

# **Pollution Prevention Requirements in Boiler MACT & RICE Rules**

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# EPA Rules Covered

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- **NESHAP for ICI Boilers and Process Heaters  
(Subpart DDDDD) (“Boiler MACT”)**
  - Boilers at large (“major”) sources of HAP
- **NESHAP for Area Sources: ICI Boilers  
(Subpart JJJJJJ) (“Boiler Area Source Rule”)**
  - Boilers at small (“area”) sources of HAP
- **NESHAP for Stationary Reciprocating Internal  
Combustion Engines  
(Subpart ZZZZ) (RICE)**

# Overview of Section 112 of CAA

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- **Mandates MACT standards for HAP for both major and area sources**
  - **Major source** - any facility that emits or has the potential to 10 tons/year or more of any single HAP or 25 tons/year or more of any combination of HAP.
  - **Area source** - any facility that is not a major source.
- May distinguish among classes, types, and sizes of sources in establishing standards.

# Overview of Section 112 of CAA (cont.)

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## Section 112(d)(2)

- Requires emission standards based on the maximum achievable reduction in HAP emissions.

## Section 112(h)

- Allows EPA to set work practice standards in situations where not feasible to enforce an emission standard.

## Section 112(d)(5)

- **Instead of MACT** for area sources may promulgate standards based on the use of generally available control technologies (GACT).

# Boiler MACT Source Category

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## ☐ Source categories regulated

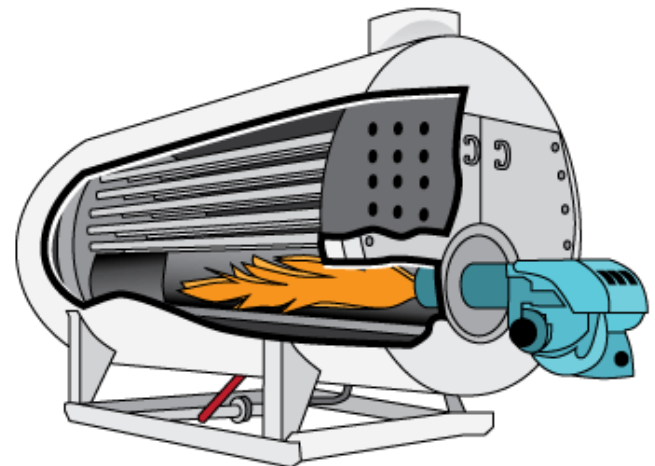
- ☐ Industrial Boilers
- ☐ Commercial and Institutional Boilers
- ☐ Process Heaters

- There are about 14,100 boilers and process heaters located at about 1,600 facilities, primarily larger industrial sources such as refineries, chemical and manufacturing plants, pulp and paper mills

- Also includes boilers at some larger institutional facilities, such military bases, municipal boilers, and universities

## ☐ Fuels commonly combusted in boilers:

- ☐ Natural gas (More than 80%)
- ☐ Liquid fuels (6%)
- ☐ Coal (4.2%)
- ☐ Biomass (3%)
- ☐ Combinations of fuels



# Boiler MACT: Compliance Requirements

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- **Existing large boilers ( $\geq 10$ mm/BTU)**
  - **Clean gas**
    - Annual tune-up
    - 1-time energy assessment
  - **Solid fuel (coal or biomass), Oil, Process gas**
    - Numeric emission limits for 4 pollutants  
mercury, PM (or TSM), HCl, CO
    - Annual tune-up
    - 1-time energy assessment
- **Existing small boilers ( $< 10$ mm/BTU)**
  - **Gas, solid fuel, oil**
    - Tune-up every other year
    - 1-time energy assessment

# Boiler MACT: Compliance Requirements (cont.)

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- **New large boilers ( $\geq 10$ mm/BTU)**
  - **Clean gas**
    - Annual tune-up
  - **Solid fuel (coal or biomass), Oil, Process gas**
    - Numeric emission limits for 4 pollutants  
mercury, PM (or TSM), HCl, CO
    - Annual tune-up
- **New small boilers ( $< 10$ mm/BTU)**
  - **Gas, solid fuel, oil**
    - Tune-up every other year

# Boiler Area Source Rule (Subpart JJJJJJ)

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- **Source categories covered:**
  - Industrial Boilers
  - Commercial and Institutional Boilers
- 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, hospitals, prisons)
- **Rule does NOT apply to boilers that are gas-fired (approximately 1.3 million units).**
  - About 3,700 (or 2%) are coal-fired.
  - About 11,000 (or 6%) are biomass-fired.
  - About 168,000 (or 92%) are oil-fired.



