

# BUILDING A WORLD OF DIFFERENCE

## Utility MACT – Impact and Compliance Strategy

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Building a world of difference.

# Why should you be concerned?

- **You are directly affected - All coal and oil fired utility boilers > 25 MW**
  - Air Quality Control (AQC) pathway for compliance
  - Alternate generation pathway for compliance
  - Holistic compliance – Several other regulations in the pipeline
- **Your customers/clients are directly affected**
  - Vendors of AQC and BOP equipment
  - Vendors for alternate generation technologies
  - Technical and economic feasibility studies

**Compliance timeline clock will begin to tick soon**

# MACT overview

- **CAAA Section 112 sets minimum stringency criteria (MACT Floor) for major Hazardous Air Pollutant (HAP) sources within a source category**
  - Existing: The average emission limitation achieved by the best performing 12 percent of existing sources
  - New: The emission control achieved in practice by the best controlled similar source
  - Does not consider costs
- **USEPA may regulate “beyond the floor” where justified – can consider costs**
- **USEPA can also establish work practice requirements**

# Utility MACT regulatory history

- **February 8, 2008** – DC Circuit Court vacates the Clean Air Mercury Rule (CAMR) and reinstates coal- and oil- fired electric generating units > 25 MW that produce electricity for sale (i.e., Utility Boilers or EGUs) as a MACT source category
- Reconsideration Petitions: **September 16, 2008** by UARG and **October 17, 2008** by the USEPA
- **December 18, 2008** – Mandatory duty suit filed by American Nurses Assn and other advocacy groups for failure to establish MACT standards for coal- and oil-fired electric generating units by December 20, 2002
- **February 6, 2009** – USDOJ on behalf of the USEPA asks U.S. Supreme Court to drop its petition for reconsideration
- **February 23, 2009** – U.S. Supreme Court denies UARG petition for reconsideration and accepts U.S. Government's request to drop its petition
- USEPA enters into a consent decree with the advocacy groups:
  - Propose emissions standards for coal- and oil-fired power plants by **March 16, 2011**.
  - Finalize the standards by **November 16, 2011**.
- **December 24, 2009** - USEPA approves an Information Collection Request (ICR) requiring all US power plants with coal-or oil-fired utility boilers to submit emissions information for use in developing the Utility MACT emission limits

# Regulated pollutants and surrogates

USEPA is considering the following pollutants/  
surrogates for the Utility MACT and has requested data  
as part of the ICR testing

- **Mercury** – no surrogate
- **Filterable PM** – for non-mercury metallic HAP
- SO<sub>2</sub> or **HCl** – for acid gas HAP
- VOC / **CO** / THC – for non-dioxin / furan organic HAP
- S / Cl ratio – for **dioxin / furan** organic HAP

**Red font indicates pollutants addressed by Boiler MACT**

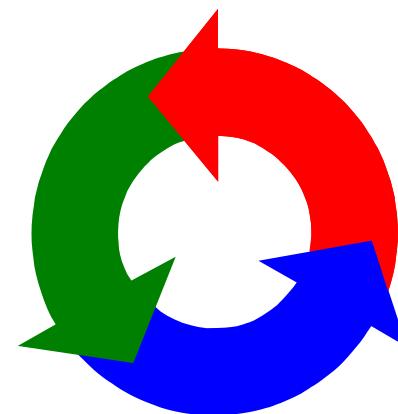
# Lessons from the Boiler MACT

- **Sub-categorization of units**
- **MACT floors**
  - USEPA's statistical method used for addressing variability
  - "MACT-on-MACT" type approach
  - "Cherry Picking" - Pollutant-by-pollutant or HAP-by-HAP analysis that relies on a different set of best performing sources for each separate HAP standard – Relative performance of the AQC technology not used in selecting the best performing sources
  - Emission limits applicable at all times including SSM
  - Emissions averaging periods

# Compliance strategy considerations

- What are emission limits and how will our facilities comply with them at all times?
- How is my existing control equipment performing against the new requirements?
- Do we need to switch fuels?
- Do we need to install add-on controls?
- Is the unit economically viable after adding the required equipment or changing fuels?
- Do we have enough time and can we obtain the required financing?
- Will implementation of certain MACT compliance options or boiler modifications trigger New Source Review?
- Can our solutions also allow us to comply with applicable Renewable Portfolio Standards, transport rule, regional haze, nonattainment and Green House Gas regulations?

Air Compliance



Design

# Compliance methods

HCl Control Technologies	Hg Control Technologies	PM Control Technologies
Fuel Switching	Fuel Switching	Humidification and Agglomeration (Flue Gas Conditioning)
Furnace / Duct Reagent Injection	Boiler Additives	Combustion Modifications
Dry Scrubbers	Direct or Indirect Flue Gas Cooling	Retrofitting Existing ESPs
Wet Scrubbers	Sorbent Injection With Existing Particulate Control Systems	Dry and Wet Electrostatic Precipitator (ESP)
Repowering	High Air-to-Cloth Fabric Filter (After Existing ESP)	High Air-to-Cloth Fabric Filter (After Existing ESP)
	Sorbent Injection With New Particulate Control Systems	Dry ESP and Fabric Filter Hybrid Technologies
	Co-Benefit Control	New Particulate Control System
	Repowering	

**Blue Box: Front-End Control Technology**

**Green Box: In-situ Control Technology**

**Purple Box: Back-End Control Technology**





# Implementation issues

- Fuel switch and repowering costs (if applicable)
- Retrofit costs
- Outage requirements
- Combustion modifications (i.e., reheat, air heaters, etc.)
- Space limitations for new control equipment
- Balance of plant impacts (i.e., auxiliary electric)
- Availability and redundancy requirements
- Available suppliers and construction labor



## Next steps – post proposal

- Pay particular attention to the statistical analysis and proximity of the proposed emission limits to the detection limits
- Vendors...can you provide guarantees?
- Pay careful attention to the EPA's basis for emissions limits
- Explore technical feasibility of achieving emission limits
- Examine the feasibility and cost of monitoring requirements
- Examine whether or not the averaging period for continuous compliance would be adequate
- Determine whether solutions can be implemented in parallel with other regulations
- Take an active part in the comments process

**Get Engaged**



# Compliance strategy

- Determine MACT applicability
- Gather intelligence on your facility
- Develop compliance flowcharts and checklists
- Explore feasibility of front-end, in-situ and back-end control methods
- Conduct economic analyses
- Set internal deadlines and finalize strategy
- Agency interaction and execution of strategies

**Proven steps to achieve compliance**

# Questions

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