



Clean Air Act Update MATS (and CSAPR)

*Brian Higgins
Nalco Mobotec*

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MATS and CSAPR

- **Power Plant Mercury and Air Toxics Standards**
 - MATS - “Utility MACT”
 - Final Rule in Federal Register on February 16th, 2012

- **Cross-State Air Pollution Rule (CSAPR)**
 - was CAIR, then CATR
 - Final July 2011
 - Court “Stay” on December 30, 2011

Other Looming Environmental Drivers

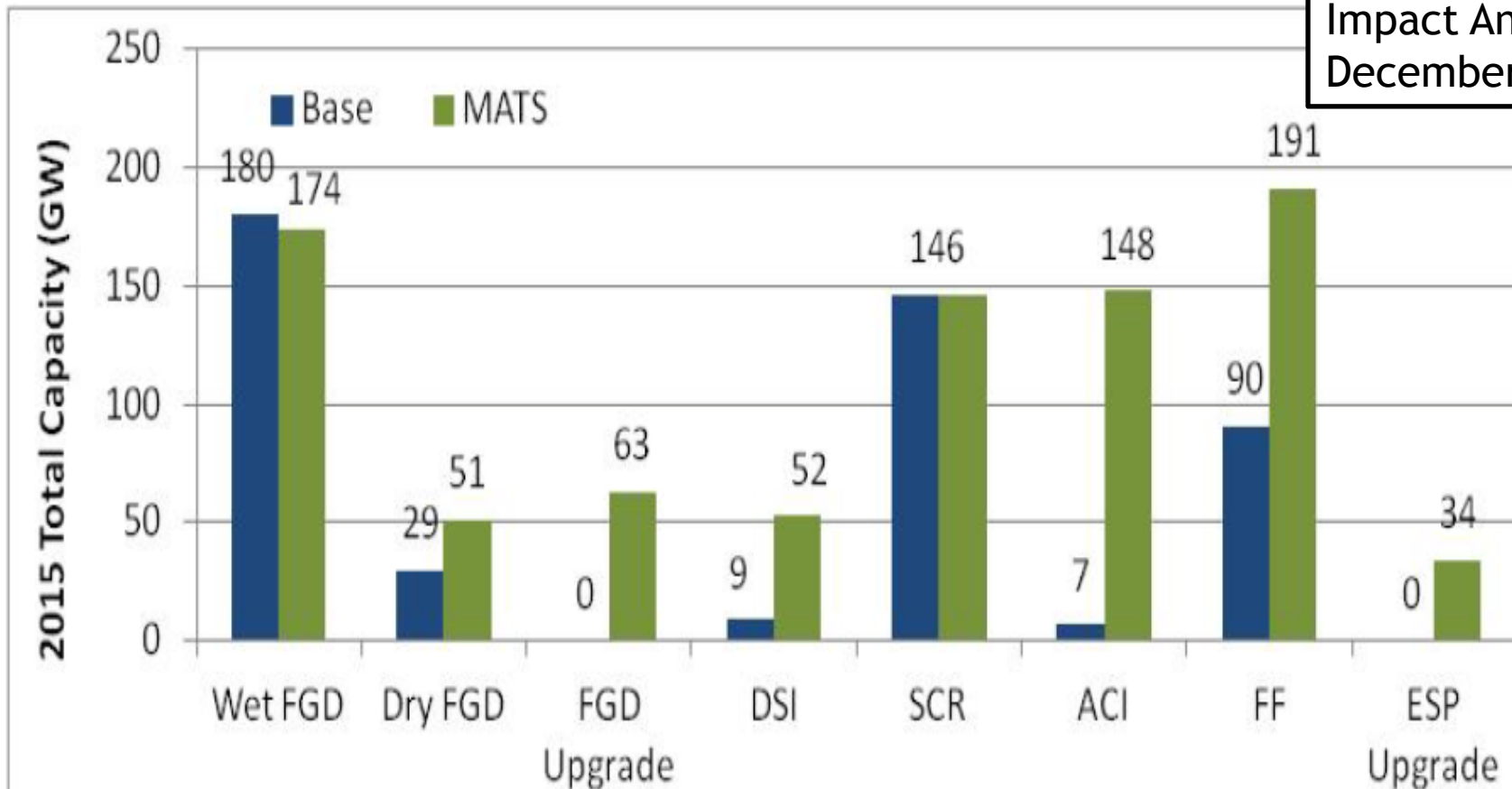
- SO₂ NAAQS (Attainment by 2017 - w/3 yrs of measurements?)
- Industrial Boiler MACT (currently stayed)
- Coal Combustion Residuals (CCRs or ash) (final rule in 2012)
- Cooling Water Intake Structures (final rule in 2012)
- GHG NSPS (expected in 2012)
- Ozone and PM NAAQS (currently delayed until 2013)
- Title V Operating Permit Renewals
- Consent Decrees