# Compliance Requirements

## Existing Area Source Boilers

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- **Existing large boilers ( $\geq 10$ mm/BTU)**
  - **Coal-fired**
    - Numeric emission limits for 2 pollutants mercury, CO
    - 1-time energy assessment
  - **Biomass-fired and Oil-fired**
    - Tune-up every other year
    - 1-time energy assessment
- **Existing small boilers ( $< 10$ mm/BTU)**
  - **Coal -fired, Biomass-fired, Oil-fired**
    - Tune-up every other year

# Compliance Requirements

## New Area Source Boilers

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- **New large boilers ( $\geq 10$ mm/BTU)**
  - **Coal-fired**
    - Numeric emission limits for 3 pollutants  
mercury, CO, PM
  - **Biomass-fired, Oil-fired**
    - Numeric emission limit for 1 pollutant  
PM
    - Tune-up every other year
- **New small boilers ( $< 10$ mm/BTU)**
  - **Coal-fired, Biomass-fired, Oil-fired**
    - Tune-up every other year

# Compliance Timeline

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- Proposals published on June 4, 2010
- Finals published on March 21, 2011
- Final reconsideration amendments published on:
  - Boiler MACT: January 31, 2013
    - Compliance Date: January 31, 2016
  - Boiler Area Source: February 1, 2013
    - Compliance Date: March 21, 2014

# What if sources need help?

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- EPA will provide compliance assistance for regulated parties as they prepare to comply with the rules.
- Dept. of Energy (DOE) will provide technical assistance that will help boilers burn cleaner and more efficiently.
  - DOE will provide large sources that burn coal and oil site-specific information on clean energy strategies for complying with the standards, including cost and payback information and financial incentives.
  - These facilities may have opportunities to develop energy efficient compliance strategies, such as combined heat and power.

# **Energy Conservation Requirements in Boiler Rules**

# Energy Conservation Requirements

- EPA has established pollution prevention as one of its highest priorities.
- One of the opportunities for pollution prevention lies in simply using energy efficient technologies to minimize the generation of emissions.
- Burning less fuel = emitting less emissions

# Boiler MACT - Energy Conservation Requirements

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- **Tune-ups**

- Included as a work practice standard as allowed under section 112(h).
- Applicable to all boilers and process heaters.
- Rationale – by improving combustion efficiency, fuel usage is reduced which results in decreased emissions.

- **Energy Assessment**

- Included as a requirement for all major sources
- Provides valuable information on improving energy efficiency
- Leads to reductions in emissions through process changes and other efficiency modifications (i.e. pollution prevention)
- Energy conservation measures identified are not required to be implemented

# Boiler MACT - Energy Conservation Provisions

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- Alternate Output-Based Emission Limits
  - Provide incentive for improving boiler efficiency.
  - Provide incentives for implementing efficiency improvements identified by the energy assessment
  - Promote (give incentive for) conversion to or installation of combined heat and power (CHP)
- Efficiency Credits
  - Provision allows a facility implementing energy conservation measures that result in decreased fuel use to comply with the output-based emission limits by applying efficiency credits earned from the implementation of the energy conservation measure.

# Tune-up Requirement

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- As applicable, **inspect the burner**, and clean or replace any components as necessary;
- **Inspect the flame pattern**, as applicable, and adjust the burner as necessary to optimize the flame pattern.
- **Inspect the system controlling the air-to-fuel ratio**, as applicable, and ensure that it is correctly calibrated and functioning properly;
- **Optimize emissions of CO** consistent with manufacturer's specifications, and with any NOx requirement to which the unit is subject .

