

Regulatory Update

Air Toxics Standards for Boilers

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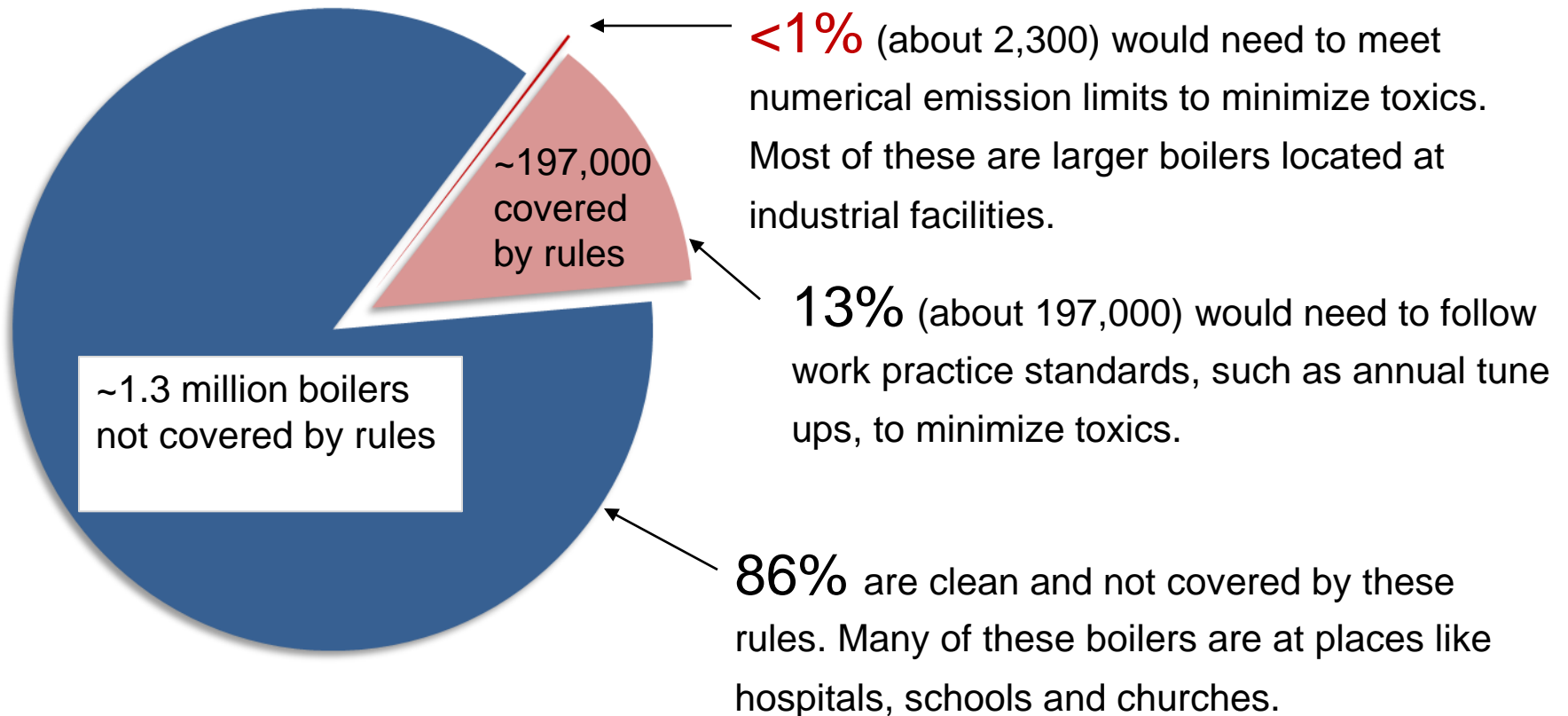
Regulatory Update Overview

- Air Toxics Program Recent Boiler Rules
 - National Emission Standard for Hazardous Air Pollutants (NESHAP) for Major Source Industrial, Commercial, Institutional Boilers and Process Heaters, 40 CFR Part 63 Subpart DDDDD (5D), amendments published 1/31/13
 - NESHAP for Area Sources: Industrial, Commercial, and Institutional Boilers, 40 CFR Part 63 Subpart JJJJJJ (6J), amendments published 2/1/13
- Resources for More Information



The Right Standards for the Right Boilers

Of 1.5 million boilers in the U.S., less than 1% will need to meet numerical emission limits under the Boiler NESHAPs



