



COMPRESSOR
CONTROLS
CORPORATION

**INCREASING YOUR PROFITS
THROUGH BETTER
TURBOMACHINERY CONTROL**





WE FOCUS ON IMPROVING YOUR PROFITS THROUGH ENERGY SAVINGS, PRODUCTION EFFICIENCY, AND PRODUCT QUALITY

- FREE ON-SITE AUDIT OF YOUR PROCESS, TURBOMACHINERY AND CONTROLS
- SOLUTIONS THAT FIT YOUR BUDGET, WHILE GIVING YOU THE RESULTS YOU NEED
- INVESTMENT PAYBACK IN JUST MONTHS

For more than 25 years, CCC has been working with customers, retrofitting their compressors and turbines with turbomachinery control systems.

CCC engineers are experts at visiting plants and uncovering problems with existing systems.

Recently, we have begun working with end user energy and production management teams that specifically focus on improving profits through energy savings, production increases, or product quality improvements.

Based on this experience, we have concluded turbomachinery control plays a big part in increasing profits. Turbomachinery are big energy consumers and must be evaluated when

reducing energy consumption or increasing production. Many times, energy savings and increased production capability can provide a return on investment in only a few months.

INTRODUCING COMPRESSOR CONTROLS CORPORATION'S PROFIT ENHANCEMENT PROGRAM (PEP)

CCC's new **Profit Enhancement Program (PEP)** is designed to encourage end users to take advantage of our expertise in identifying profit enhancement opportunities through improved turbomachinery control.

The PEP begins with a **FREE Turbomachinery Control Survey**. This audit is performed by one of our qualified CCC engineers who analyzes and evaluates your process and existing control systems. The evaluation portion of the PEP only requires a day or two. Not all machines are candidates for upgrades but our engineers are very efficient in **Investigating and Identifying Problems** and can quickly determine which machines will provide the fastest return on investment.

The PEP ensures that you will be presented with solutions that increase your profits and meet your investment criteria. After identifying the problems, CCC engineers **Gather Data** and use process and production data, energy costs, drawings, and field instrument specifications to



PROFIT ENHANCEMENT PROGRAM

calculate the **Cost of the Problem**. This is necessary when control system upgrades must meet return on investment criteria for the plant. From this information, the engineer is able to **Design a Solution**, customized to meet your specific needs.

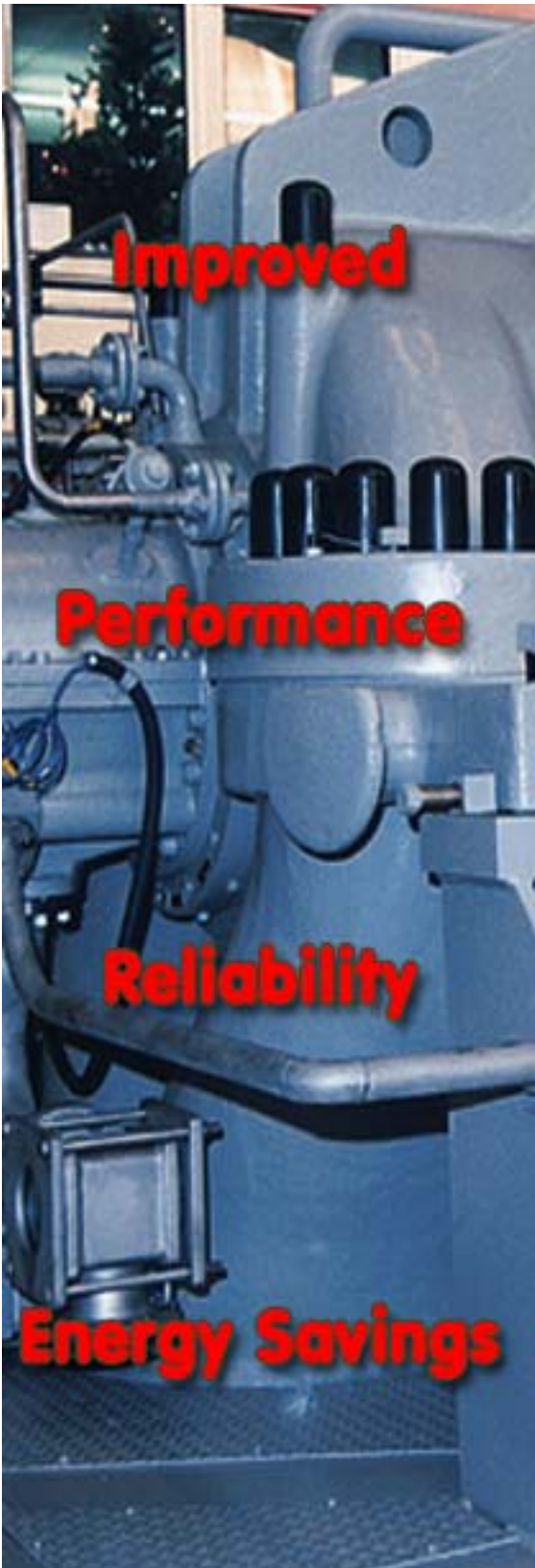
All PEP solutions are based on CCC's unique algorithms and control capabilities that strengthen the overall performance of the turbomachinery and process. Each solution includes a **Calculated Return on Investment**. Our solutions are designed to fit your budget, while giving you the results you need, often providing investment payback in months.

