Institute of Clean Air Companies

Sector Strategy for Stationary Source Regulation and Guidance

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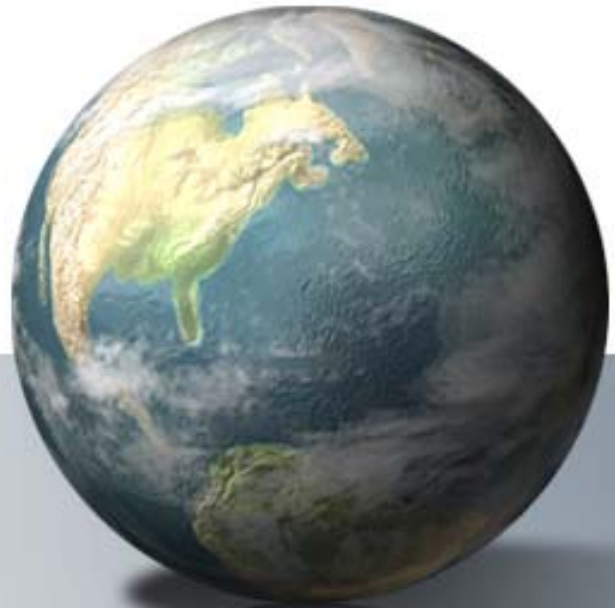

Benefits of a Sector Strategy

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

Goal of Sector Strategy

- To group activities that are under common control and typically fall within a facility fenceline, and are used to make a product or group of products.
  - Activities comprise various equipment, control devices and air pollution sources
- To use these groupings to align elements of the federal stationary source emissions standards programs and set priorities
  - Synchronize rules, assign resources, maximize environmental benefits, etc.

Types of activities

- Boilers
- Heaters
- Storage tanks
- Vents
- Wastewater
- Engines
- Furnaces

Key Choice
Be proactive or be reactive

PROACTIVE Pursue rules according to environmental benefit

- **Synchronize the timelines**
  Rules that affect facilities in a sector would be written and reviewed on coordinated 8-year cycles. We could streamline analysis and meet Clean Air Act requirements.
- **Restructure the approach**
  Prioritize resources to focus on rules that have the greatest potential for air quality improvements.
- **Leverage and preserve resources**

REACTIVE Prioritize by lawsuits

- Continue to work on planned rules and negotiate schedules for additional rules as litigation occurs
- Historic approach, and it is not sustainable

Litigation Creates Urgency

- Lawsuits will shape stationary source regulation unless EPA sets a rational course of our choosing.
- Need to articulate which sectors are most ripe for environmental improvement and public health benefits
- Need to negotiate timelines with litigants

Clean Air Act Requirements for Direct Federal Stationary Source Regulation and Guidance

as of March 2009

Section 112 **Air Toxics** National Emissions Standards for Hazardous Air Pollutants (NESHAP) Post-1990 NESHAP called maximum achievable control technology (MACT) standards	**Source category list review**	Every 8 years
	MACT	
	Pre-1990 NESHAP reviews (11 rules)	Every 8 years
	MACT technology review (96 rules)	Every 8 years
	MACT residual risk review (96 rules)	8 years after promulgation
	Area source rules (70 source categories)	Varies
	Area source rules review (70 technology, 12 residual risk)	Every 8 years
Section 129 **Solid Waste Incineration**	**NSPS & Emissions Guidelines**	
	Technology reviews (5 rules)	Every 5 years
	Residual risk reviews	8 years after promulgation
Section 111 **NSPS** New Source Performance Standards	**NSPS technology review** (68 rules)	Every 8 years
	Control Techniques Guidelines (CTG)/ Alternative Control Techniques (ACT)	Varies

Summary of Regulations By Industry Group

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

Why Pursue a Sector Strategy?

MANAGEMENT

Concentrates efforts on biggest reductions

Helps states toward attainment goals

Synchronizes schedules

Reduces litigation and addresses backlog

Meets Clean Air Act obligations

SCIENCE AND ANALYSIS

Eliminates redundancy

Evaluates whole facility and interaction of pollutants and processes

Quantifies co-benefits

Gathers more comprehensive emissions data

COSTS

Lowers administrative costs for federal, state and local governments

Avoids stranded costs in capital equipment for industry

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

Sector Strategy Example

Pulp & Paper

Emission Point	Current Regs
Power Boilers/ Steam Generation	NSPS Db MACT
Chemical Recovery	MACT MM NSPS BB
Washing System (Brn Stock Wash)	MACT S NSPS BB
Digester System	MACT S NSPS BB
Evaporator System	MACT S NSPS BB
Causticizing	MACT S
Bleaching	MACT S
Papermaking	MACT S