MATS Changes from the Proposed Rule

- EPA:
- Approach and methodology remained the same
- HCl, Hg, and PM limits mostly unchanged
- PM measurement changed and is now only “filterable”
 - EPA dropped condensable portion, citing selenium is controlled by acid gas limits
- More specific coal subcategory
 - Mine-mouth lignite → low-rank virgin coal
- Sub categories for oil units
 - Non-continental (better defined) and added limited use
- Work practice standards during start up and shut down
 - Controversial in that it might not match actual SS practices
 - Startup has to use natural gas or distillate oil
- Longer Hg averaging (90 days) with a lower limit (1 lb/TBtu)
- Adjustments for New Source Standards

EPA's Expected MATS Impact

EPA Regulatory
Impact Analysis
December 2011



EPA Projected MATS Mercury Reduction

EPA Regulatory
Impact Analysis
December 2011

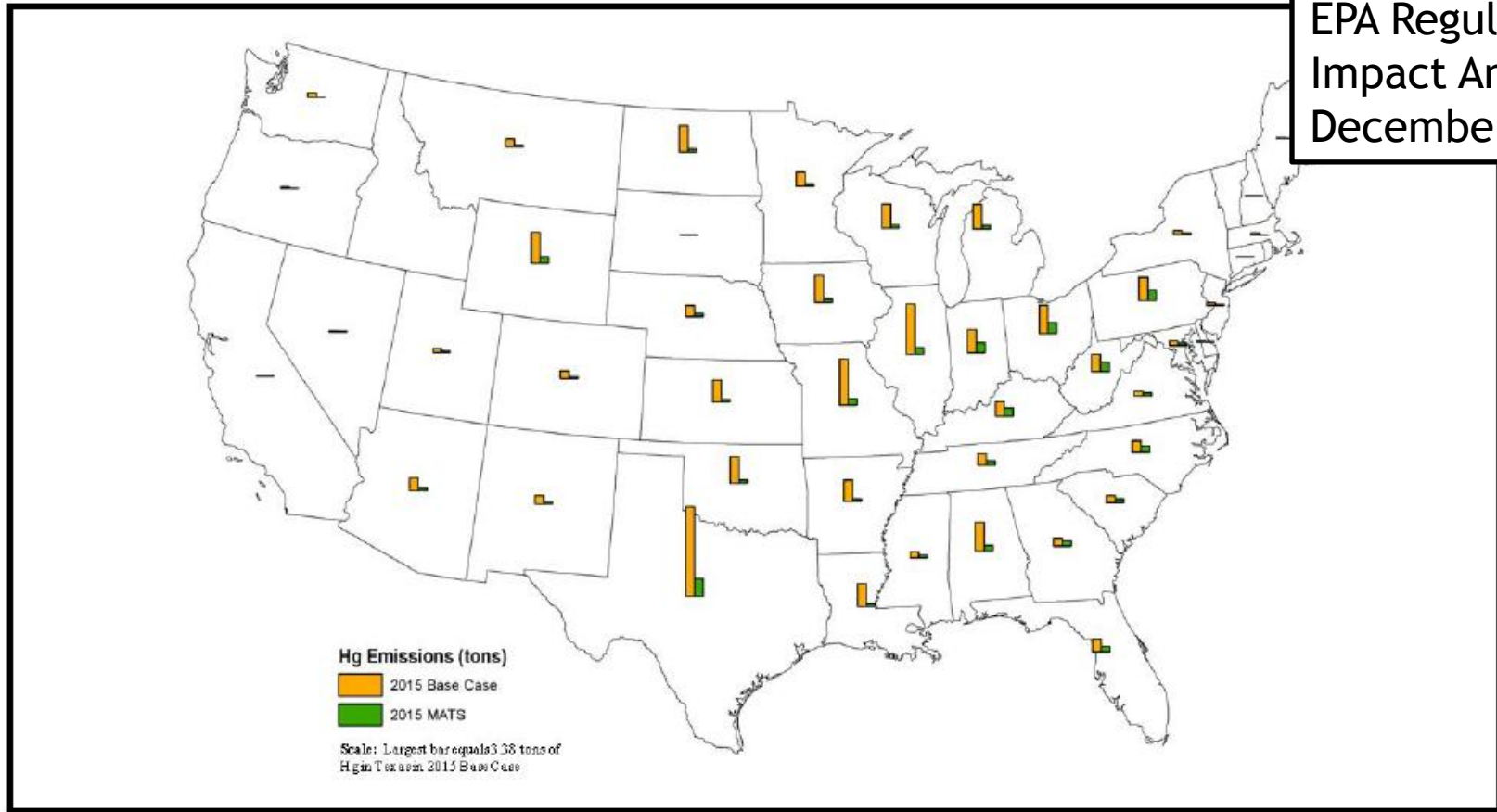


Figure 3-4. Mercury Emissions from the Power Sector in 2015 with and without MATS

