



## Fact Sheet: Natural Gas-Fired Boilers; 2 - 5 MMBtu

### Overview:

The Utah Division of Air Quality (UDAQ) is considering regulating boilers used in industrial, institutional, or commercial operations in an effort to reduce emissions of both oxides of nitrogen (NO<sub>x</sub>) and Volatile Organic Compounds (VOCs) as part of the Northern Wasatch Front (NWF) ozone State Implementation Plan (SIP). This rule would apply to all counties included in the nonattainment area (NAA) including: Salt Lake, Davis, Weber and Tooele counties.

### Equipment:

Natural gas-fired boilers greater than 2 million British thermal units (MMBtu) per hour and less than 5 MMBtu per hour rated heat input capacity used in industrial, institutional, or commercial operations.

### The Rule:

The proposed rule would set limits for the emission rates of burners at 9 parts per million by volume (ppmv) for the above equipment. The rule applies to the installation of new boilers, operation of boilers, and in the instance of replacing burners on existing boilers. No retrofits or replacements would be required for existing boilers outside of the useful life of the existing burners.

### Fiscal Analysis:

The UDAQ conducted a cost analysis on the use of ultra low-NO<sub>x</sub> burners to determine if they were economically feasible. The UDAQ concluded that ultra low-NO<sub>x</sub> limits for boilers between 2-5 MMBtu/hr would generally cost between \$2,567.57 and \$7,208.79 per ton of NO<sub>x</sub> reduced. This cost range was calculated based on cost estimates received from multiple companies. Thus, the UDAQ considers this technology to be economically feasible.

### Emission Reductions:

- In the NWF NAA there are an estimated 1,614 natural gas-fired boilers in operation between 2 and 5 MMBtu.
- These boilers combined produce an estimated 1,550 tons per year (tpy) of NO<sub>x</sub> emissions.
- A 9 ppmv standard represents an estimated 89.2% reduction from current non-regulated emission rates.
- The implementation of the rule as proposed would result in an emission reduction of ~1,383 tpy of NO<sub>x</sub> emissions once fully implemented.
- Since this rule does not require retrofits or replacements, the implementation timeline for these reductions is long, likely around 20 years before the full extent of these reductions will be realized.

**Secondary Benefits:**

- Sets a standard for future installations helping limit emissions associated with growth.
- Reduced NO<sub>x</sub> emissions during the wintertime particulate matter season as well as the summertime ozone season.
- Standardized emission limit for all burners resulting in less time spent engineering projects for BACT during the permitting process.