Regulatory Actions

NSPS Db tech review

New Boiler MACT

MM Residual Risk and Technology Review

NSPS BB tech review (1978)

S Residual Risk and Technology Review

Sector Approach

Sector Action

Sector Action

Progress Under Way

- Designing comprehensive sector analysis
  - Initial scoping sectors:
    - Petroleum Refineries, Cement, Iron and Steel, Pulp & Paper
  - Prioritize sectors and opportunities
  - Develop work plans
  - Refine tools for holistic analysis
  - Encourage staff buy-in
- Using to inform deadline discussions
- Working to identify issues with long-term goals

Preliminary Sector Priorities

- Electric Utilities
- Boilers and Process Heaters
- Ferrous Metals
- Pulp and Paper
- Petroleum Refineries
- Cement Manufacturing
- Brick Manufacturing
- Non-Ferrous Metals
- Chemical Manufacturing
- Oil and Gas Production and Distribution
- Waste Incineration
- Metal Foundries
- Formulated Products Manufacturing and Use
- Plywood Manufacturing

Moving Forward

- Sector strategy enables holistic air quality management
- Win-win-win-win storyline
  - Sector logic more understandable to public and may achieve better emission reductions
  - Maximize environmental benefits by setting regulatory priorities through collaboration with litigants
  - Synchronized timelines provide some regulatory stability for industry
  - Help federal, state and local governments manage workload and get the most out of limited resources

Cement Case Study

Proposed MACT Emission Limits

	Range of Current Emissions	*Proposed Emissions Limit*[a] Existing Source	New Source
Hg	12 to 3,300 lb/MM tons clinker	43 lb/MM tons clinker (30 day average)	14 lb/MM tons feed (30 day average)
THC (Surrogate for Organic HAP)	<1 to 173 ppmv	7 ppmv for all kilns[b] (30 day average)	6 ppmv for all kilns (30 day average)
PM (Surrogate for nonmercury metal HAP)	0.005 to 0.50 lb/ton clinker	0.085 lb/ton clinker	0.080 lb/ton clinker
HCl	<1 to 75 ppmv	2 ppmv	0.1 ppmv

[a] For Hg, THC, and PM these limits would apply to major and area sources. For HCl these limits only apply to major sources.

[b] We believe this value may be biased low due to lack of data.

Other Requirements and Emissions Reductions

- **Emissions Monitoring – All sources**
  - Continuous monitors for mercury and THC
  - Bag Leak detectors for PM (PM CEMS as an alternative)
  - Continuous monitors for HCl if no wet scrubber
- **Test Methods and Performance Specifications**
  - Reproposing PS-12A and Proposing PS12B for Mercury Monitoring
  - Lowering the detection limit of EPA Method 321
- **Emissions Reductions**
  - Mercury: 11,600 to 16,250 pounds, or a reduction of 81 to 93 percent;
  - Total hydrocarbons: 11,670 to 13,900 tons, or a reduction of 75 percent;
  - Particulate matter: 10,500 to 10,600 tons, or a reduction of 90 to 96 percent;
  - Hydrochloric acid: 2,800 to 3,600 tons, or a reduction of 92 to 94 percent; and
  - Sulfur dioxide: 135,700 to 160,000 a reduction of 77 to 90 percent.

Estimated Costs and Benefits of Proposed Cement NESHAP

Emissions Reductions[a]	Total Annualized Costs (millions of 2005$)	Benefits Ranges[b] (millions of 2005$)
~4750 tpy $PM_{2.5}$ 136,000 to 160,000 tpy SO_2	$222 to $350 (engineering costs) $700[c] (social costs)	$4,000 to $11,000 (620 to 1,600 avoided premature mortalities)

[a] Assumes $PM_{2.5}$ fraction is 45%. Includes emission reductions from existing kilns and assumes 20 new kilns by 2013. Includes emission reductions from controls on HCl, THC, and Hg.

[b] Benefits estimates are for the year 2013.

[c] Includes compliance costs and costs to consumers due to increases in cement prices.

Projected Control Technologies

- Mercury
  - Limestone wet scrubber
  - Activated Carbon injection (includes a second fabric filter for carbon capture)
- THC
  - Activated Carbon Injection (includes a second fabric filter for carbon capture)
  - Regenerative Thermal Oxidizer (requires a wet scrubber upstream for acid gas removal)
- PM
  - Addition of membrane bags
  - Replacement of ESPs with fabric filters
- HCl
  - Limestone wet scrubber