EPA Projected MATS HCl Reduction

EPA Regulatory
Impact Analysis
December 2011

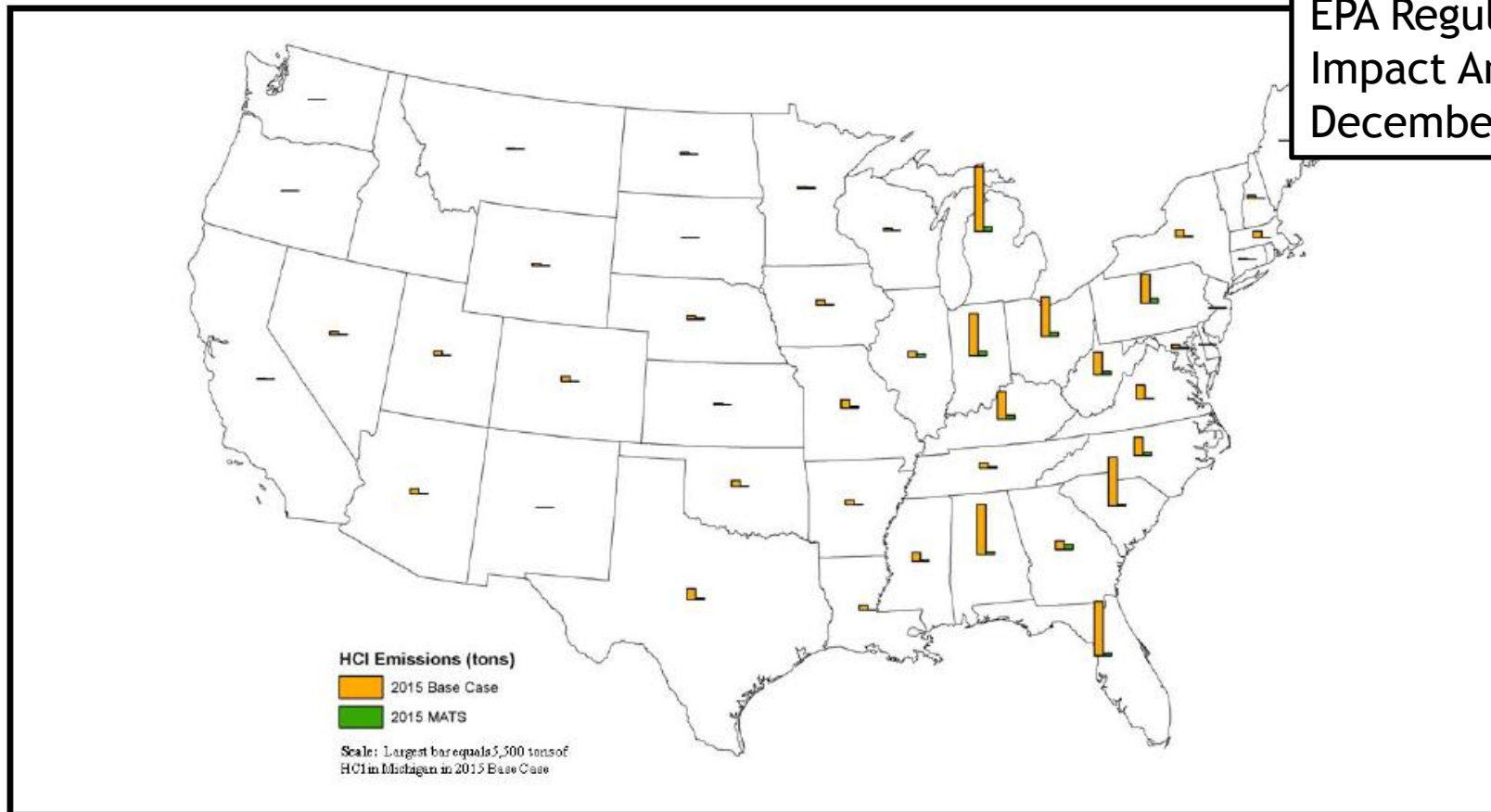
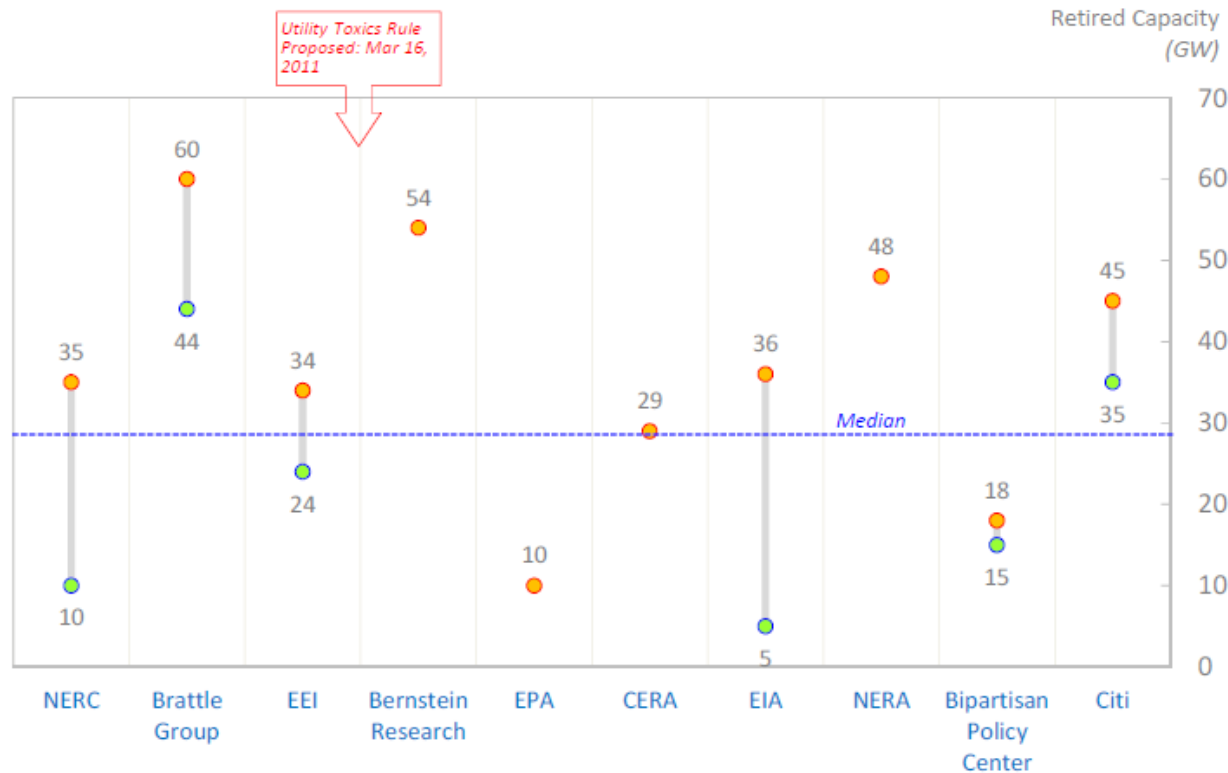


