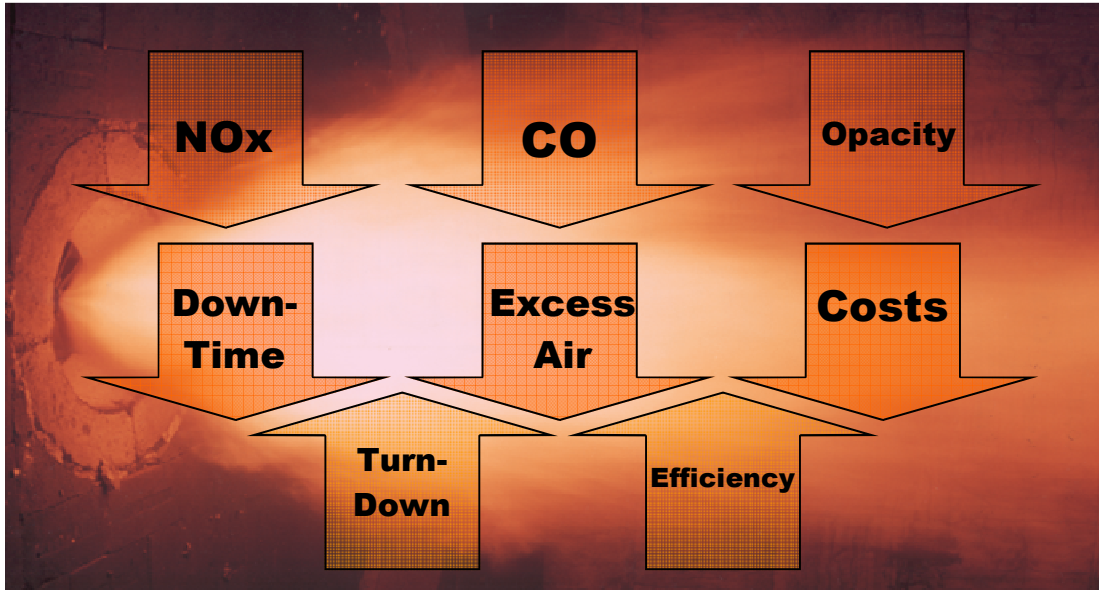


# Combustion Optimization



Hamworthy Peabody Combustion’s over 85 years experience can be utilized to:

<b><i>Lower Emissions</i></b>	<b><i>Increase Reliability</i></b>	<b><i>Increase Efficiency</i></b>
<ul style="list-style-type: none"> <li>• Minimize NOx</li> <li>• Minimize CO</li> <li>• Lower Opacity</li> <li>• Lower Particulate</li> <li>• Control VOCs</li> </ul>	<ul style="list-style-type: none"> <li>• Increase Flame Stability</li> <li>• Improved Ignition</li> <li>• Reduce Downtime</li> </ul>	<ul style="list-style-type: none"> <li>• Lower Excess Air</li> <li>• Lower Atomizing Steam/Air</li> <li>• Increase Turndown</li> <li>• Burn Waste Fuels</li> </ul>

**Modifications without major equipment changes means:**

- **Minimal downtime/start-up time**
- **Lower costs**
- **Minimal operator training time.**

**Applications**

- Packaged Boilers
- Wall-Fired, Multi-Burner Boilers
- Process Burners
- Kilns

**Hamworthy Peabody Combustion Related Services**

- Flow and CFD Modeling
- Installation
- Startup Service
- Operator Training
- Preventive Maintenance

***Protect your investment & employees by using only Hamworthy Peabody Combustion engineered products***

# Combustion Optimization

With over 400 low NOx projects, Hamworthy Peabody Combustion has successfully lowered NOx as much as 65% by optimizing combustion. We utilize highly engineered solutions that easily retrofit into existing equipment. Our product line includes the ***largest range of combustion equipment*** in the industry including:

- Burners
- Scanners
- Igniters
- Burner management systems
- Combustion Controls
- Start-Up Burners
- Flame Scanner Systems
- Ancillary Equipment (valve racks, fans, blowers, etc.)

Our products can be applied to a wide range liquid, gaseous and solid fuels.

**Physical and computer flow analysis**, where applicable, assures maximum results without time-consuming trial & error modifications.

Rather than replacing complete burner assemblies, we can achieve excellent results by:

- Replacing or modifying oil guns or atomizers for lower opacity and PM emissions, lower NOx, and minimizing atomizing media consumption.
- Optimizing gas fuel systems to achieve staged flame shaping for lower NOx and improved flame stability.
- Replace swirlers or bluff body diffusers to improve recirculation at the burner front, improve flame stability, increase turndown, and improve flame sighting.
- Add or optimize FGR where applicable to lower NOx.

***Lowering NOx in the combustion zone (at the burner and in the furnace) leads to lower NOx exiting to your post combustion equipment (SNCR, SCR) which in turn equates to increased catalyst life and reduced ammonia/urea usage.***

With one of the largest R & D programs and combustion test facilities in the world, we are furthering our emissions reduction efforts to push the NOx envelope to the lowest achievable levels.

## ***Results:***

- ***Lower Operating Costs***
- ***Longer Equipment Life***
- ***NOx Credit Trading Opportunities***
- ***Lower Maintenance Costs***

For further information on combustion equipment, please contact:

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