

## A PROVEN TRACK RECORD IN NOx REDUCTION

### 50 Tangential Low NOx Awards since 1998

- |                          |                          |                      |
|--------------------------|--------------------------|----------------------|
| • AEP                    | • Dynegy(4)              | • PPL (2)            |
| • Allegheny Power (2)    | • ENDESA (2)             | • Progress Energy    |
| • Arizona PS (4)         | • Great River Energy (3) | • Reliant Energy (2) |
| • CPS of San Antonio (3) | • Minnesota Power (2)    | • TECO               |
| • Duke Energy (14)       | • Mirant (6)             | • TMPA               |



### Combustion Support Services

- Combustion solutions for tangential (TLN), wall (VS/SF LNB) and arch-fired systems, including coal, oil and gas
- Fuel switching studies, biomass, pet coke, etc. including emission predictions
- Mechanical design, controls and structural engineering
- Boiler thermal performance engineering expertise
- Tangential, wall-fired and arch-fired field service and installation expertise
- Ball mill and vertical-shaft pulverizer engineering expertise
- Full-scale flow-modeling laboratory
- Computational combustion and flow analysis expertise
- Combustion system performance upgrades to existing tangential, wall and arch-fired systems
- Complete fuels-testing laboratory facility
- Complete emission and boiler-testing services
- ECT\* on-line, real time coal-flow distribution, velocity and fineness measurement
- Wall-fired RADM\* (w/VS LNB) and CADM\* (T-fired) on-line real time airflow monitoring system
- Automatic air to fuel biasing control systems
- Patented on-line adjustable coal-flow distribution control devices
- Complete parts support department

\* ECT: Electric Charge Transfer  
 RADM: Register Air Distribution Monitoring  
 CADM: Compartment Air Distribution Monitoring

## TLN COMBUSTION SYSTEM

### Low NOx Firing System for Tangential-Fired Power Boilers



The High Value Low NOx Tangential-Firing Solution



### Foster Wheeler Worldwide Offices

Foster Wheeler is an internationally renowned engineering and construction company providing services and products to a broad range of industries including oil and gas, refining, chemical, petrochemical, pharmaceutical, biotechnology, healthcare, and power generation. Our reputation for safely delivering quality projects on time and within budget is well recognized in the industries we serve. We have proven expertise in managing large, complex projects, strong relationships with our clients, and cutting-edge processes and technologies.

## FOSTER WHEELER

[www.fwc.com](http://www.fwc.com)

Foster Wheeler North America Corporation  
 Perryville Corporate Park, Clinton, NJ 08809-4000 USA  
 908.730.4000