Reduces Toxic Emissions and Protects Human Health

- Burning biomass, coal, and oil results in emissions of mercury, dioxin, furans, formaldehyde, lead, and hydrochloric acid.
- The technologies to reduce toxic air pollution have largely been available and in use for decades.
- Health effects are significant:
 - Mercury can cause adverse effects on children's developing brains, including effects on IQ, learning and memory.
 - Air toxics can cause cancer and other serious health effects in adults and children.
 - Controlling air toxics will also reduce fine particle pollution and carbon monoxide.
 - Fine particles are linked to serious cardiovascular and respiratory effects, even premature death.
 - Carbon monoxide reduces oxygen delivery to heart and brain, can cause angina and other problems for people with heart disease.

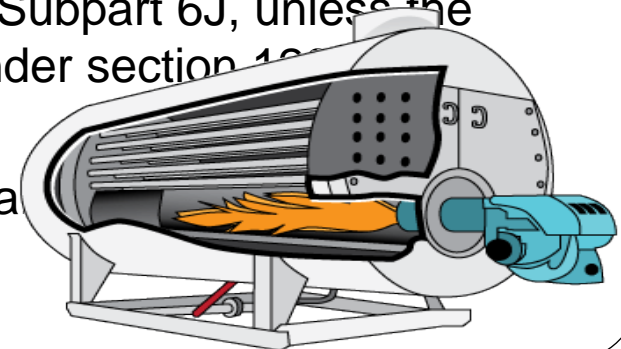


Major Sources vs. Area Sources

- **A Major Source of Hazardous Air Pollutants (HAP)** has the facility-wide potential to emit ≥ 10 tons/year (tpy) of a single HAP or ≥ 25 tpy of combined HAPs
- **Area Sources** – not a major source of HAP
 - Facility-wide potential to emit <10 tpy of a single HAP or <25 tpy of combined HAPs

What is a Boiler?

- **Boilers burn fuel**, including natural gas, fuel oil, coal, biomass (e.g., wood), or other gas **to produce steam or hot water**. The steam is used **to produce electricity, drive an industrial process, or provide heat**.
- From the outside, a boiler looks like a large, rounded tank. The pipes deliver fuel, air, and water to the boiler. Stacks vent emissions to air pollution control equipment or the atmosphere. Controls on the tank regulate fuel, oxygen and pressure. Inside the boiler, fuel is burned to produce steam or hot water that is piped away from the tank to produce electricity or provide heat elsewhere.
- A device combusting solid waste is not a boiler under Subpart 6J, unless the boiler is exempt from the incineration unit definition under section 109 of the Clean Air Act.



Boiler Area Source Rule

40 CFR Part 63 Subpart 6J

- Applies to an area source facility which emits or has potential to emit less than 10 tons per year (tpy) of any single HAP and less than 25 tpy of any combination of HAP.
- Expected to apply to about 183,000 boilers located primarily at commercial facilities (e.g., hotels, office buildings, restaurants) and institutional facilities (e.g., schools, universities, hospitals, prisons), as well as industrial facilities.
- Rule **applies to coal, biomass, and oil-fired boilers.** Rule does NOT apply to boilers that are gas-fired, as defined.

6J?

- **Hot water heaters** with a capacity of no more than 120 gallons combusting oil, gas or biomass. Gas, oil, and biomass **hot water boilers (e.g., not generating steam) rated at less than 1.6 million Btu per hour are included in this definition and not covered by the rule**
- **Gas-fired boilers** that burn gaseous fuels not combined with any solid fuels, burns liquid fuel only during periods of gas curtailment, gas supply interruptions, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.
- **Other exclusions:** Residential Boilers, Temporary Boilers, Electric Boilers, Boilers burning waste, Process Heaters, Research and Development Boilers, Boilers Used as Control Device, Boilers covered by another Part 63 Rule, and Electric Utility Steam Generating Units covered by Part 63 Subpart UUUUU

Table 1. Summary of Boiler Area Source NESHAP Emission Limit and Work/Management Practice Requirements

