



# The EPA's Proposed Utility MACT Rule

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# Presentation Topics

- Summary of the Proposed Rule
- Background Information on MACT Rules
- Drilling Down Into the Proposed Rule
- Why Would This Rule Kill New Coal?
- Compliance Options for Existing Units
- How is the NSPS Related to the MACT?
- Update on Industrial Boiler MACT

# Presentation Topics

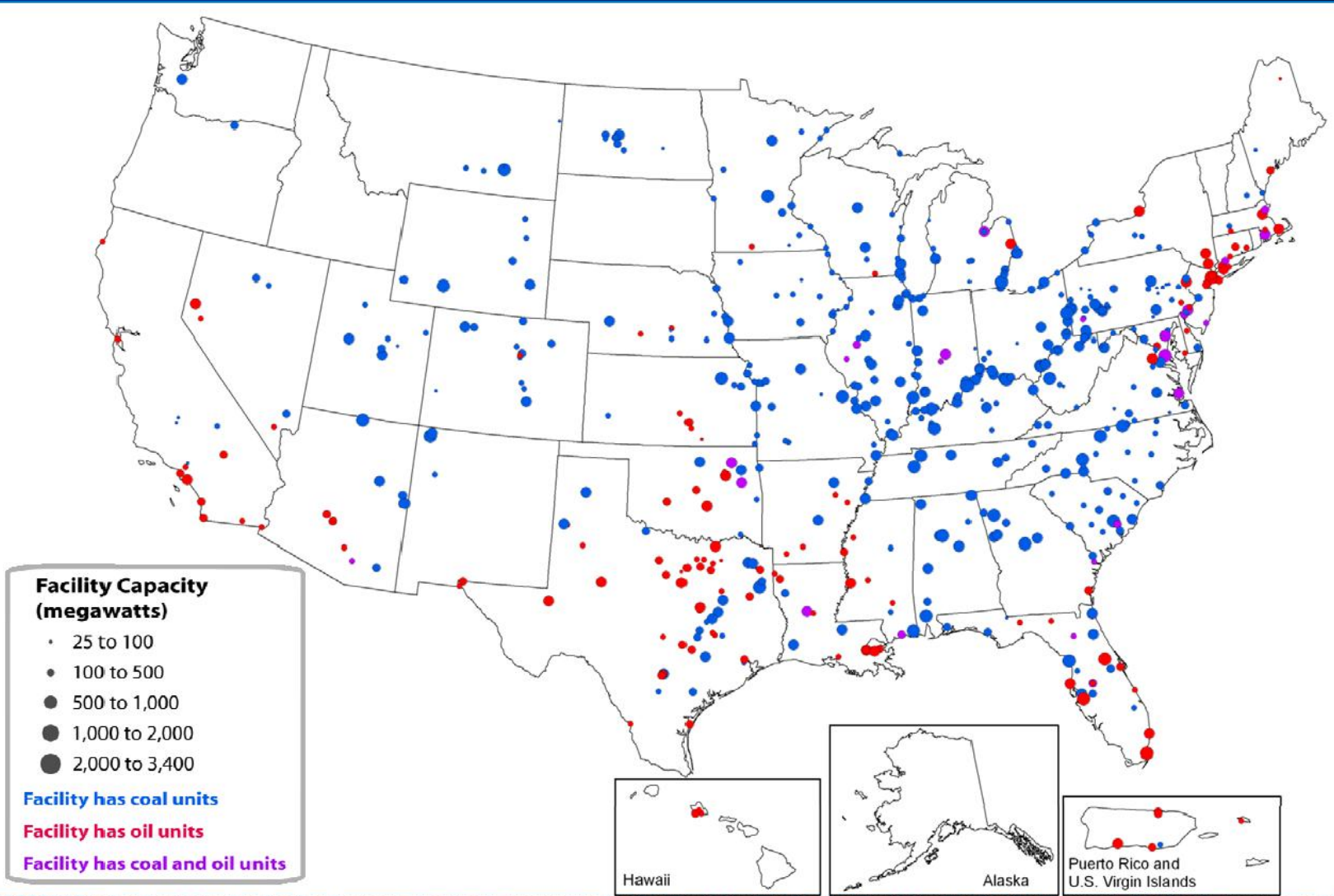
- **Summary of the Proposed Rule**
  - Affected Units
  - Subcategories
  - Pollutants Covered
  - Emission Limits
  - Work Practice Standards
  - Requirements for Continuous Compliance
  - Compliance Dates
  - EPA Projections of Retrofits for Compliance
  - Recommended Action Now

