ABB’s power plant tuning is a Power Generation Care offering, a comprehensive suite of life cycle support services for power generation facilities.

Precise control tuning is critical to efficient power generation. A properly tuned power plant utilizes fuel efficiently, is more responsive to load demands, and more stable across the intended load range.

**ABB expertise lies in its people**

In the pursuit of optimum power plant control, nothing supplants the value of an experienced power plant tuning specialist. ABB power plant tuning specialists have an average of 25 years experience in the power plant automation field. This includes extensive knowledge of large utility coal, oil and gas-fired boilers as well as steam and combustion turbines. ABB specialists understand tuning parameters and their relationships as well as their application in efficient power plant control. ABB tuning activities effectively coordinate:

- Steam pressure and temperature
- Fuel consumption
- Combustion air
- Feedwater control
- Emissions control

**Benefits**

- Increased availability
- Better ramp rates
- Extended useful life of equipment
- Safer working environment
- Environmental compliance
- Reduced unit trips
- Reduced start-up time
- Improved heat rate and unit turndown
Power plant tuning

ABB’s tuning objectives are stable boiler operation at desired steam pressure and temperature conditions, safe operation through effective control and alarming interfaces, and enhanced boiler efficiency.

Power plant specialists begin by collecting calibrated data based upon current system configuration, response, and operation at various loads. Once this information is analyzed, base tuning is performed on each process subsystem.

Specialists set combustion air flow characterization curves, air-to-fuel ratios, windbox-to-furnace differential pressure setpoint, oxygen setpoint curves for various fuels, fuel air damper position curves, over-fire air dampers curves minimizing NOx production, steam flow to boiler feedwater feed-forward curves, drum shrink-swell trim, steam superheat and reheat temperature feed-forward curves and many others.

Control modes tuned include coordinated control, boiler follow, and turbine follow. Unit pressure operating modes are tuned for fixed, sliding and valve wide-open. These control modes have many feed-forward and derivative kick models, which are also tuned to maintain boiler and turbine controls at the desired pressure, steam temperature and megawatt setpoints.

The tuning process yields improved plant performance in the form of quicker response to load demand, better stability across the plant’s intended load range, reduced NOx emissions, and increased fuel efficiency.

Industry-leading experience

ABB specialists bring proven knowledge to the tuning process for boilers of all sizes and types, including proficiency on drum, once-through, subcritical, supercritical, and industrial size boilers. Our practices have been validated on CE, B&W, Foster-Wheeler, Riley-Stoker, and other boilers. We have tuned turbine controls for GE, Siemens, Westinghouse, and other steam and combustion turbines.

Innovation leader and pioneering spirit

With the industry’s deepest power plant process application knowledge and most extensive control system experience, ABB offers complete instrumentation, control and electrical systems for every type of power plant to provide the most benefit throughout your plant.

Other ABB Services

ABB’s reliable power plant tuning services are available today and over the lifetime of your plant. Additional control strategies and products specifically aimed at solving difficult power plant control problems are available:

- Optimax performance monitoring
- Combustion optimization
- Flame scanners
- In-situ carbon-in-ash monitoring
- Vibration monitoring

Power Generation Care

Power Generation Care delivers savings and service solutions that increase across its four program levels, designed to match the operational and maintenance needs of the power generation facility. Through planned delivery, Power Generation Care transforms routine maintenance tasks and frees
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