Sector-Based Multipollutant Approaches for Stationary Sources

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NACAA Spring Membership Meeting
Sacramento, CA
May 17, 2010

CAA Requirements Results in Numerous Regulations on the Same Industries

Industry Group	Total	Area Source	CTG/183(e)	MACT/129	Pre-1990 NESHAP	NSPS
Chemical Production	75	14	18	31	1	11
Durable Goods Manufacturing	58	4	23	20		11
Metal Processes	48	16	1	15	3	12
Minerals	36	5	2	12	2	15
Agriculture and Forest Products	15	2	3	7		3
Oil and Gas Production and Distribution	15	2	5	5		3
Petroleum Refining	13		4	2	4	3
Energy and Combustion	12	1		5	1	5
Service Industries	11	2	6	2		1
Transportation Equipment	10		5	4		1
Waste Management	8			8		1
Chemical Usage	5	1	3	1		
Utilities	3			1		2
Institutions	1			1		
Transportation Infrastructure	0					
Total	310	47	70	114	11	68

Overview of the Sector Approach

The Sector-based Multipollutant approach strives to address stationary source regulation with a strategy that

- Achieves better environmental benefits and public health protection;
- Uses a more holistic, multipollutant approach;
- Minimizes regulatory and administrative burdens; and
- Leverages federal, state, and local resources more efficiently and effectively

Sector Strategy Example

Petroleum Refineries

Emission Point	Current Regs
Boilers	NSPS: Db MACT
Process Heaters	NSPS: J, Ja
FCCU, Ref, SRP	NSPS: J, Ja MACT: UUU
Process Vents	MACT: CC
Wastewater	MACT: CC Part 61: FF NSPS QQQ
Storage	NSPS: Ka,Kb MACT: CC,EEE NESHAP
Loading	MACT: CC, EEE NESHAP
Equipment Leaks	MACT CC, UU, TT NSPS GGG,VV NESHAP

Regulatory Actions

NSPS Db tech review
New Boiler MACT(?)

NSPS tech review

UUU Residual Risk Rule and Technology Review

CC Residual Risk Rule and Technology Review

EEE Residual Risk Rule

NSPS tech reviews

Sector Approach

Sector Action

Sector Action

Note: This is an illustration of one conceptual approach to the sector. It does not represent the actual regulatory approach OAQPS will take for this sector.

Sector Strategy Applied to Cement Industry

- Harmonize Section 111 and 112 regulatory timetables while considering multiple regulatory requirements
  - NSPS, NESHAP, Residual Risk
  - NSR, Regional Haze, PM NAAQS Attainment
- Concurrently analyze multiple regulatory requirements to evaluate control strategies and multi-pollutant benefits
  - Align alignment of VOC and CO limits from NSPS with THC limit from NESHAP
  - Alignment of PM limit from NSPS with PM limit from NESHAP
  - New PM limit reduces residual risk due to Chrome IV emissions
  - SO_2 reductions from existing kilns are possible as co-benefits of HCl and Hg limits on NESHAP and can be used for NSR netting or offset purposes
- Minimize administrative and compliance complexities
  - Align NSPS and NESHAP schedules allowing facilities to plan to maximize co-benefits of emission reductions while minimizing costs.
    - For example, a new facility with a moderate level of SO_2 emissions might decide to install a lime-spray dryer for SO_2 emission reductions under the NSPS and an ACI for Hg emission reductions under the NESHAP. If requirements are aligned, the facility might decide to install a wet scrubber to control SO_2, Hg, and HCl at the same time.
  - Align NSPS and NESHAP Monitoring, Recordkeeping and Reporting Requirements when pollutants and emission sources have similar characteristics

