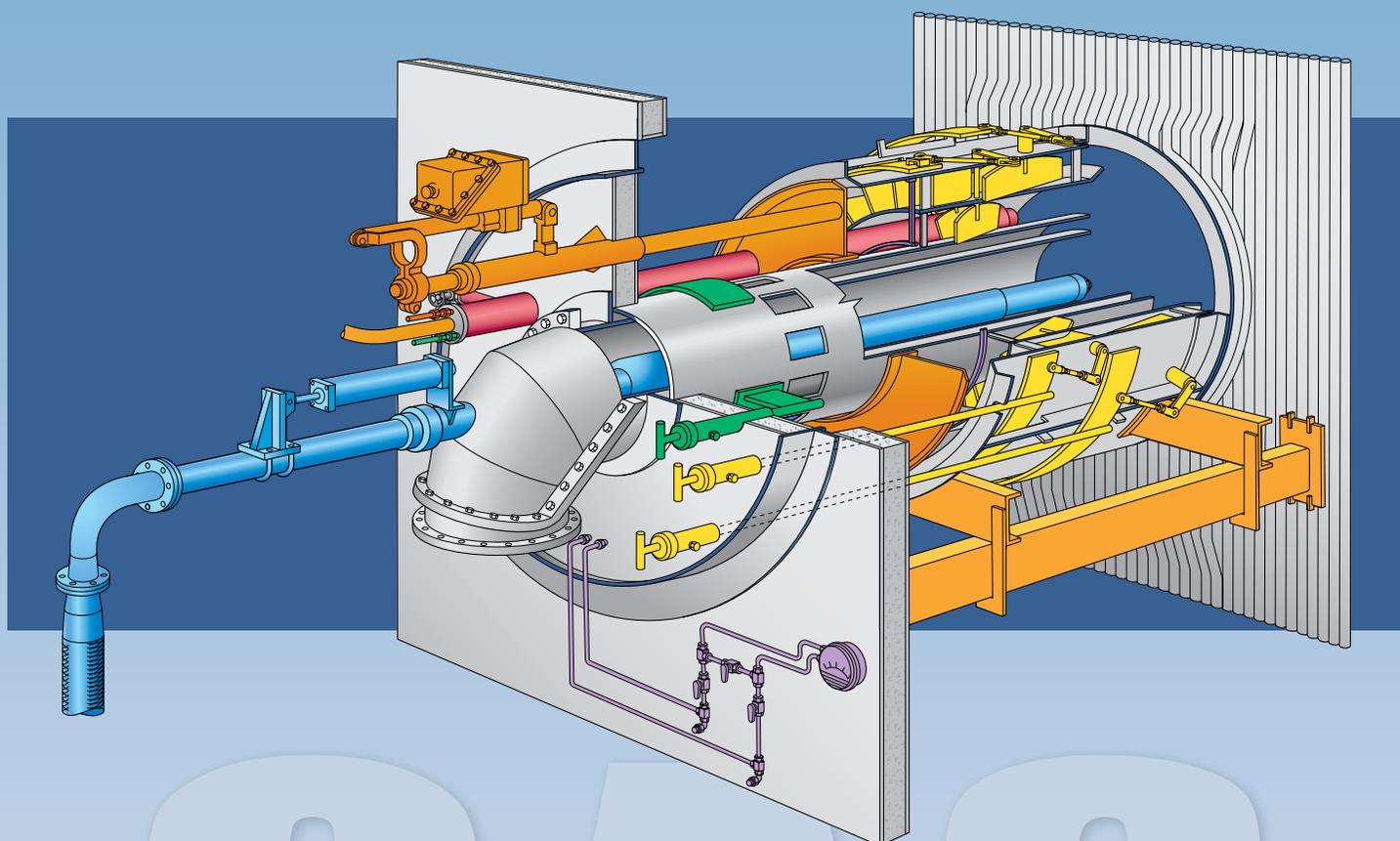


# Coal to Gas Conversions for Utility and Industrial Boilers

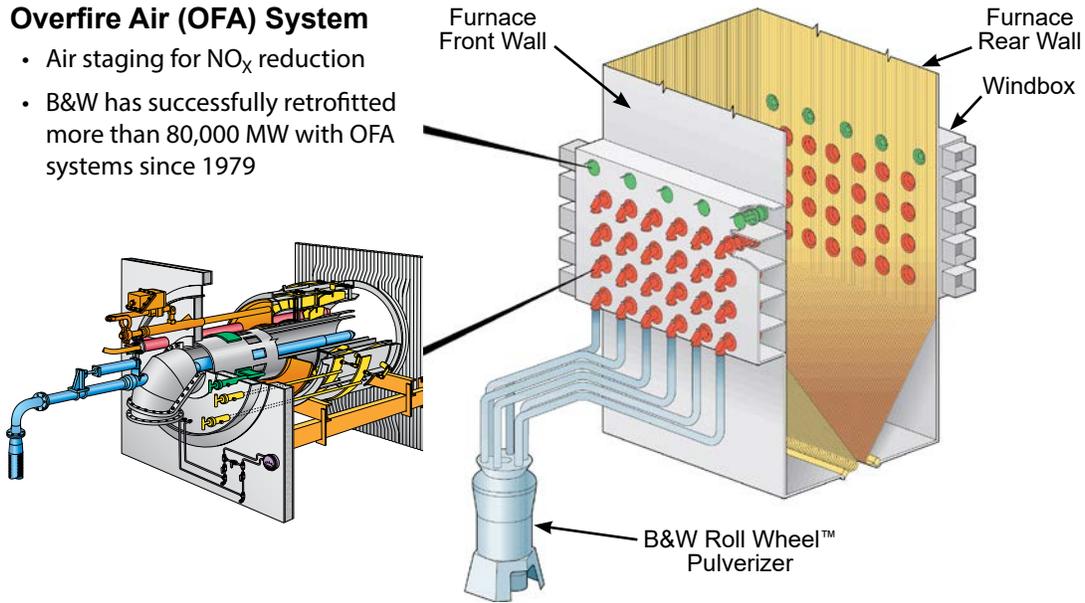


*Clean • Efficient • Reliable • Stable*

# Coal to Gas Conversions for

## Overfire Air (OFA) System

- Air staging for NO<sub>x</sub> reduction
- B&W has successfully retrofitted more than 80,000 MW with OFA systems since 1979



