

# The Nexus of Energy, Air, Water & Fuel: An Air Regulatory Update

COUNCIL OF INDUSTRIAL BOILER OWNERS (CIBO)

36<sup>TH</sup> ANNUAL MEETING

HOTEL SANTA FE

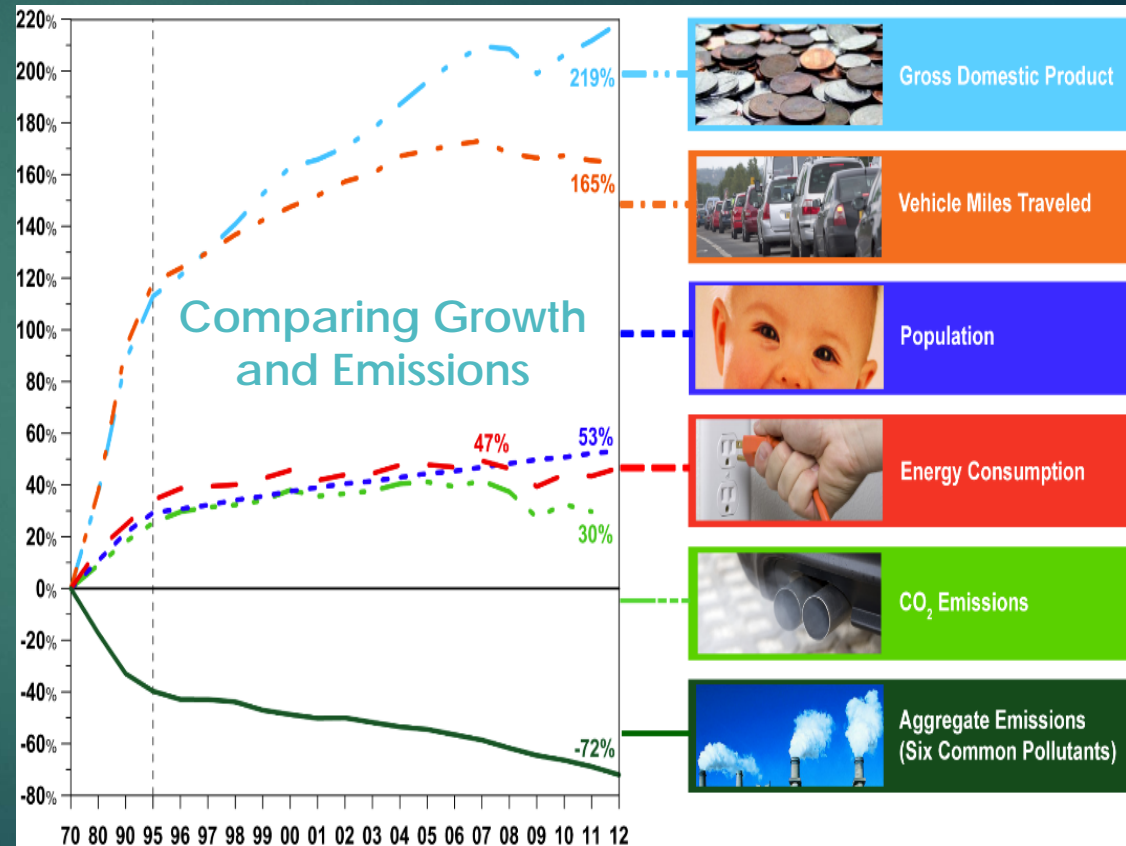
SANTA FE, NEW MEXICO

OCTOBER 16, 2014



# Clean Air Act Progress

- ▶ The Clean Air Act protects American families from harmful pollution
- ▶ Over the past four and a half decades we have cut harmful pollution by more than 70 percent, while the U.S. economy has more than tripled.
- ▶ This progress has been achieved through partnerships with agencies, states, businesses, labor groups, nongovernmental organizations, and the public.
- ▶ There's still work to be done. In 2012, about 140 million people lived in counties with pollution levels above one of our national health-based air quality standards.
- ▶ And climate change threatens our communities, families and economy in a way that demands we take action now.