Interaction of Regulations in Cement Sector Strategy

Regulatory Actions	Pollutant									
	PM	SO_2	NO_x	Hg	THC	Chrome IV	VOC	HCl	CO	Condensable PM
NESHAP	Co-benefit	Co-benefit		X	X	X	Co-benefit	X	Co-benefit	Co-benefit
NSPS*	X	X	X	Co-benefit	Co-benefit	Co-benefit	X	Co-benefit		Potential
NSR		Incentive								
Regional Haze		Incentive								
PM2.5 SIP		Incentive								

NSR Incentive: to the extend that the reductions of SO_2 emissions are deemed "surplus at a cement plant, they can be used either as netting credits at the source or they can be sold as offsets to other sources in the same non-attainment area.
Regional Haze: States can use collateral criteria pollutant emissions reductions resulting from the application of MACT for Regional Haze SIPs
PM 2.5 SIP: States can use collateral criteria pollutant emissions reductions resulting from the application of MACT for PM2.5 SIPs

*NSPS just covers new and modified sources

Cement: Technology Selection under Separate Rulemakings vs. Sector Approach

Separate rulemaking – requirements not aligned

Rulemaking	Pollutant Controlled	Control Device	Control Efficiency
NSPS	SO2	Lime Injection	70-90 %
NESHAP	Hg	ACI	90%
NESHAP	HCl	Lime Injection	90% +

Combined rulemaking – requirements aligned

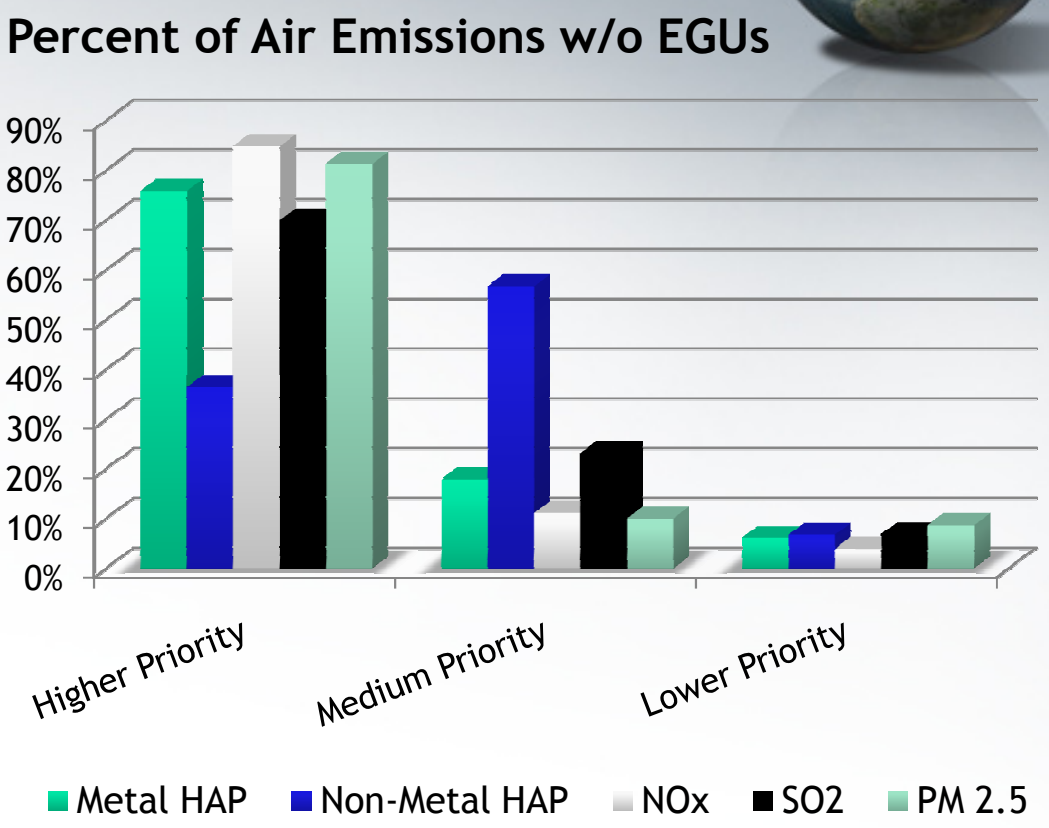
Rulemaking	Pollutant Controlled	Control Device	Control Efficiency
NSPS	SO2	Wet Scrubber	95 % +
NESHAP	Hg	Wet Scrubber	90 % See Note 1
NESHAP	HCl	Wet Sc rubber	95 %+