CCC engineers are experts in analyzing your turbomachinery applications and identifying profit enhancement opportunities through improved turbomachinery control.

*YOU'LL BE AMAZED BY
HOW MUCH YOU CAN GAIN*



*THROUGH BETTER
TURBOMACHINERY CONTROL*



OUR ENGINEERS CONSIDER THE FOLLOWING PROBLEM AREAS WHEN EVALUATING YOUR PLANT FOR POSSIBLE PROFIT ENHANCEMENT OPPORTUNITIES:

- Using continuous recycle or blow off for process control or machine protection
- Steam turbine extraction valves operating in manual
- Steam turbine trips due to overspeed
- Process or surge controllers operating in manual
- Compressor networks where machines are base loaded or cycled to maintain header pressure, especially on plant air systems
- Gas turbines that frequently operate on exhaust gas temperature limits or trip because exhaust gas temperature limits are exceeded
- Steam turbine driven pumps that run at constant speed and use discharge throttling for flow or pressure control
- Trains that trip during process disturbances
- Delayed startups due to overspeed trip testing of mechanical bolt systems on steam turbines
- Desire to safely operate at lower suction pressures on compressors operating close to atmospheric conditions leading to production increases



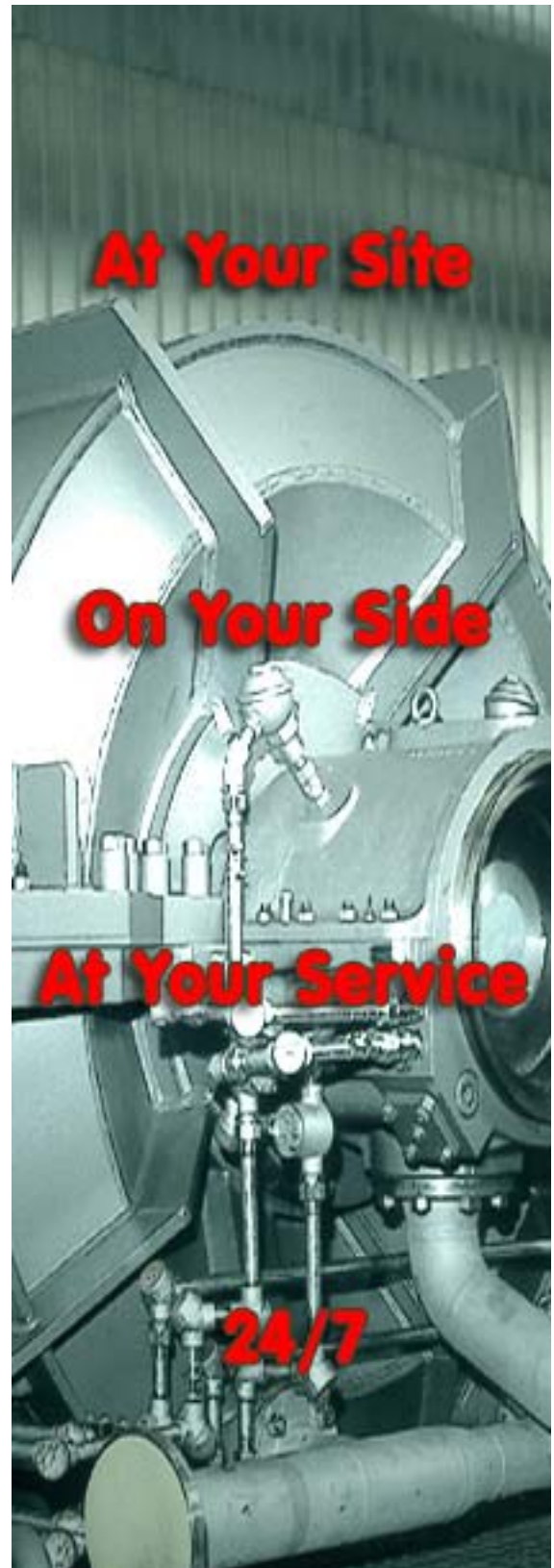
**AT YOUR SITE,
ON YOUR SIDE,
AT YOUR SERVICE,
24/7**

