Power Plants Transition from Coal to Hydrogen-Ready Gas Generation with Integrated Valve Solution

RESULTS

- Enabled transition from coal-fired to gas-fired power generation, supporting decarbonization goals
- Supported reduction of CO_2 emissions, improving environmental performance
- Delivered integrated valve packages across two projects, simplifying execution and supplier management
- Strengthened Emerson position as a full-scope supplier (control, safety, and shut-off valves)
- Provided hydrogen-ready capability, enabling future fuel flexibility (up to 50% hydrogen mix)



Two German power plant sites required a transition from coal to hydrogen-ready gas generation while enabling reliable steam and power production.

APPLICATION

Combined cycle gas-fired power plants with combined heat and power (CHP) functionality, supplying electricity and steam while supporting future hydrogen co-firing capability.

CUSTOMER

German power generation and industrial operator, investing in new gas-fired units to support energy transition and long-term operational sustainability.

CHALLENGE

The customers needed to transition from existing coal-fired power generation to more sustainable gas-fired solutions, driven by regulatory pressure and increasing costs associated with CO_2 emissions. This required the addition of new combined cycle units to existing plant sites, while supporting continuity of power and steam production.

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CHALLENGE (continued)

A key challenge was balancing investment costs with performance, as both projects required significant capital expenditure while maintaining competitiveness and operational efficiency. In addition, the solution needed to support future energy strategies, including the possibility of integrating hydrogen into the fuel mix.

From an execution perspective, the complexity increased due to the involvement of a general contractor and the need to coordinate multiple valve types across two parallel projects. Without an integrated approach, the customer would have had to manage multiple suppliers, increasing both project complexity and execution risk.

SOLUTION

Emerson partnered with the EPC to deliver a comprehensive, multi-package valve solution covering control valves, safety valves, and shut-off valves across both projects. This integrated approach allowed the customer to simplify procurement, reduce interfaces, and streamline project execution.

The solution included Fisher™ control valves, Sempell™ safety relief valves, and control valve packages, all engineered to meet the specific process conditions of combined cycle and CHP applications. By offering a broad product portfolio, Emerson was able to consolidate multiple requirements into a single supplier framework.

A key differentiator was Emerson's ability to provide complete valve packages rather than individual components. This approach reduced complexity during both the bidding and execution phases, while enabling consistency and compatibility across systems.

This integrated solution approach was critical in reducing project complexity and supporting efficient execution, where fragmented supply models would have increased risk and coordination effort.

In addition, Emerson supported the project with commissioning services, spare parts supply, and on-site technical assistance, supporting reliable startup and long-term operability.



Control valves, Fisher E-Body, Sempell Type 141 and Type 151
Provide precise control of pressure and temperature in combined cycle power applications.



Sempell Safety Relief Valves SOH incl. STE5 S-Series
Enable safe and reliable overpressure protection in critical steam and power systems.



Yarway™ Desuperheaters AT18/AT38
Deliver effective steam temperature control to support safe and efficient plant operation.

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