Valve Work for New Construction, Combined-Cycle Power Plant:
Case Study

Situation: A new combined-cycle power plant needed to assess and remedy potentially critical valve problems following the initial commissioning of the facility. The work needed to occur during a scheduled two-week outage.

Overview of the Power Plant:
• 1,000 MW generation facility
• East coast location
• Facility generates power for nearly 400,000 residential homes annually
• Generators include: (2) combustion turbine generators (CTs), (2) heat recovery steam generators (HRSGs), and (1) steam turbine generator (STG)
• The location also houses (2) emergency generators to provide back-up power and (1) emergency diesel water pump engine

Solution: The VP2 Trim Kit Valve Parts Replacement Program developed by Millennium Power Services (MPS) and unique to the industry had a team of 10 MPS technicians begin by evaluating 30 control valves while simultaneously gathering essential data. They then targeted potential problems and possible leaks resulting from the construction phase of the project.

Throughout the two-week outage, technicians inspected the internal parts of 30 control valves. Valve parts that couldn't be repaired with our mobile onsite unit were expedited to the MPS production facility. All parts were scanned with the MPS 3D scanner and inspected. Depending on the need, they were then either repaired, refurbished, or completely reproduced. Complete trim kits were fabricated to the precise specifications of the OEM parts making the entire process efficient in both time and accuracy. OEMs, many of which are based outside of the United States, would have required 8–12 weeks to complete the process. MPS was able to finish the job and re-install all affected valves within the two-week deadline. MPS also procured necessary soft goods within the same timeframe.

As part of the MPS mission to work in partnership with customers towards achieving their overall goals, MPS technicians regularly attended plant safety meetings and conducted daily pre-shift evaluations identifying potential hazards prior to the start of all scheduled hands-on work for the day.

Results: With the ability to scan and machine replacement parts, MPS was able to salvage a number of valves from needing complete replacement. This resulted in a considerable cost-savings. The plant manager estimated at least a 50% savings due to being able to salvage severely damaged parts and valves. By evaluating the situation and then developing both short-and long-term action plans, MPS was able to effectively contribute to the overall health of the plant ensuring minimal issues in the future while also helping maintain its efficiency.

The maintenance manager reported that they were “very satisfied with the quality of workmanship” from the technicians and the MPS leadership. After the planned initial start-up outage, MPS provided consulting, onsite service and parts repair, refurbish, and replacements in the planned outage six months later.