# Tune-up Requirement (cont.)

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- **Measure** CO and oxygen before and after the adjustments are made.
  - May use a portable CO/O<sub>2</sub> analyzer;
- **Maintain** on-site and submit, if requested, a report containing:
  - The CO and oxygen measured at high fire or typical operating load before and after the adjustments;
  - Description of any corrective actions taken; and
  - Type and amount of fuel used over the prior 12 months.
- **Note:** Must conduct tune-up while burning fuel that provided majority of heat input over previous 12 months.

# Energy Assessment

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- An energy assessment, or audit, is an in-depth energy study which:
  - Identify energy conservation measures appropriate for a facility.
  - Examines the potential savings from energy efficiency improvements, pollution prevention, and productivity improvement.
  - It leads to the reduction of emissions of pollutants through process changes and other efficiency modifications.

# Energy Assessment Requirement

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- Must have a one-time energy assessment performed by a qualified energy assessor
- An energy assessment completed after January 1, 2008, satisfies the energy assessment requirement.
- An energy management program compatible with ISO 50001 that includes the affected units also satisfies the energy assessment requirement.

# Energy Assessment Requirement (cont.)

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- Energy assessment must include the following:
  - (1) Visual inspection of the boiler system,
  - (2) Evaluation of operating characteristics of affected boiler systems, specifications of energy use systems, operating and maintenance procedures, and unusual operating constraints,

# Energy Assessment (cont.)

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- (3) An inventory of major energy use systems,
- (4) A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage,
- (5) A list of major energy conservation measures that are within the facility's control,

# Energy Assessment (cont.)

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(6) A list of the energy savings potential of the energy conservation measures identified, and

(7) A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments.



## **NOTE:**

The report is not required to be submitted.

The findings are not required to be implemented.

# Energy Assessment Definitions

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## Energy Assessment Duration Requirements

<b>If your Affected Boilers have a Combined Annual Heat Input Capacity, in Trillion Btu/yr (TBtu/yr), of ...</b>	<b>Then the length of the energy assessment should not exceed...</b>	<b>And the energy assessment will include evaluation of energy use system(s) accounting for this percent of the energy output from these affected units...</b>
Less than 0.3	8 on-site technical labor hours	At least 50%
0.3 to 1	24 on-site technical labor hours	At least 33%
Greater than 1.0	24 on-site technical labor hours for first 1.0 TBtu/year + 8 on-site technical labor hours for every additional 1.0 TBtu/year, not to exceed 160 on-site technical labor hours	At least 20%

# Energy Assessment Definitions (cont.)

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- Energy use system
  - located on the site
  - use energy provided by the affected boiler:
    - process heating;
    - machine drive (motors, pumps, fans);
    - facility heating,
    - hot water systems;
- Energy use system(s) may be segmented by production area or energy use area (e.g., product X manufacturing area; product Y drying area; Building Z).

# Energy Assessment Definitions (cont.)

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## Energy management program

- a set of practices and procedures designed to manage
  - energy use
  - facility energy manager and other staffing responsibilities,
  - energy performance measurement and tracking methods,
  - an energy saving goal,
  - action plans,
  - operating procedures,
  - internal reporting requirements, and
  - periodic review intervals used at the facility.
- Facilities may establish their program through energy management systems compatible with ISO 50001.

# Energy Assessment Definitions (cont.)

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## Qualified energy assessor means:

- Demonstrated capabilities to evaluate energy savings opportunities for steam generation and major energy using systems.
- Has background, experience, and recognized abilities to perform the assessment activities, data analysis, and report preparation.
- Familiar with operating and maintenance practices for steam or process heating systems.
  - Additional potential steam system improvement opportunities
  - Additional process heating system opportunities .
  - Industry specific steam end-use systems.

# Benefits: Energy Conservation Requirements

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- Energy Assessment

- DOE has conducted energy assessments at selected manufacturing facilities and reports that facilities can reduce fuel/energy use by 10 to 15 percent by using best practices to increase their energy efficiency.