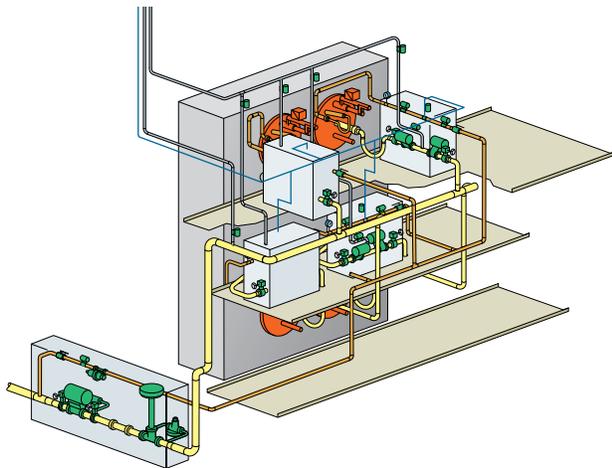
## Attemperators

- Higher levels of convection increases attemperators
- As a boiler OEM, we know all boiler components and provide proper upgrades for gas

Steam Flow

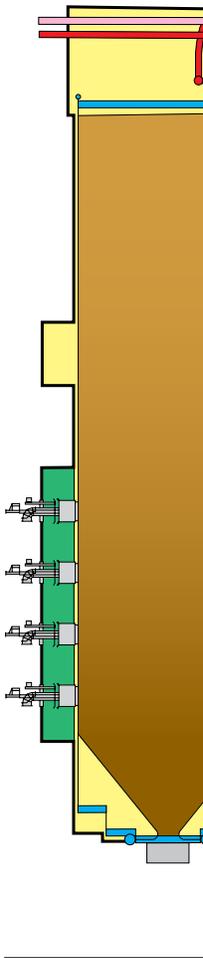
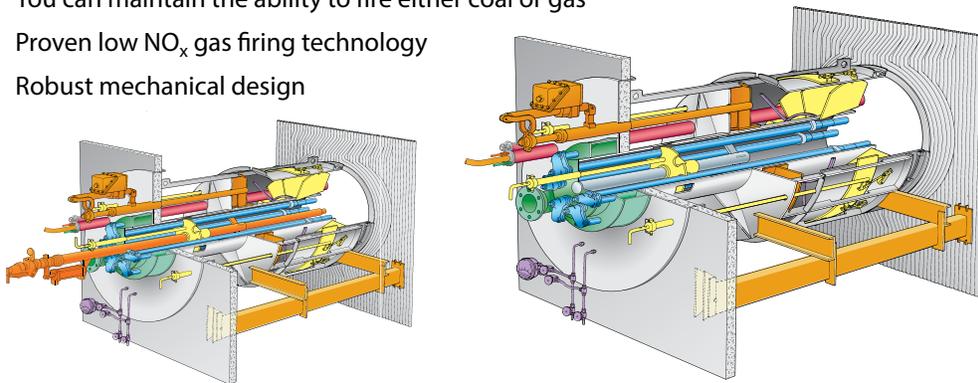
## Gas Fuel Train

