

How GTAP can improve performance and lower operating costs

- Gas turbine thermal health monitoring can
  - Identify the source and financial impact on plant operations of per formance degradation in the gas turbine
  - Optimize compressor wash
  - Troubleshoot erroneous gas turbine instrumentation readings
- Predictive gas turbine analysis provides
  Automatic updates of:
  - Spinning reserves
  - Incremental fuel costs
  - Spark spread/gap
  - Load optimization
  - Can eliminate the need for annual or bi-annual performance
  - testing of the power plant
  - Predictive emissions monitoring which can reduce the cost of
  - maintaining continuous emissions monitoring equipment

How GTAP Works

Available gas turbine and plant instrumentation data is fed into GTAP either manu ally or automatically from plant historian such as PI or ORAP Link.

Operated from a stand alone workstation, local area network or a web server

Can be customized to provide user configurable screens, alerts, reports and charts

Can be accessed anytime anywhere through a secure internet session

Can be provided as subroutine in a dynamic link library (DLL) format for integration into other software packages

Who uses GTAP

- Gas turbine maintenance managers
- Plant dispatchers
- Performance engineering
- Instrumentation technicians

What gas turbine configurations does GTAP handle

- Electric Utility Gas Turbine Power Plants operating in either simple, combined or cogeneration cycles
- Heavy Duty Industrial and Aero-Derivative gas turbines
- Capable of being expanded to include HRSG, Steam Turbine,
- Cooling Tower, Condenser for plant wide analysis

GAS TURBINE ANALYSIS PROGRAM

The efficient operation of gas turbine based power plants requires appropriate tools to intelligently optimize life cycle costs and reliability.

A Condition Based Maintenance strategy is increasingly favored by gas turbine operators over time based or 'run to failure' maintenance. Determining gas turbine condition relies largely on the technology available to interpret the operating plant data. Modern power plants have an overwhelming capability to collect data, which often outpaces the operator's ability to interpret it without the appropriate software.

GTAP was developed by Liburdi Engineering to gather and interpret plant operating data, which empowers operators with essential condition information to base decisions on.

GTAP has been in use for over 15 years and during this time has evolved with the best available technologies in communications and software. The installed GTAP monitoring base has grown to over 50 gas turbines representing over 4,000 MW of monitored power.

How much does GTAP cost

- GTAP is economical to install and maintain. No hardware required in most cases.
- On going maintenance and monitoring available
- Please contact Liburdi Engineering for a site specific quotation

developed by: **Liburdi Performance Engineering Services**

LIBURDI engineering