# Overview



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- ▶ Update on Industrial Boiler Rules
  - ▶ Boiler MACT
  - ▶ Area Source Boiler Rule
  - ▶ CISWI Rule
- ▶ Overview of the President's Climate Action Plan
  - ▶ Section 111(b) New Source Performance Standards
  - ▶ Section 111(d) Emission Guidelines for Existing EGUs
  - ▶ Section 111(b) Modified & Reconstructed EGUs
- ▶ Update on the Mercury and Air Toxics Standards (MATS)
  - ▶ Start-up and Shutdown Reconsideration
- ▶ Questions/Discussion



# EPA Rules Affecting Industrial Boilers

- ▶ National Emission Standards for Hazardous Air Pollutants (NESHAP) for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (Subpart DDDDD)
  - ▶ “Boiler MACT”
    - ▶ Coverage of boilers at large (“major”) sources of hazardous air pollutants (HAP)
- ▶ NESHAP for Area Sources: Industrial, Commercial, and Institutional Boilers (Subpart JJJJJ)
  - ▶ “Boiler Area Source Rule”
    - ▶ Coverage of boilers at small (“area”) sources of HAP
- ▶ Section 129 New Source Performance Standards (NSPS) and Emission Guidelines (EG) for Commercial and Industrial Solid Waste Incinerators
  - ▶ “CISWI”
    - ▶ Boilers that burn materials defined as solid waste
- ▶ Non-Hazardous Secondary Materials (NHSM) rule that defines which materials are considered “solid waste”
  - ▶ Determines whether a source must comply with the section 112 boiler rules or the section 129 incinerator rule

# Boiler MACT – The History




- ▶ Proposal published in the Federal Register (FR) on June 4, 2010
- ▶ Final rule published in the FR on March 21, 2011
  - ▶ Boiler MACT went to effect on May 20, 2011
  - ▶ Compliance Date:
    - ▶ New Units: May 20, 2011, or upon start-up, whichever is later
    - ▶ Existing Units: March 21, 2014
- ▶ Reconsideration
  - ▶ Amendments were proposed on December 23, 2011
  - ▶ Final amendments were published on January 31, 2013
    - ▶ Amendments went into effect on April 1, 2013
  - ▶ Compliance Date:
    - ▶ New Units: January 31, 2014, or upon start-up, whichever is later
    - ▶ Existing Units: January 31, 2016

# Key Amendments to the Boiler MACT

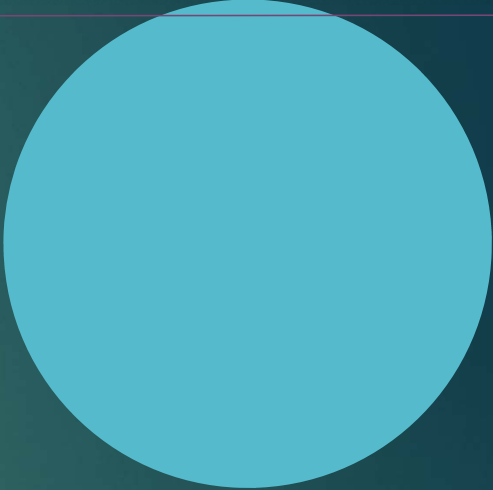


- ▶ “CO CEMS-based” alternative emission limits allowed relative to stack test-based emission limits
- ▶ Work practice standards in lieu of numerical emission limits for dioxins/furans
- ▶ Alternative “Total Selected Metals” (TSM) emission limits allowed relative to the original particulate matter (PM) limits
- ▶ Extended the compliance date for existing units from March 21, 2014 to January 31, 2016
- ▶ Clarified that initial tune-ups were not required for new boiler installations