- Valve racks are custom designed and fully modularized
- We provide all components from the natural gas stepdown station to the burners

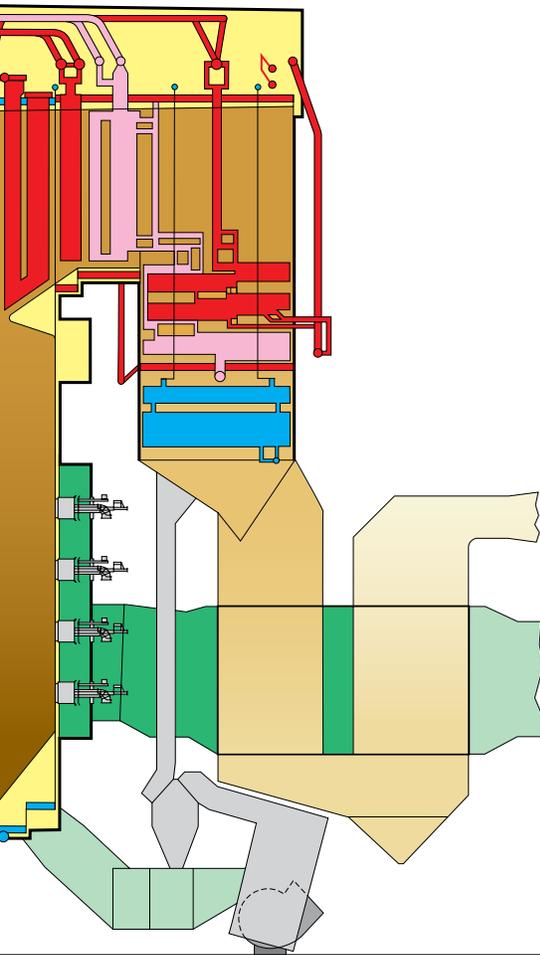
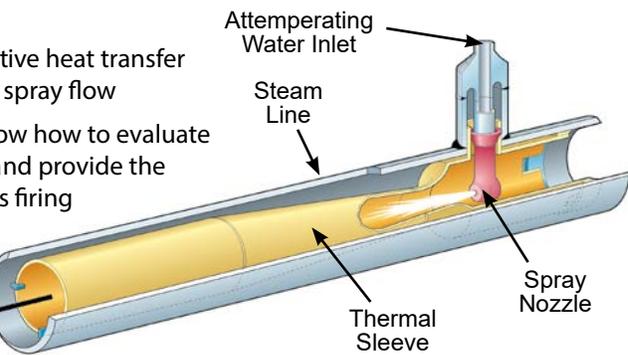


## Combustion Equipment

- You can maintain the ability to fire either coal or gas
- Proven low NO<sub>x</sub> gas firing technology
- Robust mechanical design

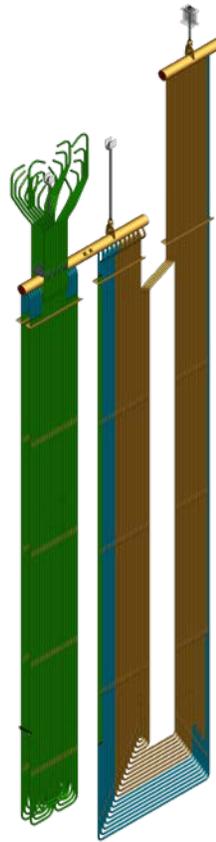


# Utility and Industrial Boilers



## FD Fan Capacity

- We will analyze current fan(s) and provide proper fan upgrade or fan adjustments



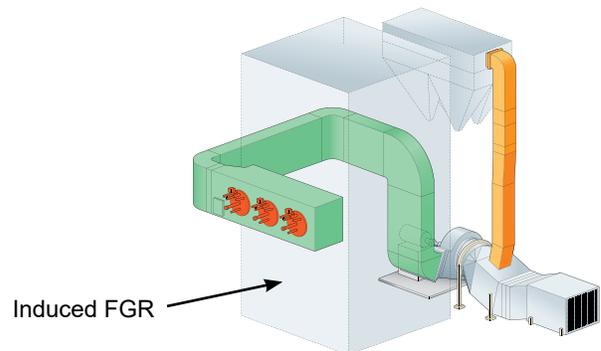
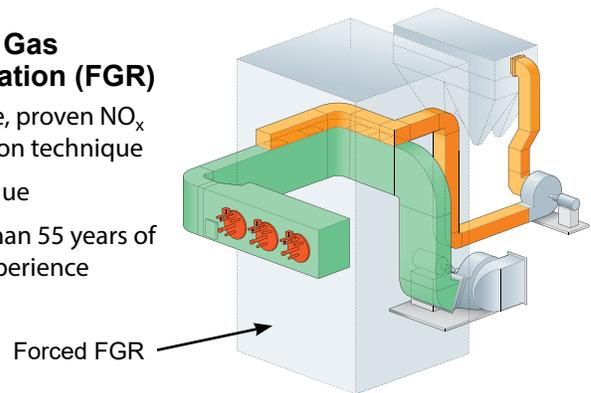
HEAT TRANSFER PROPERTIES		
	Coal	Gas
Radiant		
Convective		