- Tune-up

- Boiler MACT

- Tune-ups will improve the efficiency of boilers, resulting in an estimated fuel savings of 53 trillion Btu each year

- Boiler Area Source Rule

- Tune-ups will improve the efficiency of boilers, resulting in an estimated fuel savings of 20 trillion Btu each year.

- These fuel savings estimates are based on the assumption that the tune-up will achieve 1 percent improvement in efficiency.

# Costs: Energy Conservation Requirements

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- The one-time cost of an energy assessment ranges from \$2500 to \$75,000 depending on the size of the facility.
  - Commercial and institutional facilities are expected to pay substantially less than industrial facilities for energy audits. An estimate of \$2,000 to \$5,000 per energy audit was obtained from two utilities.
- The initial set-up for a boiler tune-up ranges from \$3,000 to \$7,000 per boiler, and thereafter, an annual tune-up costs \$1,000 per boiler per year.
  - Based on the cost estimate provided by Dr. H.M. Eckerlin and E.W. Soderberg of the Industrial Extension Service USI Boiler Efficiency Program

# Energy Assessment

## Case Examples

Industry Type (State)	Energy Efficiency Upgrade	Cost	Savings (Annual)	Payback (Years)
Small Hardware Manufacturer (MA)	Install/repair insulation on condensate lines	\$168	\$396	0.42
Fabricated Rubber Products (CT)	Repair or replace steam traps	\$600	\$13,251	0.05
	Keep boiler tubes clean	\$750	\$3,296	0.23
Disposable Labware Producer (ME)	Replace obsolete burners with more efficient ones	\$11,800	\$7,447	1.58
Recyclable Paper Producer (NH)	Insulate steam/hot water lines	\$3,720	\$9,100	0.41
	Direct warmest air to combustion intake	\$4,162	\$2,845	1.46
Ice Cream Maker (MA)	Install turbulator	\$2,200	\$636	3.46
	Use computer program to optimize HVAC	\$1,700	\$728	2.34
Surgical Appliance and Supply Company (RI)	Analyze flue gas for proper air/fuel ratio	\$ 1,500	\$977	1.54
	Repair or replace steam traps	\$533	\$3,789	0.14
Dairy Producer (VT)	Operate boilers on high fire setting	\$4,000	\$3,110	1.29

Source: Industrial Assessment Centers Database, <http://iac.rutgers.edu/database/>

# Alternate Output-Based Emission Limits

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- As part of EPA's general policy of encouraging the use of flexible compliance approaches where they can be properly monitored and enforced, we included an alternate output-based emission limits in the rule.
- The alternate output-based emission limits provide sources the flexibility to comply in the least costly manner while still maintaining regulation that is workable and enforceable.
- Thus, output-based emission standards provide a regulatory incentive to enhance unit operating efficiency and reduce emissions.

# Alternate Output-Based Emission Limits

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- Output-based standards provide incentives for implementation of energy conservation measures identified in an energy assessment.
- The alternate output-based limit will promote energy efficiency in steam generating facilities.
  - input-based limitations allow units with low operating efficiency to emit more of each pollutant per output (steam or electricity) produced than more efficient units.

# Alternate Output-Based Emission Limits

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- If you elect to comply with the alternative output-based emission limits, you may take credit for implementing energy conservation measures identified in an energy assessment.
- Owners or operators must:
  - Establish a benchmark by determining the actual annual fuel heat input to the affected boiler before initiation of an energy conservation activity to reduce energy demand
  - Document all uses of energy from the affected boiler.
- Credits are generated by the difference between the benchmark and the actual energy demand reductions from energy conservation measures implemented.
  - Emissions credits can be generated if the energy conservation measures were implemented after January 1, 2008.

## Alternate Output-Based Emission Limits (cont.)

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- The following emission points cannot be used to generate emissions averaging credits:
  - Energy conservation measures implemented on or before January 1, 2008.
  - Boilers that are shut down
- Develop an Implementation Plan
  - include a description of the energy conservation measures implemented and the energy savings generated
  - If requested, must submit the implementation plan to the applicable delegated authority for review and approval no later than 180 days before the date on which the facility intends to demonstrate compliance using the emission credit approach.

