

Environmental Regulatory Update

Entergy Arkansas, Inc. Integrated Resource Plan Stakeholder Committee Meeting

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I. EAI's Environmental Stewardship

II. Overview of EPA rules –status and next steps

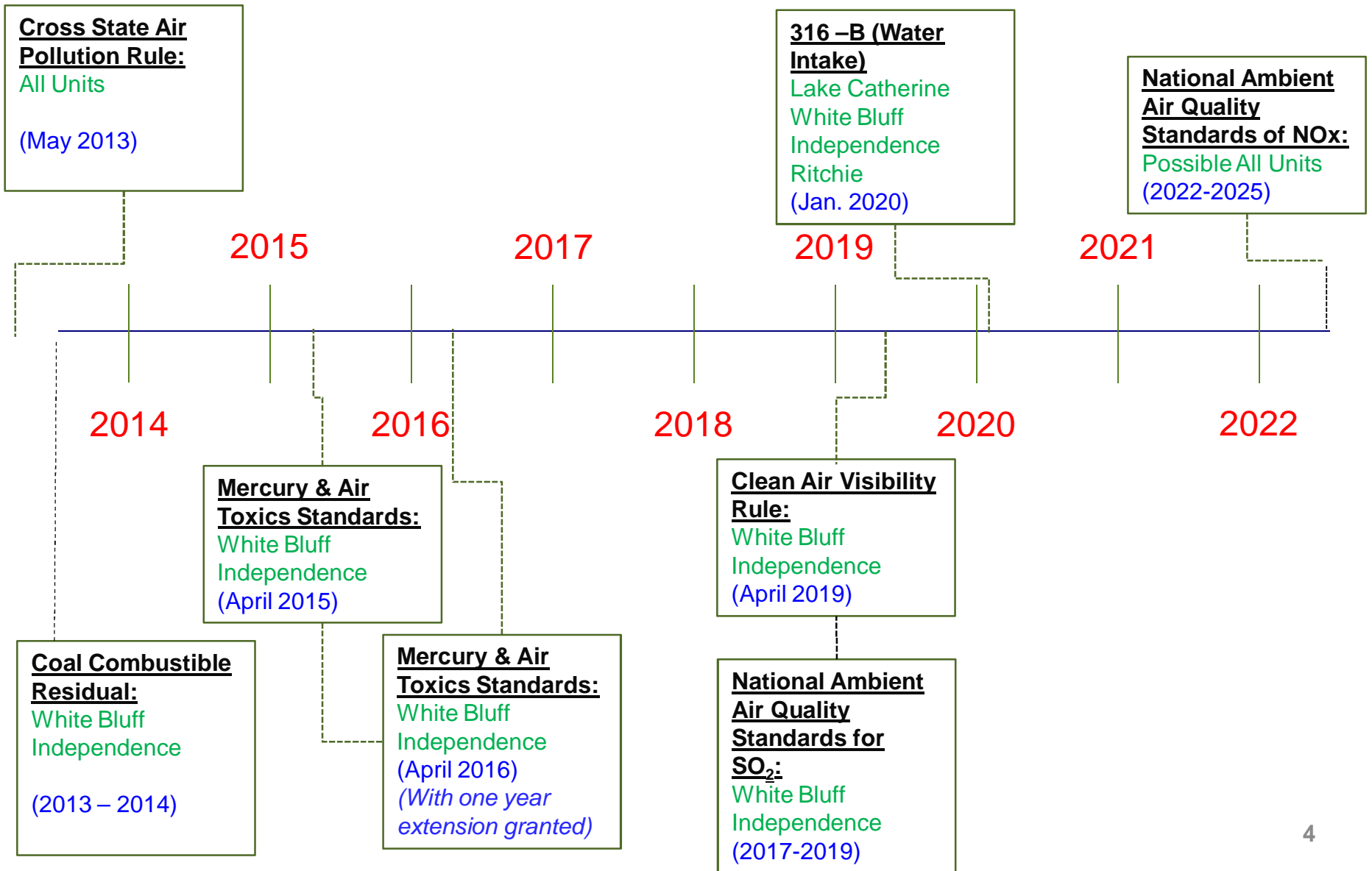
- **Cross-State Air Pollution Rule**
- **Mercury and Air Toxics Standards**
- **Regional Haze**
- **NAAQS**
- **316(b)**
- **Coal ash**
- **GHGs**

III. Implications

EAI's Environmental Stewardship

- For the 10th straight year, Entergy has been recognized as a leader in sustainability by the Dow Jones Sustainability Index (DJSI). DJSI North America evaluates the largest North American companies based on long-term economic, environmental and social criteria. Entergy was one of only 13 U.S. utilities included on that list.
- Entergy's environmental strategy includes our third voluntary greenhouse gas commitment through 2020, which represents 20 years of continuous greenhouse gas emission stabilization.