Figure 3-5. Hydrogen Chloride Emissions from the Power Sector in 2015 with and without MATS

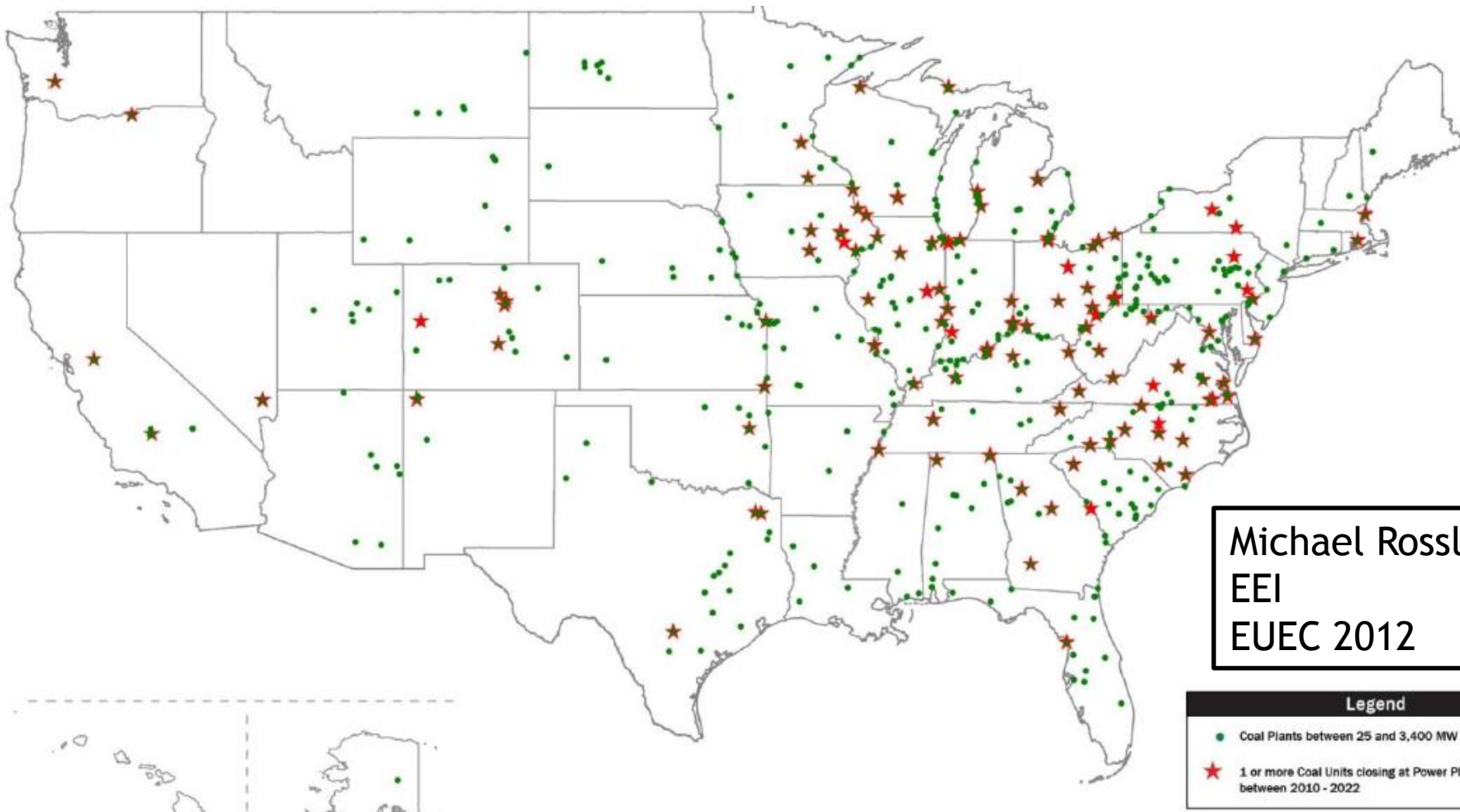
Retirement Predictions Leading to Reliability Concerns