#### Northeast Region

Perryville Corporate Park  
 Clinton, NJ 08809-4000  
 908.713.2094

#### Southeast Region

1000 Johnson Ferry Road, Suite A100  
 Marietta, GA 30068  
 770.509.0337

#### Central Region

1401 Branding Lane, Suite 315  
 Downers Grove, IL 60515-1171  
 630.241.2050

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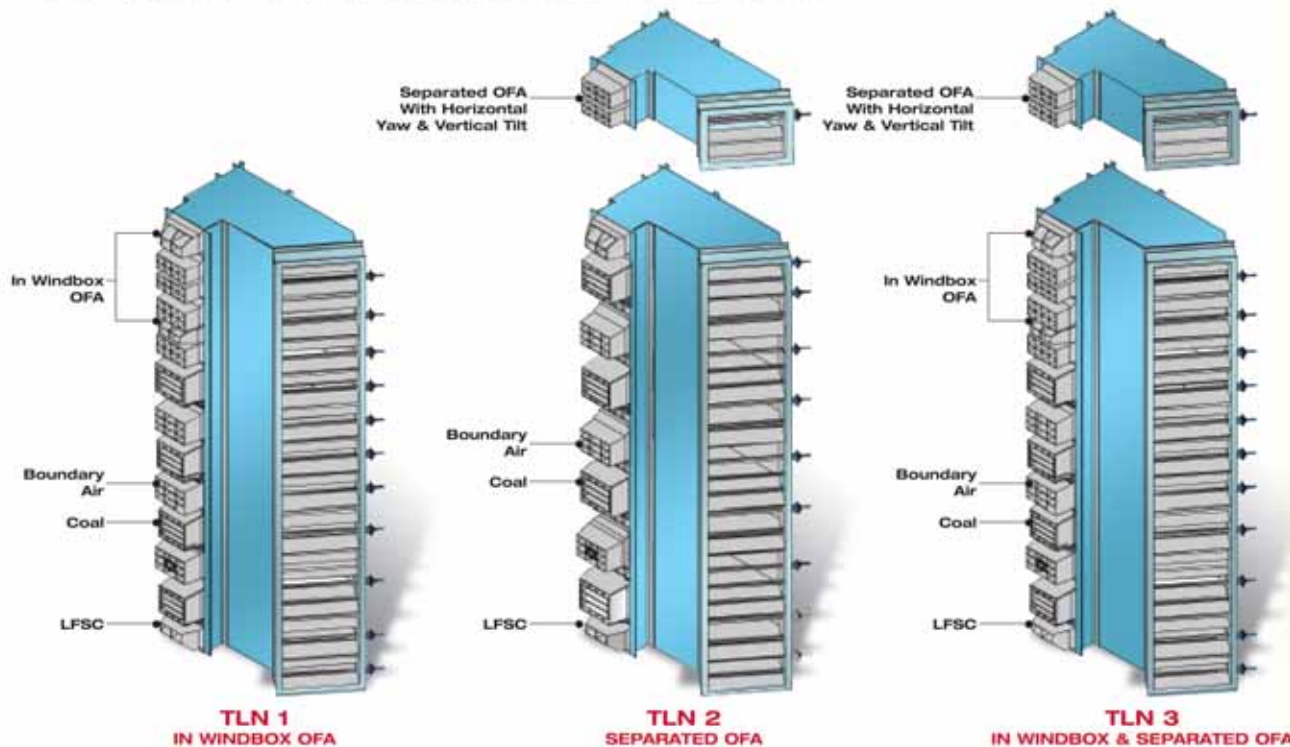
Harnessing Innovation. Delivering Excellence.

TANGENTIAL  
Low NOx **TLN**  
COAL FIRING  
CONFIGURATIONS

# The difference is in the details...

All Foster Wheeler TLN retrofits offer many unique features and are designed using a proprietary computer design program calibrated to your specific unit and fuel(s) for very predictable post retrofit control results.

- "SINGLE" LEVEL separated "overfire air" (SOFA) design provides higher NOx reduction efficiency than even multi-level systems
- Patented **DOUBLE SHROUD (DS) COAL AND AIR NOZZLE TIPS** provide longer operational reliability and local air staging for lower NOx emissions
- **BOUNDARY AIR** nozzles provide the ability to shape the fireball for balancing gas and temperature profiles as well as reducing waterwall slagging and corrosion
- Damper system performance upgrades assure **AIR FLOW CONTROL** over a greater load range
- Lower Furnace **STOICHIOMETRY CONTROL** (LSFC) keeps the lower furnace looking bright
- 100% **INTERCHANGEABLE** with OEM components
- Patented **COAL FLOW DISTRIBUTION CONTROL** equipment



- Each TLN retrofit is **SUPPORTED BY AN EXTENSIVE TEAM** of experienced combustion, design and service engineers as well as component suppliers
- Optional **ECT REAL TIME COAL FLOW**, velocity and fineness monitoring system
- Optional **COMPARTMENT AIR DISTRIBUTION MONITORING** (CADM) provides real time air flow distribution, velocity and pressures in every compartment
- **NOx REDUCTIONS EXCEEDING 70%** are possible with low CO levels

Foster Wheeler's optional fuel injection system for power boilers



Foster Wheeler offers a full line of T-FIRED upgrades...