Subcategory		Summary of Requirement	
Existing large area source boilers ¹	i.e., commenced construction or reconstruction of the boiler on or before June 4, 2010; greater than or equal to 10 MMBtu/hr	Gas (all types)	<ul style="list-style-type: none"> No requirements (not covered by the rule)
		Coal (excluding limited-use boilers)	<ul style="list-style-type: none"> Numeric emission limits for mercury (Hg) and carbon monoxide (CO) One-time energy assessment
		Biomass and Oil	<ul style="list-style-type: none"> Tune-up every other year or every 5 years One-time energy assessment No numeric emission limits
		Limited-use coal	<ul style="list-style-type: none"> Tune-up every 5 years No energy assessment No numeric emission limits
Existing small area source boilers ¹	i.e., commenced construction or reconstruction of the boiler on or before June 4, 2010; less than 10 MMBtu/hr	Gas (all types)	<ul style="list-style-type: none"> No requirements (not covered by the rule)
		Coal, Biomass and Oil	<ul style="list-style-type: none"> Tune-up every other year or every 5 years No numeric emission limits

¹ An existing dual-fuel fired boiler meeting the definition of gas-fired boiler that meets the applicability requirements of subpart JJJJJ after June 4, 2010 due to a fuel switch from gaseous fuel to solid fossil fuel, biomass, or liquid fuel is considered to be an existing source under this subpart as long as the boiler was designed to accommodate the alternate fuel.

Table 1. Summary of Boiler Area Source NESHAP Emission Limit and Work/Management Practice Requirements

Subcategory		Summary of Requirement	
New large area source boilers ²	i.e., commenced construction or reconstruction of the boiler after June 4, 2010; greater than or equal to 10 MMBtu/hr	Gas (all types)	<ul style="list-style-type: none"> No requirements (not covered by rule)
		Coal (excluding limited-use boilers)	<ul style="list-style-type: none"> Numeric emission limits for Hg, CO, and particulate matter (PM)
		Biomass and Oil (excluding limited-use and seasonal boilers)	<ul style="list-style-type: none"> Numeric emission limit for PM³ Tune-up every other year or every 5 years
		Limited-use coal	<ul style="list-style-type: none"> Tune-up every 5 years No numeric emission limits
		Limited-use and seasonal biomass and oil	<ul style="list-style-type: none"> Tune-up every 5 years No numeric emission limits
New small area source boilers ²	i.e., commenced construction or reconstruction of the boiler after June 4, 2010; less than 10 MMBtu/hr	Gas (all types)	<ul style="list-style-type: none"> No requirements (not covered by the rule)
		Coal, Biomass and Oil	<ul style="list-style-type: none"> Tune-up every other year or every 5 years No numeric emission limits

² A new or reconstructed dual-fuel gas-fired boiler that meets the applicability criteria of subpart JJJJJ after June 4, 2010 due to a fuel switch from gaseous fuel to solid fossil fuel, biomass, or liquid fuel is considered to be a new source.

³ New oil-fired boilers that combust only oil with no more than 0.50 weight % sulfur or a mixture of 0.50 weight % sulfur oil with other fuels not subject to a PM emission limit under this subpart and that do not use a post-combustion technology (except a wet scrubber) to reduce PM or SO₂ emissions are not subject to the PM emission limit.

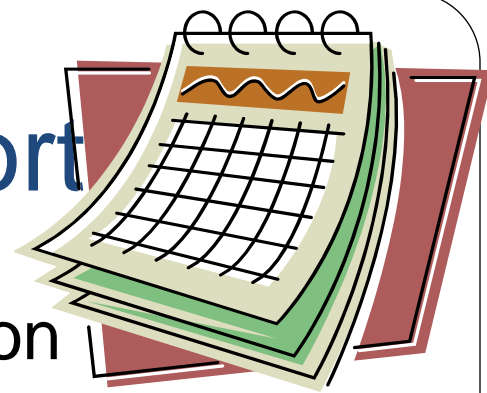
Energy Conservation Requirements

- EPA has established pollution prevention (P2) as one of its highest priorities. One opportunity for P2 lies in simply using energy efficient technologies to minimize emissions.
- **Tune-ups**
 - Applicable to small coal-fired boilers, all biomass-fired boilers, and all oil-fired boilers.
 - Rationale – by improving combustion efficiency, fuel usage is reduced which results in decreased emissions.
- **Energy Assessment**
 - Applicable to existing large boilers ≥ 10 MMBtu/hr, except limited use boilers
 - Provides valuable information on improving energy efficiency
 - Leads to reductions in emissions through process changes and other efficiency modifications but energy conservation measures ID'd are not required to be implemented