CCC is renowned for the most advanced turbomachinery control solutions; but we offer more than just hardware and software. An integral part of our solutions is our dedicated customer services:

- Complete system design
- Start up and commissioning assistance
- Comprehensive problems diagnostics
- Mechanical equipment for turbine retrofits
- In-house control panel design and assembly
- Real-time and dynamic simulation for broad range of plants and processes
- On-site training
- Parts Management Program
- Special seminars worldwide

**CCC CONTROL SOLUTIONS
LOWER YOUR ENGINEERING
AND COMMISSIONING COSTS.
WE OFFER OUR CUSTOMERS
LIFETIME SUPPORT,
GUARANTEED BY:**

- Large body of technical resources
- Experience on thousands of installations
- Institutional memory





OUR PATENTED, FIELD-TESTED, PROVEN CONTROL TECHNIQUES AND ALGORITHMS IMPROVE YOUR TURBOMACHINERY AND PROCESS RELIABILITY AND EFFICIENCY BY:

- Preventing trips and downtime
- Minimizing process disturbances
- Preventing surge, overspeed and associated damage
- Automating startup and shutdown
- Operating at lowest possible energy levels
- Minimizing antisurge recycle or blow-off
- Optimizing load sharing of multiple units



CCC CONTROL SYSTEMS ARE SUPPORTED BY:

- More than 200 engineers worldwide
- 80 full-time field engineers in 7 locations
- 46 full-time R&D personnel
- 19 PhDs
- 41 Masters
- 146 Bachelors





CCC IS THE LEADING INNOVATOR IN TURBOMACHINERY CONTROL SYSTEMS

- Since 1974, CCC has been recognized by many as the technology leader in turbomachinery control systems.
- Our patents demonstrate third party acknowledgment of innovation:
 - 24 US patents issued, plus related foreign patents
 - 4 patents pending
 - 3 patents in process
- High fidelity simulation for testing algorithms and strategies
- Dozens of seminars presented worldwide, many sponsored by ISA, ASME and other leading technical organizations



CCC CONTROL SYSTEM INSTALLATIONS WORLDWIDE:

- Over 6,700 turbomachines
- Over 330 steam turbines
- Over 1,500 gas turbines - the world's largest retrofitter of gas turbine controls!





CCC IS YOUR TURBOMACHINERY CONTROL SOLUTIONS EXPERT OFFERING A FULL LINE OF PROVEN INDUSTRY-LEADING TURBOMACHINERY CONTROL APPLICATIONS

- Compressor Antisurge Control
- Performance Control
- Loop Decoupling
- Load Sharing
- Utility Generator Control
- Speed and Load Regulation
- Steam Turbine Control
- Speed Control
- Extraction Control
- Startup and Shutdown Sequencing
- Expanders Control
- Inlet and Bypass Control
- Gas Turbine Control
- Single-shaft and Multishaft Fuel Control
- Machine Protection