# Affected Units

- Existing Coal-Fired EGUs (approx 1,200)
- Existing Oil-Fired EGUs (approx 150)
- Existing IGCC EGUs (2 units)
  
- New Coal-Fired EGUs
- New Oil-Fired EGUs
- New IGCC EGUs

“New Unit” = commenced construction after the proposed rule was published in the Federal Register (5/3/2011)

# Affected Units



# Subcategories

## Five Subcategories

- Coal-fired Units
  - Units designed to burn lignite
  - Units designed to burn coal other than lignite
  - \* Coal subcategory affects mercury emission limit only
- Oil-fired Units
  - Units firing liquid oil
  - Units firing “solid oil” (i.e., pet coke)
- IGCC Units

# Pollutants Covered

- Acid Gas HAPs
  - HCl or SO<sub>2</sub> Surrogate
- Non-Hg metallic HAPS
  - Total PM surrogate
  - Alternate is to meet Total Metals limit or emission limits for 10 individual metallic HAPs

# Pollutants Covered

- Mercury
- Organic HAPs
  - Work practice standard
- Dioxins / Furans
  - Work practice standard

# Emission Limits for Coal-Fired Units

HAP Type	Non-Mercury Metallic HAP			Acid Gas HAP		Mercury	
	Regulatory Option	Total PM	Total HAP Metals	Individual Metals	HCl Surrogate	SO <sub>2</sub> Surrogate	See Notes
Existing Units	0.030 lb/MMBtu  0.30 lb/MWh	0.000040 lb/MMBtu  0.00040 lb/MWh	See Next Slide	0.0020 lb/MMBtu  0.020 lb/MWh	0.20 lb/MMBtu  2.0 lb/MWh	1.0 lb/TBtu	a
						0.008 lb/GWh	
New Units	0.050 lb/MWh	0.000040 lb/MWh	See Next Slide	0.30 lb/GWh	0.40 lb/MWh	4.0 lb/TBtu	b
						0.040 lb/GWh	
New Units	0.050 lb/MWh	0.000040 lb/MWh	See Next Slide	0.30 lb/GWh	0.40 lb/MWh	0.000010 lb/GWh	a
						0.040 lb/GWh	b