Amlan Saha
MJB&A
EUEC 2012



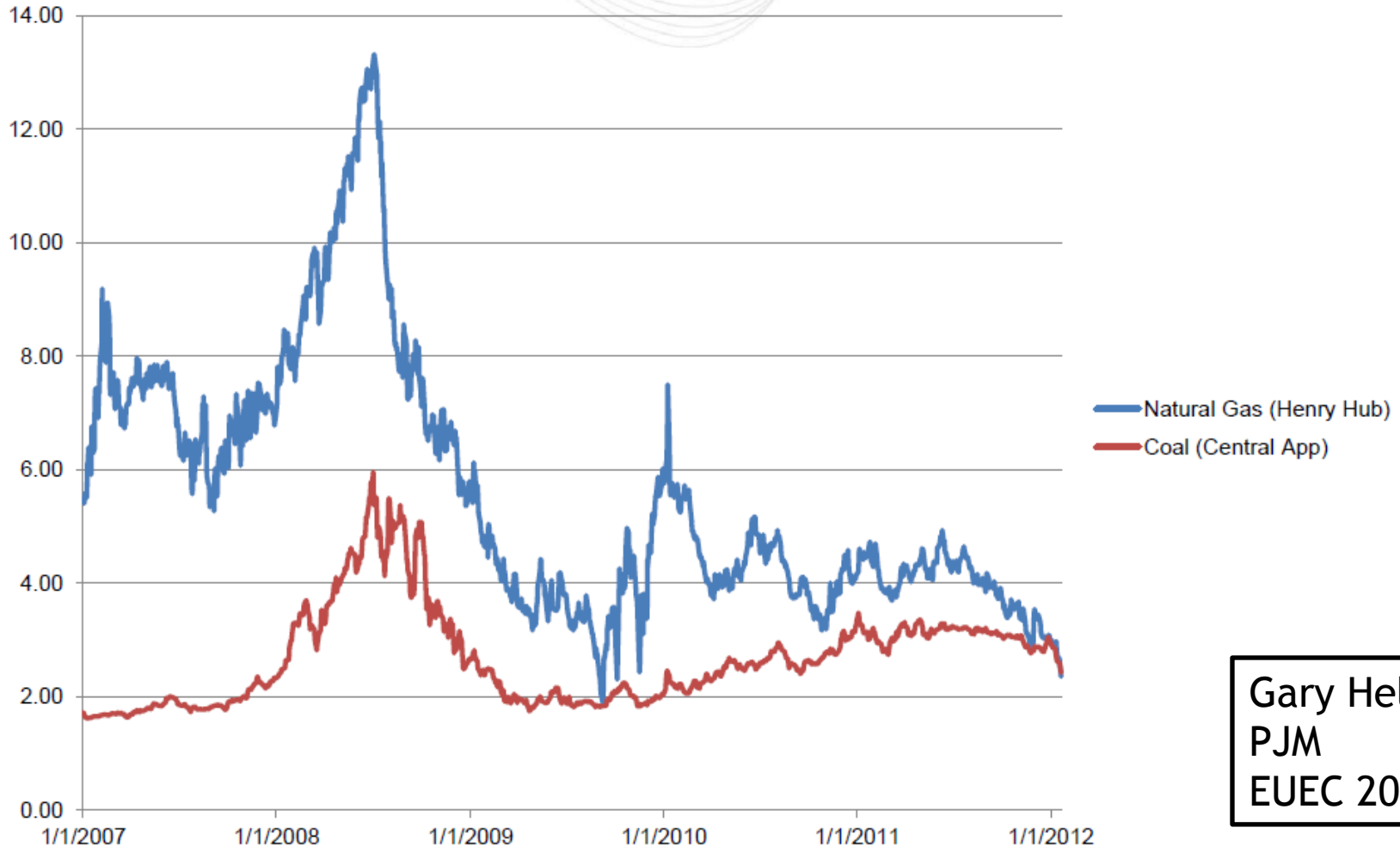
Date Released	Oct 2010	Dec 2010	Jan 2011	Mar 2011	Mar 2011	Apr 2011	Apr 2011	May 2011	Jun 2011	Jul 2011
Regulations Considered	Air, Water, Ash	Air, Water	Air, Water, Ash	Air	Air (Toxics Only)	Air, Water	Air	Air	Air, Water, Ash	Air, Water, Ash
Baseline Exclusions	13 GW of announced retirements (may include non-coal units)	6 GW of retirements	22 GW of retirements	12 GW projected to retire due to "unit age"	13 GW of retirements	Figure indicated above is the assumed total	9 GW of retirements	5 GW of retirements	14-17 GW of retirements	Figure indicated above is the assumed total