## Convection Pass Pressure Parts

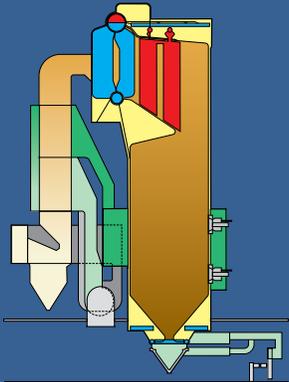
- Material upgrades may be necessary because gas firing can overstress tubes
- More than 150 years of boiler design experience combined with proprietary boiler performance modeling allows us to provide a superior engineered solution for your unique application

## Furnace Gas Recirculation (FGR)

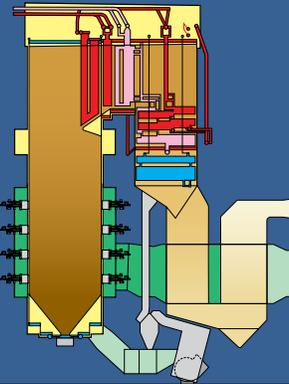
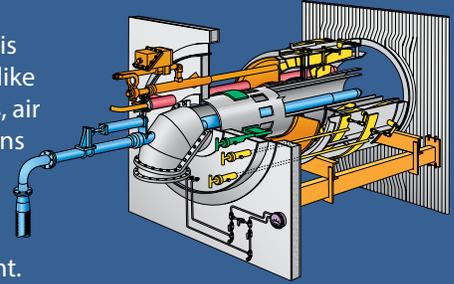
- Reliable, proven NO<sub>x</sub> reduction technique
- Best value
- More than 55 years of FGR experience



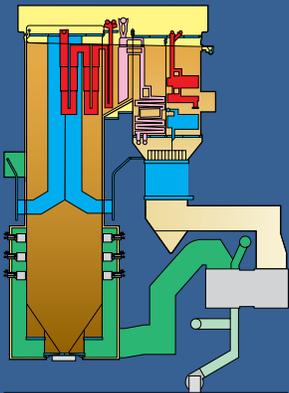
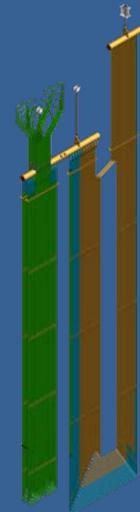
# B&W is a Full-Scope Supplier of Coal to Gas Conversions for Utility and Industrial Boilers



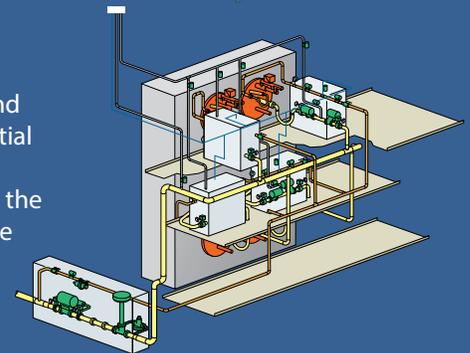
A plant may be considered for fuel switching based on its age and how close it would be to a possible retirement or major rebuild. The timing for fuel switching may be ideal if the boiler in question is already under consideration for major projects like superheater replacement, burner modifications, air system changes, and/or the addition of emissions control equipment. Babcock & Wilcox (B&W) can assist in comparing the costs and benefits of different scenarios to help make the best decision based on the specific needs of the plant.



One of the other key factors to consider is the need for plant output, including a potential for de-rate and/or increased turn-down capability. A unit's continued usefulness might involve its ability to operate or be on standby during periods of low load.



As organizations look at their long-term forecasts, plants that operate efficiently and with high availability will play a key role in meeting future demand. As such, these plants will need to be evaluated for projects that will extend their useful life. Those projects might be targeted for efficiency improvements with coal as a fuel (burner upgrades, emissions control equipment, etc.) or as fuel-switch projects that take advantage of the benefits of natural gas.



B&W has the experience and expertise to help customers evaluate the operational, technical and financial considerations associated with a potential fuel switch from coal to natural gas. As plant owners consider their options, B&W can assist in the evaluation of site-specific conditions and provide recommendations that represent the optimal balance of cost, schedule, performance and long-term availability.

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