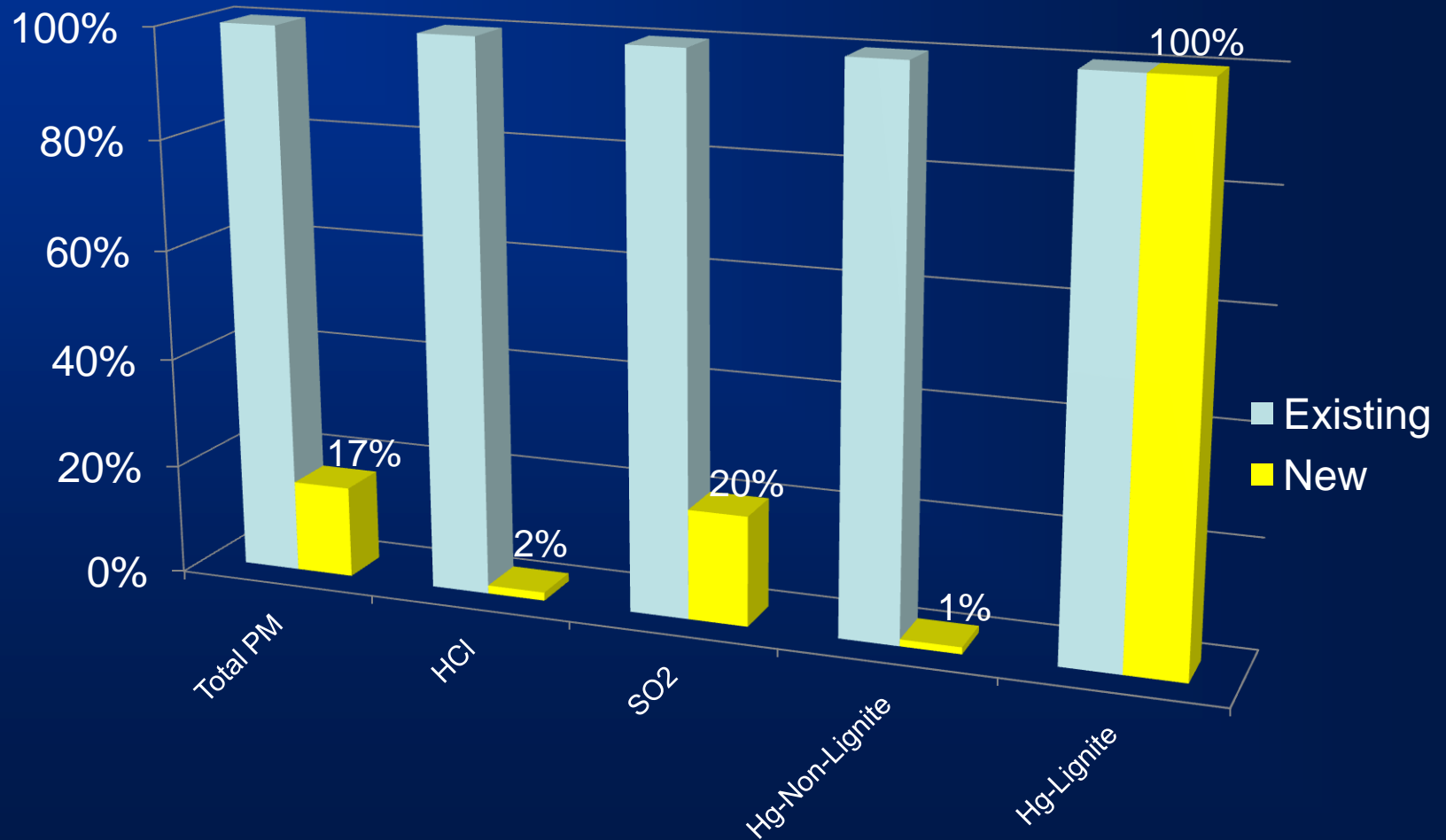
Notes: a. For units designed to burn coals other than lignite  
b. For units designed to burn lignite

# Individual Metals Limits

<b>HAP Metal</b>	<b>Existing Units</b>		<b>New Units</b>	<b>New/Exist Ratio</b>
	<b>lb/TBtu</b>	<b>lb/GWh</b>	<b>lb/GWh</b>	
Antimony	0.60	0.0060	0.000080	0.0133
Arsenic	2.0	0.020	0.00020	0.01
Beryllium	0.20	0.0020	0.000030	0.015
Cadmium	0.30	0.0030	0.00040	0.133
Chromium	3.0	0.030	0.020	0.667
Cobalt	0.80	0.0080	0.00080	0.1
Lead	2.0	0.020	0.00090	0.045
Manganese	5.0	0.050	0.0040	0.08
Nickel	4.0	0.040	0.0040	0.1
Selenium	6.0	0.060	0.030	0.5

# Comparison of Existing vs. New

Basis: Existing Unit Limit = 100%



# Work Practice Standards

- No emission limits were proposed for organic HAPs or Dioxins / Furans
- Instead, a “work practice standard” was proposed that would require inspection of every burner on every EGU boiler in the U.S. every 18 months