# Output-Based Limits Definitions

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- Benchmarking means the fuel heat input for the one year period before the date that an energy demand reduction occurs.
- Efficiency credit means emission reductions above those required. Efficiency credits may come from pollution prevention projects that result in reduced fuel use. Boilers that are shut down cannot be used to generate credits unless the permanent shutdown is linked to implementation of energy conservation measures identified in the energy assessment.
- Steam output means
  - (1) for a boiler that produces steam only (no power generation), the energy content in terms of MMBtu of steam output,
  - (2) for a boiler that cogenerates process steam and electricity (CHP), the total energy output is the sum of the energy content of the steam sent to process in MMBtu and the energy of the electricity generated converted to MMBtu at a rate of 10 MMBtu per megawatt-hour), and
  - (3) for a boiler that generates only electricity, the alternate output-based emission limits is in terms of the electricity generated.

# What assistance is available?

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- Posted at <http://www.epa.gov/ttn/atw/boiler/boilerpg.html>  
“Industrial/Commercial/Institutional Boilers and Process Heaters”
  - Tune-up Guide for Owners & Operators- AREA SOURCES
  - Tune-up Guide for Technicians- AREA SOURCES
  - Tune-up Guidance and Example Recordkeeping Form- AREA SOURCES
  - DOE Guidance on Emissions Credits
  - Boiler MACT Energy Credits
- DOE Website:  
[http://www1.eere.energy.gov/manufacturing/tech\\_deployement/energy\\_assessment.html](http://www1.eere.energy.gov/manufacturing/tech_deployement/energy_assessment.html)

# Tune-up Guide for Owners & Operators

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- Purpose: to provide the boiler owner the knowledge base to appropriately direct boiler tune-up activities to comply with the requirements of the boiler rules.
- Allows the boiler owner to clearly define the scope of work the tuning technician will be tasked to accomplish.

# Tune-up Guide for Technicians

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Guidebook is divided into eight specific sections.

- General introduction section.
- Second, general discussion of boiler efficiency and the influence combustion control has on efficiency.
- Third, basic combustion control methods are discussed.
- **Fourth, identifies typical field activities associated with tuning a boiler.**
- Fifth, presents methods for evaluating the economic impact associated with tuning a boiler.
- Sixth, a basic discussion of the environmental impacts that can be expected with a boiler tune-up activity are presented.
- Seventh, provides general reference data useful in boiler tune-up.
- Eighth, list of general references useful in tune-up activities.

# Tune-up Guide for Technicians (cont.)

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Boiler tune-up involves several activities.

- Step 1 Identify the equipment - boiler, fuel, combustion control equipment, instrumentation, locations, environmental regulations.
- Step 2 Measure and record the as-found operating conditions, throughout the control range of the boiler.
- Step 3 Adjust the combustion relationship for the entire boiler operating range — this reestablishes the air-fuel mixture for the operating range of the boiler. Performance characteristics are recorded.
- Step 4 Evaluate the fuel energy and cost impact of the tune-up - to identify if modifications in tune-up frequency are necessary and if upgrading equipment is justifiable.

# Tune-up Guidance & Example Recordkeeping Form

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## **EXAMPLE Tune-up Record and Biennial Compliance Certification**

- SECTION I: INSTRUCTIONS
  - When is this form due
  - Where do I send this form
- SECTION II: RECORD OF GENERAL BOILER INFORMATION
  - Date:
  - Reporting Period:
  - Boiler Operator:
  - Boiler Emission Unit ID:
  - Tune-Up Conducted By:
- SECTION III: RECORD OF TUNE-UP PROCEDURES
- SECTION IV: RECORD OF MANUFACTURER SPECIFICATIONS
- SECTION V: RECORD OF FUEL TYPE
- SECTION VI: FACILITY INFORMATION AND CERTIFICATION

# DOE Guidance on Emissions Credits

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- Purpose: to provide guidance for documenting efficiency credits generated from energy conservation measures implemented.
- Divides boiler system conservation opportunities into four functional areas:
  - 1) the boiler itself,
  - 2) the condensate recovery system,
  - 3) the distribution system, and
  - 4) the end uses of the steam
- Provides technical information for documenting emissions credits proposed in Implementation Plan.
- Does not include efficiency improvements related to boiler tune-ups.

