

# Huadian's 1000-MW Zouxian Unit Commissioned in Only 23 Days Using Emerson's PlantWeb® Digital Architecture



## RESULTS

- Contributed to 22.6-month construction period of 1000-MW ultra-supercritical unit
- Achieved record-setting 23-day commissioning time due to smooth startup and performance of the Ovation® expert control system
- Completed aggressive project schedule 9 months ahead of planned conclusion



## APPLICATION

Installation of a digital automation solution for Units 7 and 8 at the Zouxian Thermal Power Plant. Each 1000-megawatt unit consists of a coal-fired, ultra-supercritical once-through boiler supplied by the Dongfang Boiler Company (licensed by Babcock Hitachi) and a Dongfang steam turbine (licensed by Hitachi)

## CUSTOMER

China Huadian Group Corporation

## CHALLENGE

Construction of plants with ultra-supercritical technologies is expected to become more prevalent in China because of their more than 50% increased efficiency over coal-based electricity generation while maintaining superior environmental performance. The China Huadian Group Corporation implemented Phase VI of the massive 4540-megawatt Zouxian facility, the largest coal-fired plant in China. The two new ultra-supercritical units will help to meet the increasing demand for power in the Shandong Province region.

Use of the cleanest, most efficient, and most advanced plant equipment required an equally exceptional automation solution in order to maximize the units' operation. Because this is one of the first ultra-supercritical projects implemented in China, the new Zouxian units needed a proven, state-of-the-art control solution backed by superior technical expertise. A solution based on Foundation™ fieldbus technology, another first installation in China, was imperative to the project's success.

*“The Emerson system performed extremely well during the 168-hour test. In fact, the smooth startup and performance of the Ovation system contributed to a record-setting timeframe of 22.6 months for unit construction and a mere 23 days for commissioning.”*

**Mr. Hua Zhang**

Senior I&C Engineer

China Huadian Group Corporation

Zouxian Thermal Power Plant



### SOLUTION

Emerson Process Management successfully implemented its PlantWeb® digital plant architecture with the Ovation® expert control system and Foundation™ fieldbus technology for Zouxian Units 7 and 8.

Emerson's PlantWeb digital plant architecture utilizes high-speed communications networks, intelligent field devices, asset management software, and bus I/O technologies to help power producers control critical plant processes, increase plant efficiencies and megawatt production, and realize long-term operations and maintenance savings. For new plants, PlantWeb offers additional advantages to power generators such as China Huadian: by lowering wiring costs, and streamlining device installation, communications verification and troubleshooting, this digital bus-based approach translates into faster startup, and reduced startup and commissioning costs.

The Ovation system, which manages nearly 30,000 I/O points, provides data acquisition as well as control and monitoring of the 1000-MW ultra-supercritical once-through boilers and balance of plant processes. A total of 64 redundant controllers, 24 workstations, AMS™ Suite asset management software and more than 130 Foundation fieldbus intelligent devices including Rosemount® 848T 8-input temperature transmitters and various other flow, level, and pressure transmitters make up the Emerson solution for both units.

Commissioning of Zouxian Unit 7 was accomplished in only 23 days due to the smooth startup and performance of the Ovation system. Unit 7 of the Zouxian facility successfully completed the 168-hour performance test - a significant milestone for new plants coming online - on December 4, 2006 - roughly nine months ahead of schedule. Unit 8 is expected to complete this milestone in June 2007.



*China Huadian plant operators control and monitor operation of the 1000-megawatt ultra-supercritical Zouxian Unit 7 from Ovation workstations.*

#### Emerson Process Management

Power & Water Solutions, Inc.  
200 Beta Drive  
Pittsburgh, PA 15238  
1(412) 963-4000  
1(800) 445-9723  
[www.EmersonProcess-PowerWater.com](http://www.EmersonProcess-PowerWater.com)