# Key Amendments to the Boiler MACT (cont.)



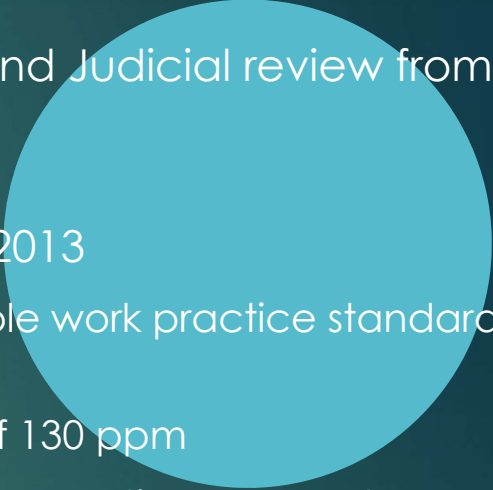
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- ▶ Split the biomass stoker subcategory into:
    - ▶ Wet biomass stoker
    - ▶ Kiln-dried biomass stoker
  - ▶ Split the liquid fuel subcategory into:
    - ▶ Heavy liquids
    - ▶ Light liquids
  - ▶ Refined work practice standards for startup & shutdown periods
    - ▶ Revised definitions from being based on “operating load” to being based on “starting & stopping supplying steam/useful thermal energy”
    - ▶ Require “clean fuels” to be used during startup, and having air pollution control devices to be engaged upon firing coal, biomass or heavy oil
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# Boiler MACT Reconsideration



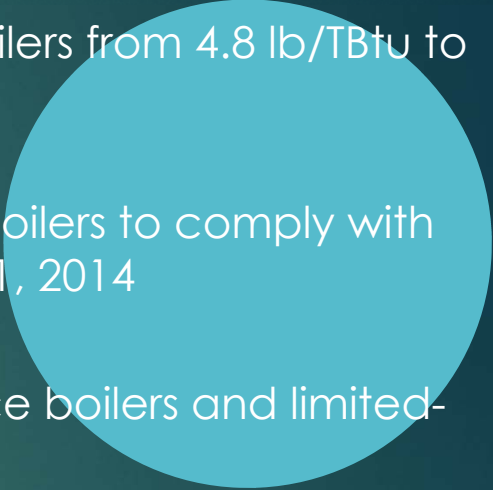
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- ▶ Agency received numerous petitions for Administrative and Judicial review from industry, environmental groups and other trade groups
  - ▶ Granted reconsideration on selected issues on August 5, 2013
    - ▶ Definition of startup and shutdown period, and the applicable work practice standards during such times
    - ▶ Revised CO limits based on a minimum CO threshold level of 130 ppm
    - ▶ Use of PM CPMS, including consequences of exceeding the operating parameter
  - ▶ Signaled Agency's intent to also make several clarifying changes/corrections
  - ▶ FR Notice has been drafted and is currently awaiting clearance/signature
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# Key Adjustments to Boiler Area Source Rule




- ▶ Revised mercury (Hg) emission limit for large coal-fired boilers from 4.8 lb/TBtu to 22 lb/Tbtu
  - ▶ Extended the compliance date for existing area source boilers to comply with the tune-up requirement from March 21, 2012 to March 21, 2014
  - ▶ Added subcategories for seasonally-operated area source boilers and limited-use areas source boilers
  - ▶ Clarified that initial tune-ups were NOT required for new area source boilers
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# Boiler Area Source Reconsideration

- ▶ Granted reconsideration on selected issues on August 5, 2013
  - ▶ Definition of startup and shutdown periods
  - ▶ Alternative PM standard for new oil-fired boilers that combust ultra low sulfur oil/diesel (ULSD)
  - ▶ Establishing a subcategory for limited-use boilers
  - ▶ Eliminating further performance testing for PM for certain area source boilers
    - ▶ PM emissions must be  $\leq 50\%$  of the PM emission limit during initial compliance test
  - ▶ Eliminating further fuel sampling for mercury (Hg) for certain coal-fired area source boilers
    - ▶ Hg constituents in fuel must be  $\leq 50\%$  of the Hg emission limit during the initial compliance test

