



Energy Efficiency Opportunities in EPA's Boiler Rules

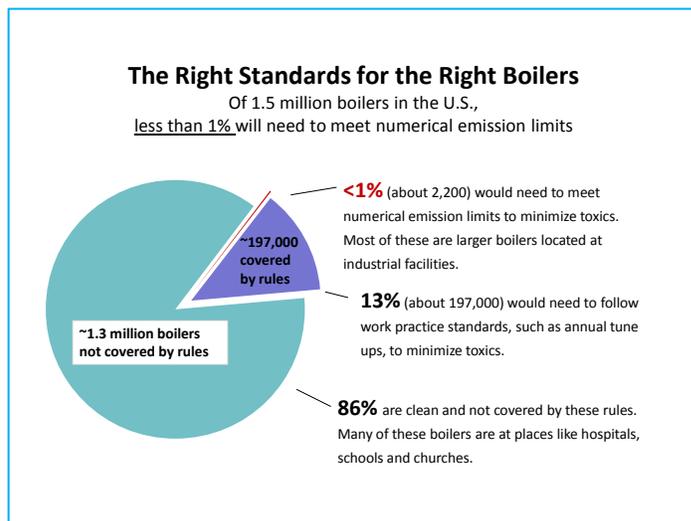
On December 20, 2012, the US Environmental Protection Agency (EPA) finalized new regulations to control emissions of hazardous air pollutants (HAP) from commercial, industrial, and institutional boilers and process heaters. These new rules, known as the Boiler MACT (major sources) and Boiler Area Source Rule (smaller sources), will reduce the amount of HAPS such as mercury, heavy metals, and other toxics that enter the environment. Since emissions from boilers are linked to fuel consumption, energy efficiency is an important strategy for complying with the new Boiler rules.

Who is affected?

Most existing industrial, commercial and institutional (ICI) boilers will not be affected by the Boiler MACT. These unaffected boilers are mostly small natural gas-fired boilers. Only about 14% of all existing ICI boilers will need to comply with the rule. The type of fuel that is burned, boiler size, and the amount hazardous air pollutants (HAPs) emitted by the facility determine which boilers are affected. For sites with boilers that burn only natural gas, the rule may not apply or can be met through energy efficiency practices. Residential boilers and hot water heaters are not covered by the rule.

The rule has different requirements for large facilities, known as **Major Sources**, and smaller facilities, called **Area Sources**. Major Sources are sites that emit (or have the potential to emit) 10 tons per year of an individual HAP or 25 tons per year of combined HAPs. Area Sources are facilities with emissions under this threshold that have boilers.

- **Area Source** boilers may be found at industrial plants or commercial and institutional buildings. Boilers that burn solid fuels (coal, biomass, etc.), oils, or non-waste materials will need to comply with the rule. Area Source boilers that burn natural gas are not regulated by the rule. Some seasonal and back-up boilers also may be exempt.
- **Major Sources** are boilers and process heaters found mainly at big industrial facilities. EPA estimates there are only 14,000 Major Source boilers and process heaters out of an estimated 1.5 million boilers in operation in the United States.



What is required?

For most existing **Area Source** boilers sized under 10 mmBtu/hour that burn solid fuels (coal or biomass) or oil; a boiler tune-up is required every other year. For existing Area Source boilers 10 mmBtu/hour or greater that burn solid fuels (coal or biomass) or oil; a one-time energy assessment is required. For most existing Area Source boilers 10 mmBtu/hour or greater that burn biomass or oil; a boiler tune-up every

other year is required. *With regard to existing sources, specific emission limits are only required for coal fired Area Source boilers with a rated heat input capacity of 10 mmBtu/hour or higher.* For some seasonal and limited use Area Source boilers, boiler tune-ups are required less frequently.

For existing **Major Source** boilers that burn natural gas and other clean fuels, meeting the Boiler MACT requirements primarily involves conducting an energy assessment and keeping boilers tuned-up and running efficiently.

Major Source boilers firing solid, fossil, or certain gaseous fuels, must meet specific emission limit requirements based on the boiler's size, design and fuel in addition to requirements to conduct an energy assessment and do periodic boiler tune-ups. These boilers have the option to meet alternative output-based emissions limits, recognizing the emissions benefits of more efficient boilers or combined heat and power. If applying output-based emissions limits, sources may be able to gain credit for energy efficiency improvements.

What is a boiler tune-up?

A boiler tune-up is the optimization of the air-fuel mixture for the operating range of the boiler. This improves boiler efficiency, reduces pollution and is a well known energy management best practice.

More guidance on the boiler tune-ups can be found at:

<http://www.epa.gov/ttn/atw/boiler/boilerpg.html#RULE>

What is the focus of the energy assessment?

For sites required to do a one-time energy assessment, the goal is to identify energy savings opportunities within a boiler and the processes and systems that it supports. **Consult the ENERGY STAR Industrial Energy Guides and Building Upgrade Manual when conducting assessments:**

<http://www.energystar.gov/energyguides>

The assessment also requires an evaluation of site energy management practices. **Use the ENERGY STAR Facility Assessment Matrix to meet this requirement.**

www.energystar.gov/ia/business/guidelines/Facility_Energy_Assessment_Matrix.xls

How are efficiency credits for energy efficiency determined?

For major sources that select to comply with the output based emission limits, the rule provides specific methods for calculating efficiency credits from implementing energy conservation and efficiency measures related to the boiler system. This guidance can be found at:

<http://www.epa.gov/ttn/atw/boiler/20120731doeguidance.pdf>

When are the compliance deadlines?

Existing Area Sources – By March 21, 2014

Existing Major Sources – By January 31, 2016 (if needed, facilities may request an additional year to comply)

For more information:

This handout is intended to provide a brief overview of the rule and how energy efficiency can help with compliance. For more information and guidance on the Boiler MACT, visit EPA's web site at:

<http://www.epa.gov/ttn/atw/boiler/boilerpg.html>

<http://www.epa.gov/airquality/combustion/actions.html>