EI Projected Plant Closures



\$2/MMBtu Natural Gas - Will it stay?

Natural Gas vs Coal Prices (\$/mmbtu)



Gary Helm
PJM
EUEC 2012

Timing

- EPA expects most facilities will comply with this rule through a range of strategies, including the use of existing emission controls, upgrades to existing emission controls, installation of new pollution controls, and fuel switching.
- Existing sources generally will have up to 4 years if they need it to comply with MATS.
 - This includes the 3 years provided to all sources by the Clean Air Act. EPA's analysis continues to demonstrate that this will be sufficient time for most, if not all, sources to comply.
 - Under the Clean Air Act, state permitting authorities can also grant an additional year as needed for technology installation. EPA expects this option to be broadly available.
- EPA is also providing a clear pathway for reliability critical units to obtain a schedule with up to an additional year to achieve compliance. This pathway is described in a separate enforcement policy document. The EPA believes there will be few, if any situations, in which this pathway will be needed.
 - **Still in violation → Can NGOs sue?**

Coal Limits

- Proposed Limits:
 - PM 0.030 lb/MMBtu (total PM) - 0.30 lb/MWh
 - Includes only filterable pm
 - Will won't be as hard for ESPs to get there
 - Doesn't preclude SO₃ injection for ash resistivity improvements
 - HCl 0.002 lb/MMBtu - 0.02 lb/MWh
 - ~1.4 ppm @ 6% O₂ wet
 - DSI where there isn't already WFGD/DFGD
 - Some DFGD expected
 - Hg 1.2 lb/TBtu - 0.013 lb/GWh
 - Hg 4.0 lb/TBtu - 0.04 lb/GWh (low rank virgin coal)
 - Fuel and backend dependent (equipment & temperature)
 - CO and D/F
 - Work Practice Standards every 3 to 4 years

Continental Liquid Oil Limits

- Proposed limits (liquid oil) - different from solid fuel
 - Metals Changed to PM
 - Can still do a direct metal measurement
 - PM 0.030 lb/MMBtu - 0.30 lb/MWh
 - Filterable only
 - HCl 0.002 lb/MMBtu - 0.01 lb/MWh
 - ~1.3 ppm @ 6% O₂ wet
 - Fuel moisture measurement requirement
 - HF 0.0004 lb/MMBtu - 0.004 lb/MWh
 - Organic HAP (CO and D/F)
 - Work Practice Standards (GCP - Good Combustion Practice)
- Will DSI be used for oil-fired units?
 - PM capture device issues...