# CISWI Reconsideration

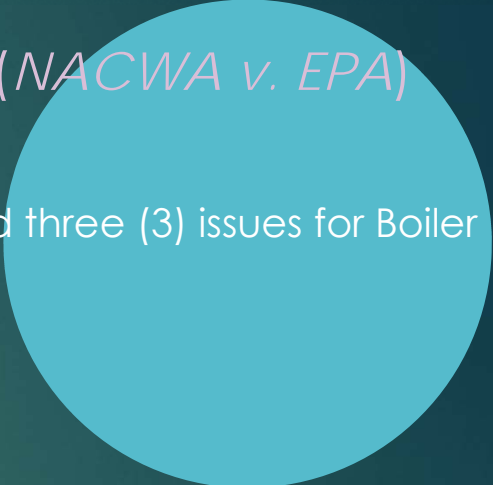


- ▶ Granted reconsideration on selected issues on August 5, 2013
    - ▶ Definitions of CEMS data usage during startup and shutdown periods
    - ▶ Significantly reduced PM limit for the waste-burning kilns subcategory
    - ▶ Establishing a fuel variability factor for the energy recovery units (ERU) subcategory
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# Other Related Activities



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- ▶ Sewage Sludge Incinerator (SSI) Court Decision (*NACWA v. EPA*)
    - ▶ Issued August 20, 2013
      - ▶ Remanded the SSI rule back to the Agency, which raised three (3) issues for Boiler MACT
        - ▶ Use of the Upper Predictive Limit in General
        - ▶ Use of Upper Predictive Limit with Small Data Sets
        - ▶ Use of a Fuel Variability Factor in Conjunction with the UPL
  - ▶ Portland Cement Court Decision (*NRDC v. EPA*)
    - ▶ Issued April 18, 2014
      - ▶ Vacated the regulatory provision establishing affirmative defense (AD) to civil penalties for violations of emission standards caused by unavoidable malfunctions
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# Description of the SSI Decision Issues

- ▶ Issue #1: Overall Use of the Upper Predictive Limit (UPL)
  - ▶ Court remanded the SSI rule for EPA to explain why the UPL represents the “average emissions limitation achieved by the best performing 12% of sources”
- ▶ Issue #2: UPL in Conjunction with Small Datasets
  - ▶ When the UPL was used with small datasets, in some cases, the analysis produced the “apparently illogical result” of having a new source floor limit that was less stringent than the existing source floor limit
    - ▶ Court asked EPA to explain on remand why the UPL is a reasonable statistical approach to addressing variability for units with small datasets
- ▶ Issue #3: Application of a “Fuel Variability Factor” in Conjunction with the UPL
  - ▶ Court questioned whether using a fuel variability factor in addition to the UPL would accurately reflect what the average of the best performing units would achieve

# Agency's Response to *NACWA v. EPA*

- ▶ In February 2014, EPA asked the Court for time to update a small set of standards that apply to certain new and existing boiler subcategories
  - ▶ Intend to leave the current standards in place during Agency review
  - ▶ Any updates EPA proposes to make to these standards will be available for public comment through the Agency's normal notice and comment rulemaking process
- ▶ Furthermore, asked the Court for 60 days to further explain the technical analyses used to support certain other aspects of the 2013 rules
- ▶ In making these requests, the Agency was proactively seeking to address the issues raised by the Court in the recent *NACWA v. EPA* decision.

# Court's Response to EPA's Request

- ▶ On May 15, 2014, the Court granted EPA's request for
  - ▶ Time to update a small set of standards that apply to certain new and existing boilers (e.g., voluntary remand)
  - ▶ 60 days to further explain the technical analyses used with respect to the use of the UPL and the use of the UPL in conjunction with the "fuel variability factor" (e.g., remand of the record)
- ▶ EPA responded to the 60-day requirements on July 14, 2014
- ▶ Current Litigation Schedule
  - ▶ Industry Petitioner's Brief – August 12, 2014
  - ▶ Environmental Petitioner's Brief – August 12, 2014
  - ▶ Respondent's Brief – November 10, 2014
  - ▶ Industry Petitioner's Reply Brief – December 24, 2014
  - ▶ Environmental Petitioner's Brief – December 24, 2014
  - ▶ Final Briefs – January 21, 2015