# DOE Energy Assessment Webpage

[http://www1.eere.energy.gov/manufacturing/tech\\_deployment/energy\\_assessment.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/energy_assessment.html)

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An energy assessment is an evaluation of a manufacturing plant's energy use to identify the most cost-effective, energy saving-opportunities.

- Search recommendations from completed assessments to find energy-saving ideas.
- Obtain an assessment with assistance from DOE's Advanced Manufacturing Office (AMO). AMO offers assessments to demonstrate the effectiveness of a tool or protocol in identifying energy savings opportunities.
- Review the assessment process to prepare for and make the most of an assessment.
- Contact an Energy Expert or a Qualified Specialist in your area who applies DOE's software tools during assessments of common energy systems.

# Additional DOE Information

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- The “**Guidance for Calculating Emission Credits Resulting from Implementation of Energy Conservation Measures**” document is:

<http://info.ornl.gov/sites/publications/Files/Pub37258.pdf>

It is housed on the DOE Boiler MACT page:

<http://www1.eere.energy.gov/manufacturing/distributedenergy/m/boilermact.html>

Incentive document which captures Federal/state/utility energy assessment, CHP, boiler tune-up and controls:

[http://www1.eere.energy.gov/manufacturing/states/pdfs/incentives\\_boiler\\_mact.pdf](http://www1.eere.energy.gov/manufacturing/states/pdfs/incentives_boiler_mact.pdf)

# **RICE**

## **(subpart ZZZZ)**

# RICE - Background

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- Promulgated: June 15, 2004
  - > 500 HP at major sources
- Promulgated: January 18, 2008
  - New RICE  $\leq$  500 HP at major sources
  - New RICE at area sources
- Promulgated: March 3, 2010
  - CI RICE at area sources
  - Existing  $\leq$  500 HP CI RICE at major sources
  - Existing non-emergency CI > 500 HP at major sources
- Promulgated: August 20, 2010
  - Existing SI RICE at area sources
  - Existing SI RICE  $\leq$  500 HP at major sources
- Promulgated: January 30, 2013
  - Amendments to RICE NESHAP

# RICE – Background (cont.)

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- Stationary engines generate electricity and power equipment at industrial, agricultural, oil and gas production, power generation and other facilities.
- EPA estimates there are over 1 million of these engines in the U.S.
- CI engines are compression ignition engines that use diesel fuels.
- SI engines are spark ignition engines that use mainly natural gas and gasoline fuels.

# RICE – Work or Management Practices

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- The work or management practices are expected to help minimize HAP emissions from the engines.
- Work or management practices for the engines that are not required to meet numeric emission limits
  - First included in March 2010 NESHAP

# RICE – Work Practices

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- The maximum achievable control, based on the work practices of the best controlled engines, is to maintain and replace the following stationary engine components: oil and oil filter, air cleaner (CI), spark plugs (SI), hoses, and belts.
- According to information received from manufacturers and operators of stationary engine, these parameters are the most appropriate to ensure proper operation for minimizing HAP emissions.
- Each of these work practices limit HAP emissions by allowing the engine to operate at peak efficiency.

# RICE – Work Practices (cont.)

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- Changing the oil and oil filter reduces the wear on the pistons and cylinders and limits the amount of worn metals that may be introduced to the exhaust stream
- Inspecting the air filter limits the introduction of oil mist and other contaminants to the combustion chamber
- Inspecting the belts and hoses ensure that the engines cooling and electrical systems are operating therefore eliminating the burning of oil.