Biomass is not in Utility MACT

- Coal fired if
 - > 10% coal per year heat input for 3 years, or
 - > 15% coal heat input for one year
- Utility MACT only covers “Fossil Fuel Fired”
- Biomass is not regulated under Utility MACT
 - Biomass EGUs fall under Boiler MACT

Startup and Shutdown

- Startup means either the first-ever firing of fuel in a boiler for the purpose of producing electricity, or the firing of fuel in a boiler after a shutdown event for any purpose. Startup ends when any of the steam from the boiler is used to generate electricity for sale over the grid or for any other purpose (including on site use).
- Shutdown means the cessation of operation of a boiler for any purpose. Shutdown begins either when none of the steam from the boiler is used to generate electricity for sale over the grid or for any other purpose (including on-site use) or at the point of no fuel being fired in the boiler, whichever is earlier. Shutdown ends when there is both no electricity being generated and no fuel being fired in the boiler.
- Perhaps an issue with “generation of electricity” happening before the boiler is stable.

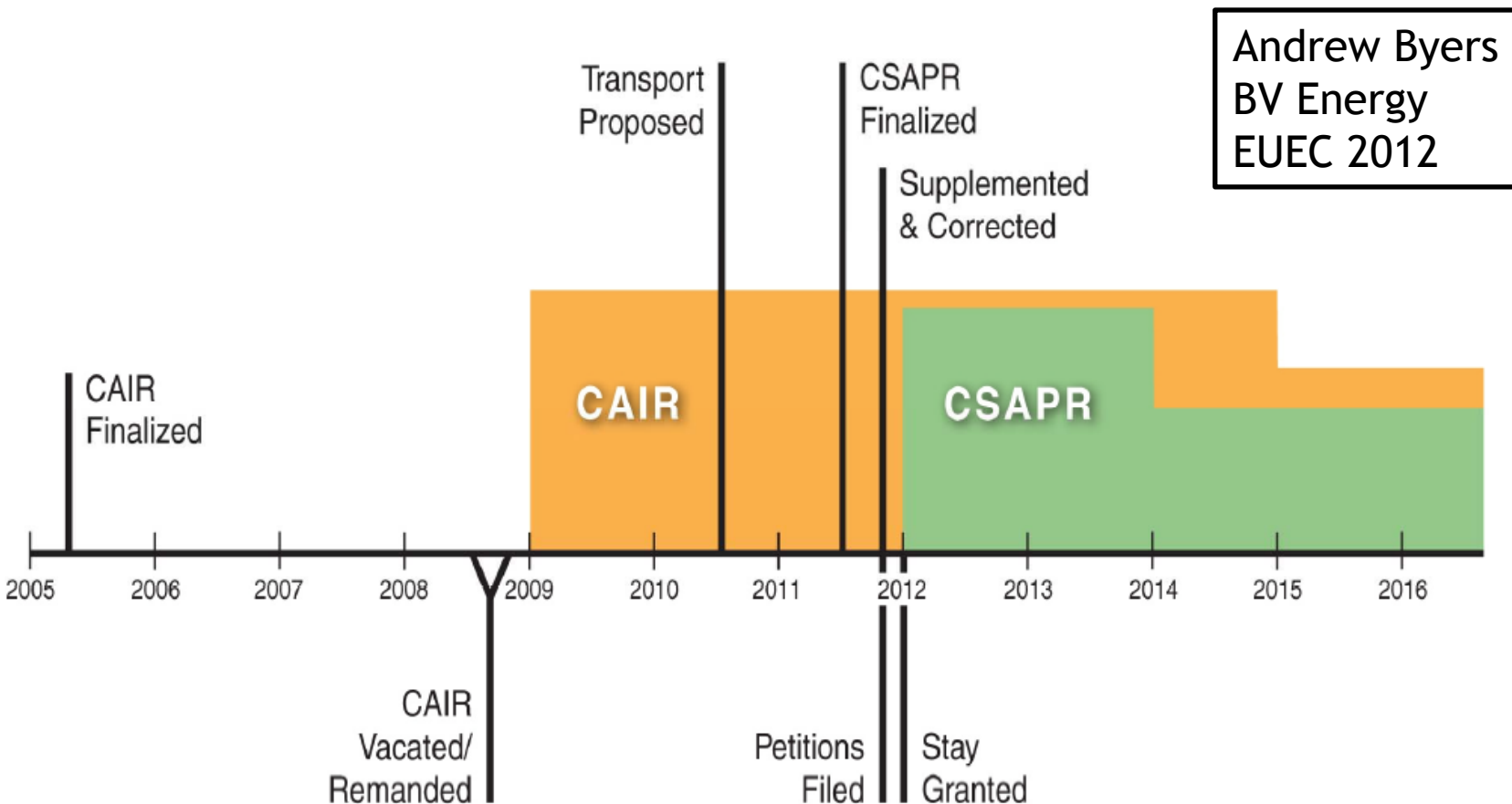
Malfunction “Affirmative Defense”