# Information, Contacts, Resources

## ▶ Information on EPA's website

- ▶ [www.epa.gov/ttn/atw/boiler/boilerpg.html](http://www.epa.gov/ttn/atw/boiler/boilerpg.html)
- ▶ [www.epa.gov/boilercompliance/](http://www.epa.gov/boilercompliance/)
- ▶ [www.epa.gov/airquality/combustion](http://www.epa.gov/airquality/combustion)

## ▶ Rule Contacts

- ▶ Boiler MACT – Jim Eddinger (919) 541-5426 [eddingejim@epa.gov](mailto:eddingejim@epa.gov)
- ▶ Boiler Area Source Rule – Mary Johnson (919) 541-5025 [johnson.mary@epa.gov](mailto:johnson.mary@epa.gov)
- ▶ CISWI – Toni Jones (919) 541-0316 [jones.toni@epa.gov](mailto:jones.toni@epa.gov)
- ▶ NHSM – George Faison (703) 305-7652 [faison.george@epa.gov](mailto:faison.george@epa.gov)

## ▶ Implementation/Applicability Contacts (OECA or EPA Regional Offices)

- ▶ Sara Ayres (202) 564-5391 [ayres.sara@epa.gov](mailto:ayres.sara@epa.gov)





# EPA Mitigation Actions Under President Obama's Climate Action Plan

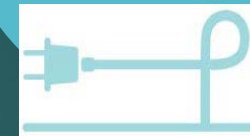
- ▶ Reducing carbon emissions from power plants



- ▶ Building a 21<sup>st</sup> century transportation sector



- ▶ Cutting energy waste in homes, businesses, and factories



- ▶ Reducing methane and HFCs



- ▶ Leading international efforts to address global climate change



# Carbon Pollution Standards (CPS) for New Power Plants—111(b)

## ▶ Standards for new power plants under 111(b)

- ▶ Proposal issued on September 20, 2013, published in the Federal Register on January 8, 2014
  - ▶ Follows usual approach to setting New Source Performance Standards
  - ▶ Reflects more than 2.5 million public comments on a 2012 proposal and recent trends in the electric power sector
  - ▶ Sets separate standards for different types of new power plants
    - ▶ Defines Best System of Emission Reduction (“BSER”) that is based on adequately demonstrated technologies
- ▶ Public comment period closed on May 9, 2014
  - ▶ The agency received more than 2 million comments
    - ▶ More than 11,000 substantive comments

# Clean Power Plan (CPP) Proposed Guidelines—111(d)

- ▶ The Agency's proposal:
  - ▶ Was shaped by public input, present trends, proven technologies
  - ▶ Follows the law
  - ▶ Recognizes the progress states, cities and businesses have already made
  - ▶ Builds on ongoing efforts
- ▶ The proposal aims to cut energy waste and leverage cleaner energy sources by doing two things:
  - ▶ First, set achievable, enforceable state goals to cut carbon pollution per megawatt hour of electricity generated
  - ▶ Second, layout a national framework that gives states the flexibility to chart their own, customized path to meet the goals in their state plans

# Clean Power Plan (CPP) Summary

- ▶ Proposed on June 2, 2014, and published in the Federal Register on June 18, 2014
  - ▶ 120-day public comment period open through October 16, 2014
    - ▶ CPP public comment period extended until December 1, 2014
- ▶ The proposal will:
  - ▶ Reduce carbon pollution from existing power plants, for which there are currently no national limits
    - ▶ By 2030, reduce nationwide carbon dioxide (CO<sub>2</sub>) emissions, from the power sector by approximately 30 percent from 2005 levels, with significant reductions beginning by 2020
  - ▶ Maintain an affordable, reliable energy system
  - ▶ Cut hundreds of thousands of tons of harmful particulate (PM) pollution, sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) as a co-benefit
  - ▶ Lead to health and climate benefits worth an estimated \$55 billion to \$93 billion in 2030
  - ▶ Climate and health benefits far outweigh the costs of the plan, which are estimated to be \$7.3 billion to \$8.8 billion in 2030