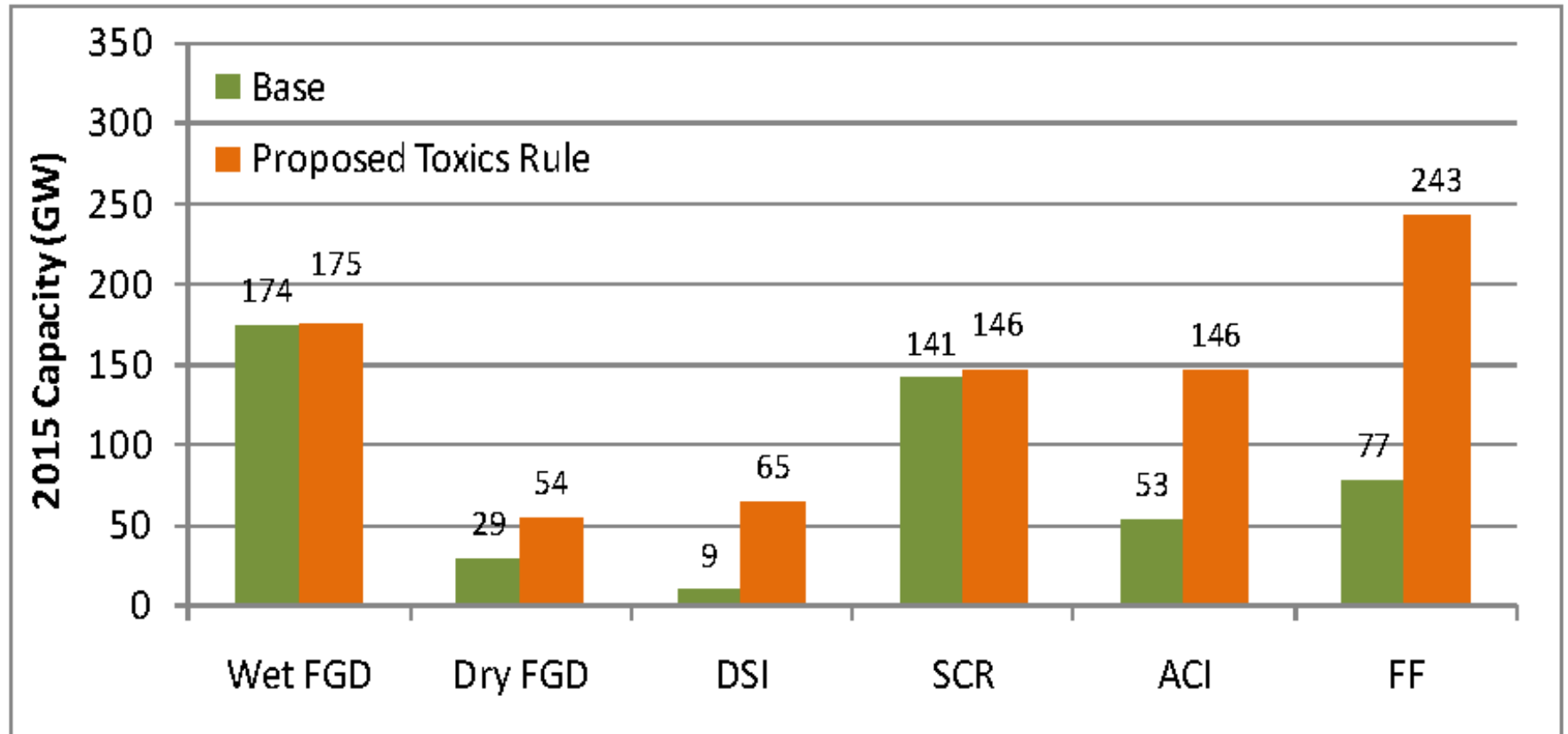
# Continuous Compliance

- Emission limits apply at all times
- Emission limits are all 30-day rolling average
- Continuous compliance must be maintained as demonstrated by:
  - CEMS for HCl or SO<sub>2</sub>
  - CEMS for PM
  - CEMS or “carbon trap testing” for Hg
- Continuous compliance must also be demonstrated by process monitoring

# Compliance Dates

- Compliance is required three years after the date of publication of the final rule in the Federal Register
  - Publication should occur by the end of 2011
- A one-year extension may be granted by the state agency
  - EPA expects the agencies to grant request for the extension
- Due diligence is recommended

# EPA Compliance Projections



# Recommended Actions Now

- Comment on the proposed rule  
<http://www.epa.gov/oar/docket.html>  
Docket ID No. EPA-HQ-OAR-2009-0234
- Conduct emissions tests
- Plan for compliance
- Document all compliance planning efforts

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# Background Information on MACT

## Mercury regulation timeline

- December 2000: • EPA determines that EGUs should be included in the CAA Sec. 112 source category list
- March 2005: • Delisting Rule promulgated
- May 2005: • CAMR promulgated
- February 2008: • CAMR and Delisting Rule vacated by Courts