# RICE – Work Practices (cont.)

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- Maintaining the oil is one of the most important activities operators can perform to minimize emissions and to ensure proper operation and performance.
- Maintaining efficient spark plugs reduces the potential for inefficient combustion and reduced efficiency, preventing higher emissions.

# RICE – Work Practices (cont.)

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- Change oil and filter every XXXX hours of operation or annually, whichever comes first;
- Inspect air cleaner every XXXX hours of operation or annually, whichever comes first, and replace as necessary;
- Inspect spark plugs every XXXX hours of operation or annually, whichever comes first, and replace as necessary;
- Inspect all hoses and belts every XXX hours of operation or annually, whichever comes first, and replace as necessary.

# RICE – Emergency Engines

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- Emergency engines may be used to prevent electrical outages and to test and maintain engines for up to a total of 100 hours per year.
- In 2015, emergency engines will be required to use cleaner fuel -- ultra low sulfur diesel (ULSD) -- if they operate, or commit to operate, for more than 15 hours annually as part of blackout and brownout prevention, also known as emergency demand response.
  - Switching to cleaner fuel will reduce emissions of HAP, particulate matter and sulfur dioxide.
  - Information shows that only a small percentage of emergency engines currently use ULSD fuel.
  - This will result in lower emissions.

# RICE – Emergency Engines (cont.)

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- Applicable to:
  - Existing emergency CI stationary RICE with a site rating of more than 100 brake HP and a displacement of less than 30 liters per cylinder that uses diesel fuel and operates or is contractually obligated to be available for more than 15 hours per calendar year for emergency demand response or that operates for local reliability if area source.
  - New emergency CI stationary RICE with a site rating of more than 500 brake HP and a displacement of less than 30 liters per cylinder located at a major source of HAP that uses diesel fuel and operates or is contractually obligated to be available for more than 15 hours per calendar year for emergency demand response.

# RICE - ULSD

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- The specifications of 40 CFR 80.510(b) [**Subpart I—Motor Vehicle Diesel Fuel; Nonroad, Locomotive, and Marine Diesel Fuel; and ECA Marine Fuel**] require that diesel fuel have a maximum sulfur content of 15 ppm and either a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent; this fuel is referred to as “ultra low sulfur diesel fuel.”

# RICE – ULSD (cont.)

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- EPA does not have information specifying the percentage of existing stationary emergency CI engines currently using residual fuel oil or non-ULSD distillate fuel.
- Recent U.S. Energy Information Administration data available for sales of distillate and residual fuel oil to end users show that:
  - For Commercial End Use, only 56 percent of the total distillate and residual fuel oil sold was ULSD.
  - For Electric Power End Use, 57 percent of total fuel sold was residual fuel oil.
  - For Industrial End Use, 26 percent of total fuel that was residual fuel oil.
- EPA believes that requiring cleaner fuel for these stationary emergency CI engines will significantly limit or reduce the emissions of regulated air pollutants emitted from these engines.
- Information provided to EPA by commenters showed that the use of ULSD will significantly reduce emissions of air toxics, including metallic HAP (e.g., nickel, zinc, lead) and benzene.

# INFORMATION & CONTACTS

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- Information available on EPA's web site at:
  - [www.epa.gov/ttn/atw/boiler/boilerpg.html](http://www.epa.gov/ttn/atw/boiler/boilerpg.html) (Boiler MACT)
  - <http://www.epa.gov/ttn/atw/rice/ricepg.html> (RICE)
- Rule Contacts
  - ❑ Boiler MACT- Jim Eddinger, (919) 541-5426 or [edding.jim@epa.gov](mailto:edding.jim@epa.gov)
  - ❑ Boiler Area Source Rule-Mary Johnson, (919) 541-5025 or [johnson.mary@epa.gov](mailto:johnson.mary@epa.gov)
  - ❑ RICE –Melanie King, (919) 541-2469 or [king.melanie@epa.gov](mailto:king.melanie@epa.gov)
- Implementation/Applicability Contact (OECA or EPA Regional Office)
  - Sara Ayres, (202) 564-5391 or [ayres.sara@epa.gov](mailto:ayres.sara@epa.gov)