# EPA Establishes a Goal for Every State



- ▶ EPA analyzed the practical and affordable strategies that states and utilities are already using to lower carbon pollution from the power sector
- ▶ Proposed goals are based on a consistent national formula, calculated with state and regional specific information
- ▶ The result of the equation is the state's carbon intensity rate—or pollution to power ratio—over time
  - ▶ Encompasses the dynamic variables that ultimately determine how much carbon pollution is emitted by fossil fuel power plants
  - ▶ Accommodates the fact that CO<sub>2</sub> emissions from fossil fuel-fired power plants are influenced by how efficiently they operate and by how much they operate
- ▶ The state goal rate is calculated to account for the mix of power sources in each state and the application of the “building blocks” that make up the best system of emission reduction
- ▶ States will need to meet an interim goal and a final goal

# Basic Framework for Goal Calculations

Building Block	Strategy EPA Used to Calculate the State Goal	Maximum Flexibility: Examples of State Compliance Measures
1. Make fossil fuel-fired power plants more efficient	Efficiency Improvements	Efficiency improvements Co-firing or switching to natural gas Coal retirements Retrofit CCS (e.g., W.A. Parish facility in Texas)
2. Use lower-emitting power sources more	Dispatch changes to existing natural gas combined cycle (CC)	Dispatch changes to existing natural gas CC
3. Build more zero/low-emitting energy sources	Renewable Energy Certain Nuclear	New NGCC Renewables Nuclear (new and up-rates) New coal with CCS
4. Use electricity more efficiently	Demand-side energy efficiency programs	Demand-side energy efficiency programs Transmission efficiency improvements Energy storage

# Carbon Pollution Standards for Modified and Reconstructed Plants—111 (b)

- ▶ Standards for modified and reconstructed power plants under 111 (b)
  - ▶ Proposal issued on June 2, 2014, published in the Federal Register on June 18, 2014
    - ▶ Only applies to units that meet certain, specific conditions as defined by the Clean Air Act
      - ▶ A modification is any physical or operational change to an existing source that increases the source's maximum achievable hourly rate of air pollutant emissions
      - ▶ A reconstructed source is a unit that replaces components to such an extent that the capital cost of the new components exceeds 50 percent of the capital cost of an entirely new comparable facility
    - ▶ EPA is proposing emissions limits for these sources that are based on the performance of available and demonstrated technology
    - ▶ EPA is proposing separate numeric standards for different types of units:
      - ▶ Affected modified fossil fuel-fired electric utility steam generating units
      - ▶ Affected modified natural gas-fired stationary combustion turbines
      - ▶ Affected reconstructed fossil fuel-fire electric utility steam generating units and affected reconstructed natural gas-fired stationary combustion turbines
  - ▶ **Comment period closes on October 16, 2014**

# Mercury and Air Toxics Standards (MATS)

- ▶ Proposed in the Federal Register on May 3, 2011 (76 FR 24976)
- ▶ Promulgated in the Federal Register on February 16, 2012 (77 FR 9304)
  - ▶ 20 Petitions for Reconsideration of the MATS NESHAP
  - ▶ 4 Petitions for Reconsideration of the NSPS
  - ▶ 30 Petitions for Judicial Review of the MATS NESHAP and NSPS
- ▶ Technical corrections published in the Federal Register on April 19, 2012 (77 FR 23399)
- ▶ Proposed reconsideration of new-source and startup/shutdown issues in the Federal Register on November 30, 2012 (77 FR 71323)
- ▶ Promulgated new-source reconsideration in the Federal Register on April 24, 2013 (79 FR 24073)
- ▶ Reopened startup/shutdown reconsideration comment period in the Federal Register on June 25, 2013 (78 FR 38001)
  - ▶ Awaiting the final promulgation of startup/shutdown reconsideration



Questions?



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