- MACT is required by law
  - EPA is simply implementing what Congress added to the Clean Air Act in 1990
  - The designation of coal-fired utility boilers as a HAP source category in December 2000 made a Utility MACT inevitable

- MACT is required by law (cont.)
  - EPA is strictly following the letter of the law in the way it developed the MACT limits
    - Existing Unit limits based on “top 12%” of all units
    - New Unit limits based on “best performing similar source”

- Court rulings dictate what MACT includes:
  - Emissions limits for ALL HAPS
  - Coverage of startup and shutdown

- Room for a challenge?
  - EPA used a “Franken-MACT” approach
    - Best performing HCl source set HCl limit
    - Best performing Total PM source set Total PM limit
    - Best performing Hg source set Hg limit
  - Can any source out there meet all 3 limits?
  - EPA’s approach may be rejected by the court

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# Presentation Topics

- **Drilling Down Into the Proposed Rule**
  - Performance Testing Requirements
  - Establishment and Use of Operating Limits
  - Requirements for Continuous Compliance

## Performance testing required for:

- Verification of compliance with emission limit
- Establishment of operating limit values, e.g.:
  - Wet FGD pH and liquid flow minimum values
  - ESP power level minimum values

## Frequency of Performance Testing

- Every 5 years if controls and CEMS used
- Every year if no control or no CEMS
- Every 2 months if Total Metals option selected

## Compliance with Total PM limit

- Must be demonstrated during the initial performance test
  - EPA Method 5 and Method 202
- PM CEMS data values measured during performance test set operating limit
  - Maximum PM CEMS 1-hr value during test may not be exceeded as a 30-day average during operation

# Operating Limits

- Process operating data measured during performance test sets parameter limits
  - Operating values (12-hr block average) must not drop below 90% of average values measured during the performance test
  - Example: pH and flow values; ESP power levels

## Process Monitoring Examples

### Control Equipment Type

- Fabric Filter (Baghouse)
- Wet Scrubber
- Dry Scrubber
- Electrostatic Precipitator
- Activated Carbon Injection

### Process Monitoring Required

- Bag leak detection
- pH and liquid flow
- Sorbent feed rate
- Secondary power input
- Carbon feed rate

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# Why the Rule Kills New Coal

- Emission limits for New Units are very low
- HCl and Hg limits especially cannot be met by even the cleanest existing units
- Example: Iatan Unit 2 would have failed to meet the HCl and Hg limits by a wide margin

# Why the Rule Kills New Coal

- Vendors will NOT offer guarantees to cover these extremely low emission limits
- Without vendor guarantees, no project will be able to obtain financing

**Result = NO new coal with rule as proposed**

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## Non-Hg Metallic HAPs (Total PM surrogate)

- The “filterable plus condensable” aspect of the proposed emission limit is problematic
  - Some units with very low filterable PM could still fail to meet this 0.03 lb/MMBtu Total PM limit
  - DSI for SO<sub>3</sub> control may be needed

## Non-Hg Metallic HAPs (Total PM surrogate)

- The “30-day rolling average” aspect of the rule is problematic
  - ESPs typically do not work well (or at all) during startup.
  - This may drive us to baghouses for compliance