Other Benefits – Control of condensable PM (levels currently unknown) and additional control of non-condensable PM.
The cost of SO2 removal ($/ton) is potentially reduced due to shared controls. This could justify a lower SO2 limit.

Note 1. Current test data indicates a Hg control efficiency up to 80%. Bench scale testing indicates the use of certain additives may allow wet scrubbers to achieve Hg control levels comparable to ACI.

Planning and Ranking Reveals Several High Priority Sectors

- Electric Utilities
- Boilers & Process Heaters
- Ferrous Metals
- Pulp and Paper
- Petroleum Refining
- Cement Manufacturing
- Clay Products (incl. Brick Manufacturing)
- Non-Ferrous Metals
- Chemical Manufacturing
- Oil & Gas Production and Distribution
- Waste Incineration
- Metal Foundries
- Formulated Products Mfg. & Use
- Plywood



A Sectors Strategy will Focus Resources on the Most Important Sectors the Soonest

Benefits of Sector Strategy

MANAGEMENT

Concentrates efforts on biggest reductions

Helps States move toward attainment goals

Reduces litigation and addresses backlog

Meets Clean Air Act obligations efficiently with synchronized timelines

Impact on Health and Environment

Evaluates whole facility and interaction of pollutants and processes

Gathers more comprehensive emissions data

Quantifies co-benefits

COSTS

May lower administrative costs for federal, state, and local governments - short term effect may be an increase in costs to States as we transition

In the long run, avoids stranded costs in capital equipment for industry and provides regulatory certainty

Eliminates redundant or duplicative requirements

Regulatory Update – Rules Scheduled for May 2010-May 2011

- Compression-Ignition Internal Combustion Engines NSPS – Proposal 5/21/10; Final 5/22/11
- Portland Cement NSPS and NESHAP – Final 8/6/10
- Reciprocating Internal Combustion Engines – Spark Ignited - NESHAP – Final 8/10/10
- Polyvinyl Chloride and Copolymers Production; Amendments NESHAP (PVC MACT Remand) – Proposal 10/29/10
- Nitric Acid NSPS– Proposal 11/15/10
- Industrial, Commercial, and Institutional Boilers (Area Source and Major MACT) – Final 12/16/10
- Commercial and Industrial Solid Waste Incinerators – Final 12/16/10
- Gold Mine Ore Processing NESHAP– Final 12/16/10
- Sewage Sludge Incinerators NSPS/Emission Guidelines – Final 12/16/10
- Oil and Natural Gas NSPS – Proposal 1/31/11
- Coal- and Oil-Fired Electric Utility Steam Generating Units – Utility MACT – Proposal 3/16/11
- Reconsideration of NSPS Electric Utility, Industrial, Commercial, and Institutional Steam Generating Units (Da, Db, Dc) – Proposal 3/16/11
- Still negotiating deadlines for Residual Risk and Technology Review Rules

Regulatory Update - Boiler MACT and Boiler Area Source Rule

Boiler MACT

- Cover about 13,555 boilers and process heaters at about 1,600 major source facilities
  - 11,500 of the major source units are gas-fired
- Major source facilities are mostly industrial but include universities, municipalities, and military installations
  - About 9% of major source facilities are small entities

Boiler Area Source Rule

- Cover about 183,000 boilers at an estimated 92,000 area source facilities
  - There are 1.3 million gas-fired boilers located at area sources that are not included in source category
- Area source facilities are mostly commercial (e.g., hotels, office buildings, restaurants) and institutional (e.g., schools, hospitals, prisons) but include industrial sources
- About 85% of area sources are estimated to be small entities

