

Plant Increased Reliability and Reduced Maintenance Costs with Fisher™ High-Performance Actuation Package Retrofits

RESULTS

- Saved \$50,000-plus USD per year in maintenance costs
- Improved plant reliability
- Improved dynamic performance
- Reduced valve tuning time from hours to minutes
- Improved maintenance support



Fisher™ high-performance actuation package with SS-263 volume boosters.

APPLICATION

Turbine bypass (high pressure and hot reheat)

The turbine bypass valves transfer conditioned steam from the boiler to the condenser, bypassing the steam turbine. This is necessary during startup, shutdown, and turbine trips.

CUSTOMER

2,000 megawatt combined-cycle power plant

CHALLENGE

The customer experienced problems with eight high pressure (HP) and hot reheat (HRH) turbine bypass valves in units two and three of their plant. These valves were designed to react quickly in the opening direction but failed to provide accurate throttling control during plant startups. This resulted in erratic valve performance, which destabilized the control loop, making startup difficult and unpredictable in an automatic mode of operation.

The actuation systems on the valves were difficult to tune, requiring personnel from the equipment manufacturer to be on site during maintenance and commissioning activities. This service cost more than \$15,000 USD per visit, excluding required repair parts. In addition to actuation issues, the plant experienced recurrent cracking of the valve stem at the welded plug/stem joint, requiring yearly valve teardown and inspection.

In total, the customer was spending more than \$50,000 USD in maintenance operations each year.

SOLUTION

During a visit to the flow lab at the Emerson Innovation Center in Marshalltown, Iowa, USA, plant personnel witnessed the dynamic performance capabilities of the Fisher™ high-performance actuation package. Working closely with Emerson's local business partner Control Southern, Emerson personnel traveled to the customer's plant to investigate the application. The actuation packages were identified as the primary problem for both control and reliability issues. After taking into account the expertise of Control Southern and Emerson personnel, the customer decided to retrofit all eight turbine bypass valves with Fisher high-performance actuation packages.

The retrofit packages were installed by the local Emerson service center. The packages utilized Fisher SS-263 volume boosters, FIELDVUE™ DVC6200 digital valve controllers with optimized digital valve (ODV) tier, and simplified, vibration-resistant tubing. The optimized digital valve (ODV) tier included special features that enable faster stroke times and allow for quicker, easier valve tuning.

After being in service for over a year, the valves have not needed maintenance. If a need arises, plant personnel can count on the local Emerson service personnel to perform all necessary maintenance day or night, when and where needed, 24/7/365.

RESOURCES

Fisher SS-263 Volume Booster Bulletin

<http://www.emerson.com/documents/automation/product-bulletin-fisher-ss-263-volume-booster-en-124810.pdf>

Brochure: Combined Cycle Power Generation Valve Solutions

<http://www.emerson.com/documents/automation/combined-cycle-power-generation-brochure-en-4912574.pdf>



<http://www.Facebook.com/FisherValves>



<http://www.YouTube.com/user/FisherControlValve>



<http://www.Twitter.com/FisherValves>



<http://www.Linkedin.com/groups/Fisher-3941826>

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