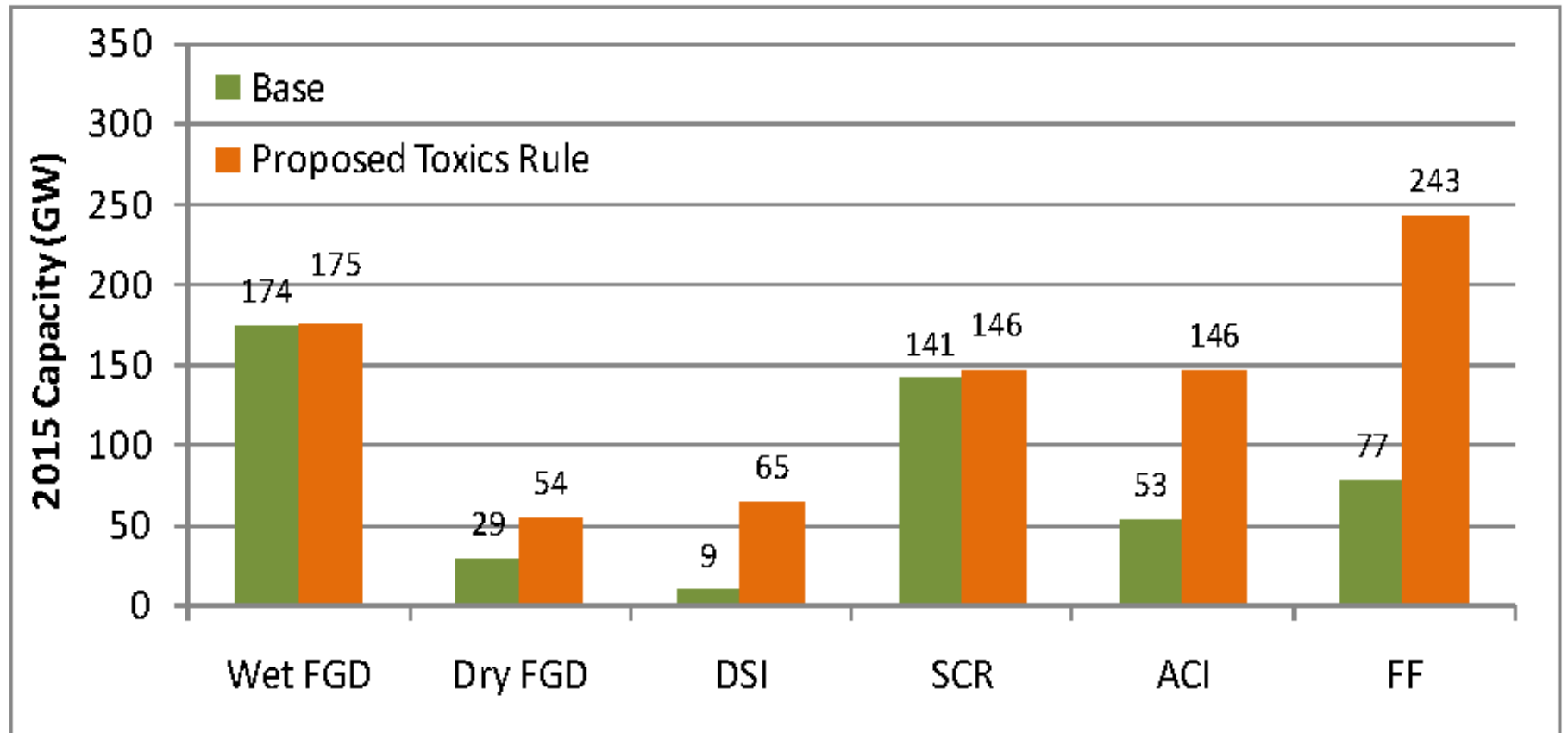
## HCl

- Many PRB coal-fired units may already be in compliance with the proposed limit
- Testing is highly recommended
- DSI may be an option for “polishing” control

## Mercury

- Co-benefit control by FGD/FF
- ACI

# EPA Compliance Projections



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# How is NSPS Related to MACT?

- EPA's proposed "Toxics Rule" actually consists of two separate but coincident rulemakings
  - MACT
  - NSPS revisions in response to Court remand (76 FR 25059 - 25073) & (76 FR 25091 - 25101)
- These rules are **NOT RELATED**

# How is NSPS Related to MACT?

- EPA has allowed its work on the NSPS revisions to influence how it proposed the Utility MACT
- The Court mandated that the NSPS must include a limit for condensable PM
- EPA's response was to propose an NSPS for "filterable plus condensable" PM
- This is one reason why the PM surrogate for Non-Hg metallic HAPs was proposed as Total PM (filterable + condensable)

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# Industrial Boiler MACT Update

## Timeline

- 2/21/11
- 4/14/11
- 5/18/11
- Rule finalized
- Notice of Reconsideration
- 1<sup>st</sup> lawsuit filed (US Sugar Corp)
- Stay of final rule issued
- Compliance dates do not apply until rule has been reconsidered (judicial or EPA review)
- EPA is seeking more public comment

# Questions?

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