Energy Assessments

- EPA developed a Summary of Energy Assessment Requirements posted at:
 - www.epa.gov/boilercompliance
- EPA Region I developed a self-determined list of qualified energy assessors in New England posted at:
 - <http://www.epa.gov/boilercompliance/whereyoulive.html#region1>
- For questions about energy assessments in New England or to request to be added to the energy assessor list, contact Patrick Bird at (617) 918-1287 or bird.patrick@epa.gov

Compliance Dates and Report



- Existing Sources (commenced construction before June 4, 2010)
 - Tune-ups, compliance with emission limits and energy assessment by March 21, 2014
- New Sources (commenced construction on or after June 4, 2010)
 - Must comply by May 20, 2011, or upon startup, whichever is later
- Notifications and reports required
 - Final rule amendments added **electronic report** of notification of compliance status through EPA's central data exchange (www.epa.gov/cdx)



Highlights NESHAP for Major Source Boilers and Process Heaters

- **Applies to Major Sources of HAPs** with facility wide potential to emit ≥ 10 tpy of a single HAP or ≥ 25 tpy of a combination of HAPs
- Applies to Industrial, Commercial, Institutional Boilers and Process Heaters
- Regulates Gas, Coal, Biomass and Liquid Fuel Fired Boilers
- Compliance Dates
 - Existing units, commenced construction or reconstruction before June 4, 2010, must comply by January 31, 2016
 - New units must comply by January 31, 2013 or upon startup, whichever later.

Table 1: Summary of Boiler MACT Emission Limits and Work Practice Requirements

Subcategory		Summary of Requirement	
Existing large major source boilers and process heaters	i.e., commenced construction or reconstruction of the unit on or before June 4, 2010; heat input capacity of 10 MMBtu/hr or greater	Clean Gas (Natural gas, refinery gas)	<ul style="list-style-type: none"> • Tune-up every year^f • One-time energy assessment • No numeric emission limits
		Coal, Biomass, Oil, and Process Gas	<ul style="list-style-type: none"> • Numeric emission limits for mercury (Hg), carbon monoxide (CO), hydrogen chloride (HCl), and either particulate matter (PM) or total selected metals (TSM)^h • Tune-up every year^a • One-time energy assessment
		Limited-Use ^e	<ul style="list-style-type: none"> • Tune-up every 5 years • No numeric emission limits
Existing small major source boilers and process heaters	i.e., commenced construction or reconstruction of the boiler on or before June 4, 2010; less than 10 MMBtu/hr	Coal, Biomass, Oil, and Gas	<ul style="list-style-type: none"> • Tune-up every other year^d • No numeric emission limits • One-time energy assessment
		Limited-Use	<ul style="list-style-type: none"> • Tune-up every 5 years • No numeric emission limits
New large major source boilers and process heaters	i.e., commenced construction/reconstruction after June 4, 2010; 10 MMBtu/hr or greater	Clean Gas (Natural gas, refinery gas)	<ul style="list-style-type: none"> • Tune-up every year^a • No numeric emission limits
		Coal, Biomass, Oil, and Process Gas	<ul style="list-style-type: none"> • Numeric emission limits for Hg, CO, HCl, and PM (or TSM)^h • Tune-up every year^a
		Limited-Use	<ul style="list-style-type: none"> • Tune-up every 5 years • No numeric emission limits
Subcategory		Summary of Requirement	
New small major source boilers and process heaters	i.e., commenced construction/reconstruction after June 4, 2010; less than 10 MMBtu/hr	Coal, Biomass, Oil, and Gas	<ul style="list-style-type: none"> • Tune-up every other year^d • No numeric emission limits
		Limited-Use	<ul style="list-style-type: none"> • Tune-up every 5 years • No numeric emission limits

For More Information

For Information on Area Source Boiler NESHAP Rule:

<http://www.epa.gov/boilercompliance/>

For Information on Major and Area Source Boiler NESHAP Rules:

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

Contact Information

- Mary Johnson, EPA HQ, (919) 541-5025
- For questions from sources in New England:
Susan Lancey, U.S. EPA New England
(617) 918-1656
- For questions about NESHAP energy assessments in New England:
Patrick Bird, U.S. EPA New England
(617) 918-1287

To find boiler rule contacts in other regions:

<http://www.epa.gov/boilercompliance/wherelive.html>