- Defined as: “sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment or a process to operate in a normal or usual manner...”
- Emissions during malfunction are not regulated
- Each Malfunction needs to be documented and reported to EPA
- The EPA will determine an appropriate response based on:
 - Good faith efforts to reduce the likelihood of malfunction
 - Root cause analyses to ascertain and rectify excess emissions
 - Was it, in fact, “sudden, infrequent, not reasonably preventable”?
 - OR was it “caused in part by poor maintenance or careless operation”?
- EPA is proposing an affirmative defense to civil penalties for exceedances of emission limits that are caused by malfunctions

CSAPR

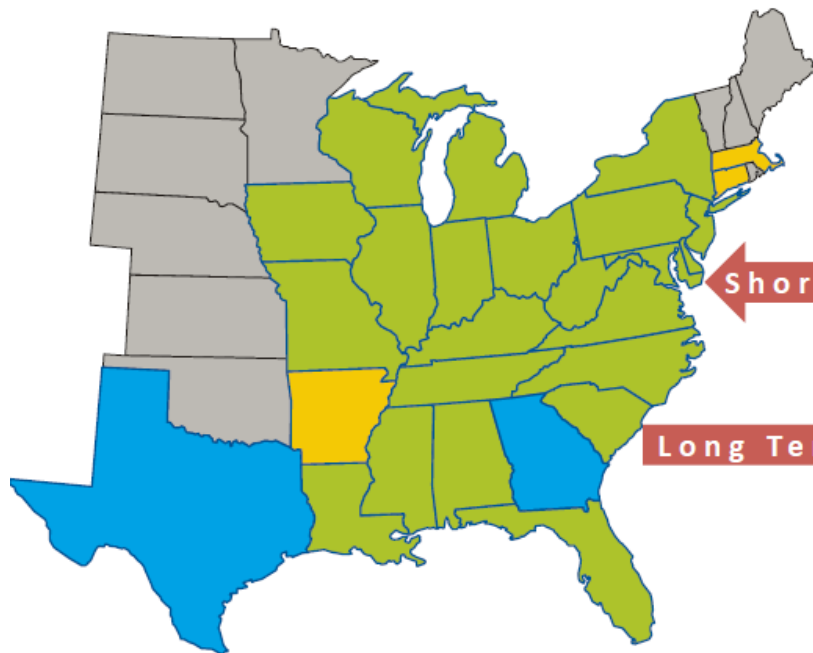
- A couple of words about coordinating with CSAPR
- Final CSAPR Signed on Wednesday July 6, 2011
- Court Stay on December 30, 2011
 - Both sides claim victory
- Currently reverted back to CAIR
- Reduce NO_x and SO_x with intrastate cap-and-trade
 - To reduce “fine particles (PM_{2.5})” and “ozone” (NAAQS)
- ISSUE: MATS requires acid reduction at the same time
 - MATS might crash the SO₂ credit market for CSAPR

CAIR versus CSAPR

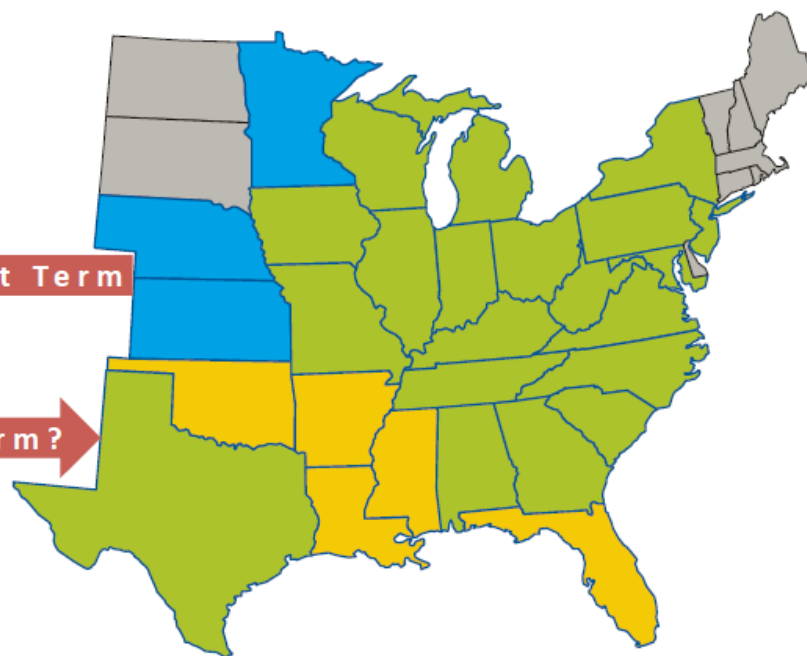


CAIR versus CSAPR

CAIR






CSAPR



Short Term

Long Term?

-  Annual SO₂/NO_x and Ozone Season NO_x
-  Annual SO₂/NO_x
-  Ozone Season NO_x

Andrew Byers
BV Energy
EUEC 2012

Thank You

bhiggins@NalcoMobotec.com

(415) 370-0921