

AUDIT OR SURVEY

WHAT'S THE DIFFERENCE?

Generally a survey or audit is employed to determine the potential for energy savings, or to ascertain operation problems. It can also be used as an assessment tool for purchasing replacement equipment.

Audits - are detailed, metered analyses where data is accurately measured and recorded for a prescribed period of time.

Surveys - are examinations of existing conditions completed via non-intrusive observation and gathering of data. Generally, it does not include time-based studies or other audits where extensive metering is used. Often a survey is a preliminary step used to identify areas for further study such as audits or examination by other outside experts (mechanical rebuilds, etc.).

Bay Controls offers several engineering consultation service packages. See the other side of this sheet to learn more about these packages.

- Air Dryer Engineering Survey
- Compressed Air Piping Survey
- Compressor Sizing Survey
- Machine Condition Survey
- Miscellaneous Compressed Air System Related Analysis & Design Survey

Compressed air production is often one of the primary energy expenses in an industrial plant. It is estimated that energy costs of an average compressed air system could be reduced by 20 to 35 percent. For many companies this represents tens of thousands of dollars of potential savings annually. The main sources of compressed air energy losses are leaks, equipment inefficiencies, and production and distribution inefficiencies. A Bay Controls Engineering Consultation Service can provide the solutions to identify the areas of a compressed air system requiring repairs or upgrades, thereby improving system efficiency and achieving energy cost savings. Any of the audit or survey packages featured here can be tailored to individual needs.

AUDITS

Compressor and Air Production Audit

This audit is used to evaluate a compressed air supply system for performance/efficiency. The Supply System Performance is defined as a profile of the compressed air output versus the power required to produce the air and an evaluation of the individual compressor's efficiency in the overall air production.

For evaluation, the following areas are monitored and analyzed. To acquire an accurate profile, a continuous data log must be obtained for:

- Motor Power
- Compressor Flow
- Blow-off Valve Position
- Compressor Discharge Pressure
- Main Air Header Pressure (System Pressure)

Optional Additional Monitor Points Could Include:

- Total System Flow
- Inlet Valve Position
- Outside Air Temperature

SURVEYS

Compressors and Air Production Survey

Uses: Similar in intent to the audit, this survey evaluates a compressed air supply system for performance/efficiency. However, rather than installing instrumentation and relying on extensive data logging, the survey utilizes monitoring data that is already available at the plant.



Again, the Supply System Performance is identified as a profile of the compressed air output versus the power required to produce the air and an evaluation of the individual compressor's efficiency in the overall air production.

Monitoring data that is already available at the plant, such as flow and pressure chart recorders, amp meters, and kWh meters, or more sophisticated systems such as an existing SCADA system, are employed for this audit. A Bay Controls engineer comes on-site and tests the system (with the cooperation and assistance of the customer) to determine more accurately:

- Compressor full load characteristics
- Compressor turndown
- Blow-off valve characteristics (to better estimate quantity of blow-off)
- Reciprocating compressor performance at various capacity steps.

The equipment and labor to complete this survey is specific to your need. An estimate would be based on how many items need analyzed, the type of compressor, and the reason for the survey/audit (energy savings, operation problems, replacement evaluation, etc).

The Bay Controls Engineering Team is ready to provide you with the solutions to improve and optimize your compressed air system. Your Bay Controls representative will be happy to provide you with an Engineering Consultation Service estimate tailored to your individual needs. See Engineering Consultation Packages on the back of this sheet.



Engineering Consultation Packages

WHO WE ARE...

Bay is an energy solutions company that provides products and services to a broad range of industrial, commercial, and government customers. We provide cost savings for our clients through increased energy efficiency, improved system management, better reliability, and reduced downtime. Founded in 1983, Bay provides over 1.8 terawatt-hours (1,800 million kilowatt-hours) of annual energy savings for our customers in 70 countries. Our headquarters and network operations center is located in Maumee, Ohio.

OTHER PRODUCTS

Bay Compressor Controller
Industry leading controls for all rotary screw, reciprocating, and centrifugal compressors.

BayWatch®
Web-based hosted monitoring and alerting system for single and multi-plant applications.

BayView® Server
Full featured, HMI/SCADA system for air compressors controlled by the Bay Compressor Controller.

BayView® Scheduler
Advanced scheduling system, automating compressor schedules and operating conditions.

BayView® 20/20
Customizable HMI/SCADA system for integrating varying plant systems.

Custom Controls
Advanced customized control systems for cooling towers, dryers, and other industrial applications.

	Air Dryer Engineering Survey	Compressed Air Piping Survey	Compressor Sizing Survey	Machine Condition Survey	Miscellaneous Compressed Air System Related Analysis & Design Survey
USES	To design and recommend improvements to systems such as: <ul style="list-style-type: none"> •Performance (dew point) •Sizing •Instrumentation •Machine Condition (pressure drop condensate drains, heat exchangers, other as measured) 	To analyze, design and recommend improvements to the compressed air piping system. Intake piping, discharge piping, and compressor station main header piping design is very important to the energy efficiency of a compressed air supply system.	Provides the analysis to recommend new compressor sizes, types or enhancements for existing compressors, as well as other analyses.	To provide in-depth analysis of various components of an air compressor to determine the effectiveness of the component to process.	To design and recommend improvements to such systems as: <ul style="list-style-type: none"> •Condensate drains •Air filters •Cooling system design •Hybrid high pressure / low pressure supply - system •Lubricators •Heat recovery •Alternative drivers (NG engines, turbines, steam turbines, etc.) •Controlled air storage systems)
AREAS ANALYZED	Various	Areas of analyses include: <ul style="list-style-type: none"> •Efficiency (pressure drop, valving, centrifugal blow-off design) •Safety (check valves, safety valves, blow-off, etc.) 	Various	Typically the survey would include analyses of: <ul style="list-style-type: none"> •Vibration •Heat exchangers •Individual stage efficiencies •Filters •Compressor efficiency (single units rather than an entire system) 	Various
METHOD	The equipment and labor to perform these types of surveys are application specific. An estimate would be based on how many items are to be analyzed, type of compressor, reason for survey (energy savings, operation problems, replacement evaluation, etc.)				



Cloud-Based Energy Management Systems, Integration, and Controls

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