Boiler MACT - Proposed Standards for Existing Units

- Proposed limits for:
  - PM (as surrogate for non-mercury metals)
  - Mercury
  - HCl (as surrogate for acid gases)
  - CO (as surrogate for non-dioxin organic HAP)
  - Dioxin/Furan
- Emissions limits only applicable to units with heat input capacities 10 million Btu/hour or greater
- Work practice standard (annual tune-up) proposed under section 112(h) for:
  - Units with heat input capacities less than 10 million Btu/hour
  - Units in Gas 1 and Metal Process Furnaces subcategories
- Beyond-the-floor standard (conduct an energy assessment) proposed for all major source facilities

Boiler MACT - Proposed Standards for New Units

- Proposed limits for:
  - PM (as surrogate for non-mercury metals)
  - Mercury
  - HCl (as surrogate for acid gases)
  - CO (as surrogate for non-dioxin organic HAP)
  - Dioxin/Furan
- Emissions limits applicable to all units, regardless of size
  - More stringent than limits for existing sources
- No work practice standards or beyond-the-floor standards proposed

Boiler Area Source Rule - Proposed Standards for Existing Units

- Coal-fired boilers
  - Proposed emission limits for:
    - Mercury – based on MACT
    - CO (as surrogate for POM and other urban organic HAP) – based on MACT
- Biomass–fired boilers and oil-fired boilers
    - Proposed emission limits only for CO (as surrogate for POM) – based on MACT
- Emissions limits only applicable to units with heat input capacities 10 million Btu/hour or greater
- Work practice standard (biennial tune-up) proposed under section 112(h) for units with heat input capacities less than 10 million Btu/hour
- Work practice standard (energy assessment) proposed for area source facilities having boilers with heat input 10 million Btu/hour or greater as a beyond-the-floor standard.

Boiler Area Source Rule - Proposed Standards for New Units

- For coal-fired boilers, proposed emission limits for:
  - PM (as surrogate for urban metals)
  - Mercury (only for coal-fired boilers)
  - CO (as surrogate for POM and other urban organic HAP)
- For biomass-fired boilers and oil-fired boilers, proposed emission limits for:
  - PM (as surrogate for urban metals)
  - CO (as surrogate for POM and other urban organic HAP)
- Emissions limits applicable to all units, regardless of size
- No work practice standards proposed
- No beyond-the-floor standard proposed

Regulatory Update - Utility MACT

- In December 2000, coal- and oil-fired electric utility steam generating units were added to the list of sources for which MACT rulemaking is required
- Vacatur of Clean Air Mercury Rule (CAMR) in 2008 reinstated listing decision of December 2000
- Operating under a negotiated Consent Decree
  - No later than March 16, 2011, EPA shall sign for publication in the Federal Register a notice of proposed rulemaking
  - No later than November 16, 2011, EPA shall sign for publication in the Federal Register a notice of final rulemaking

Status of Data Collection for Utility MACT

- Have considerable data from 1999 for mercury from coal-fired units; limited data for all other hazardous air pollutants and for oil-fired units
  - Earlier effort focused on mercury from coal-fired units and nickel from oil-fired units
  - Now must address all hazardous air pollutants from both fuel types, necessitating data gathering
  - There have been changes in emissions control equipment since 2005 that result from implementation of CAIR and State-based mercury regulations
- Have initiated a major information collection request (ICR) to obtain the necessary data from coal- and oil-fired units
  - ICR approved on December 24, 2009; mailed out on December 31, 2009
  - 1,332 units to provide required information on boiler, fuels, controls, etc., and all available data from past 5 years
    - Data currently being processed
  - Requires update of facility information, submittal of available data, and emission testing of ~800 units
    - Data will be received by the end of September 2010