Babcock Power SERVICES

SUCCESS STORIES

TECO BIG BEND U3

NEW BIOMASS BOILER WITH AQCS

LOCATION APOLLO BEACH, FL
CAPACITY 3,136 KPPH
CONTRACT PRESSURE PART REPLACEMENT

PROJECT OVERVIEW

Babcock Power Services (BPS) supplied replacement pressure parts for TECO's Big Bend Unit 3. The purpose of the work was to resolve slagging issues in the high temperature super heater while returning boiler performance to the original design with current low NO_x operation, while also maintaining Selective Catalytic Reduction (SCR) flue gas temperature requirements. The project scope included the design, material supply, fabrication, and delivery of all materials 11 months after award. Scope of supply included the following:

- Finishing superheat pendant assemblies (81 total)
- Finishing reheat pendant assemblies (164 total)
- Membrane panel nose arch (8 panels)
- Partial radiant superheat (27 each inlet and outlet)
- Upper economizer elements (164 total)
- Lower economizer elements (164 total)

UNIT DESCRIPTION

Big Bend Unit 3 is a Riley Stoker, Turbo® coal fired, balanced draft, wet bottom, natural circulation boiler.

Unit Output	420 MW_N
Steam Flow	3,136 kpph
SH Steam Pressure	2,600 psi
SH Steam Temperature	1000°F
RH Steam Pressure	610 psi
RH Steam Temperature	1000°F

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BABCOCK POWER SOLUTION

- Conduct baseline testing and collect operating data to establish conditions across the load range
- Perform unit inspection to gather missing data, verify assumptions, and confirm existing unit conditions
- Perform boiler thermal modeling, calibrated to acutal operating data, to evaluate performance of various design alternatives
- Utilize BPS fabrication shop (BTA) with staged component releases
- Include TECO in design evaluation and fabrication activities

PERFORMANCE RESULTS

- All material was delivered ahead of schedule
- Little to no significant quality or fit up issues during

PROJECT RESULT SUMMARY

Design and Fabrication

- Material delivery to site less than 11 months after receipt of order
- No significant quality or fit up issues during installation

Installation and Operation

- Installation complete three (3) weeks ahead of schedule
- Performance guarantees were achieved upon startup
- Observed slagging conditions significantly improved over pre-retrofit conditions