Anticipated Timeline for Compliance with Environmental Regulations



Cross-State Air Pollution Rule (CSAPR)

- Final rule published in Federal Register August 8, 2011
 - Scheduled to go into effect January 1, 2012
 - Affected power companies in 28 states
 - Established emission budgets for NO_x and/or SO₂
 - Limits allowance trading

Reaction to Final CSAPR

- 45 entities filed petitions for reconsideration with EPA
- Negotiations with EPA resulting in proposed modification to final rule in October 2011
- 19 Parties petitioned for a stay of the rule on October 26, 2011
- The court stayed CSAPR on December 30, 2011
- EPA required to reinstate CAIR pending resolution of CSAPR litigation
- Court activities/litigation
 - Parties submitted proposed briefing to the court by January 17, 2012
 - Oral arguments held April 2012
 - Should have court decision soon

EPA Remains Committed to CSAPR

- February 6, 2012, EPA revised 2012 and 2014 State emission budgets and delayed until 2014 implementation of CSAPR's assurance penalty provisions (limited trading)
- May 30, 2012, EPA issued a Final Rule that allows states to use their participation in CSAPR's trading program to satisfy regional haze requirements (RHR)
 - SIPs implementing CSAPR can be used as a substitute for source-specific BART. SIPs relying on CAIR were disapproved
 - EPA determined that participation by power plants in CSAPR's trading programs achieves greater "reasonable progress" in improving visibility than BART
 - CSAPR = BART for NO_x and SO₂ in annual program
 - CSAPR = BART for NO_x in seasonal program
- June 12, 2012, EPA published in the Federal Register its final rule, again revising the CSAPR emission budgets
 - The final rule is effective on August 13, 2012

Mercury and Air Toxics Standard (MATS)

- Proposed rule published in Federal Register May 3, 2011 to reduce hazardous air pollutants from EGUs

- Affects approximately 1,350 EGUs at 525 facilities
 - Approximately 1,200 coal-fired boilers at approximately 450 facilities
 - Approximately 150 oil-fired boilers at approximately 75 facilities

- February 16, 2012, EPA finalized the Mercury and Air Toxics Standards (MATS) for power plants and published its final rule establishing national emissions standards for hazardous air pollutants and new source performance standards for coal- and oil-fired power plants

- Compliance with MATS requirements starts April 16, 2015, with two possible one year extensions

MATS Compliance Requirements

Implementation

- 3 years to comply, with possible one year extension granted by permitting authority (State);
- 4th year extension applies to staggering of controls for reliability, permitting, labor or resource availability constraints; may apply to construction of replacement generation
- 5th year extension may be granted through administrative orders if necessary for a specific documented reliability concern

Coal Unit Standards High Rank Coal

- Mercury; 1.2 lb/Tbtu or 0.013 lb/GWh
- Non-mercury metallic emissions; 0.030 lbs/MMBtu or 0.30 lb/MWh (filterable PM)
- Acid gases; 0.0020 lb/MMBtu or 0.02 lb/MWh HCl
- Organic HAPs; work practice standards

Oil-fired Unit Standards

- Created limited use category for oil fired units with an annual CF < 8% on oil over each two year period after the compliance date
- Standards for HAPs metals, acid gases (HCl and HF) and Organic HAPs

MATS Impacts on Unscrubbed Coal Units

Mercury Controls

- **Install Activated carbon injection**
- **Install mercury CEMs or sorbent trap**

Acid Gases Controls

- **Possible installation of Dry Sorbent Injection**
- **Install HCl CEMs or conduct quarterly stack tests**

Non-mercury Metallic HAPS (PM standards)

- **Possible Installation of fabric filter bag houses or possible ESP upgrades**
- **Install PM CEMs or conduct quarterly stack tests**

Organic HAPS

- **Perform efficiency tune up of combustion unit**

Regional Haze Rule

The Regional Haze Rule require eligible units that contribute to the visibility degradation of a Class I area (national park or national scenic area) to install controls to reduce emissions of NO_x, SO₂, and particulate matter.

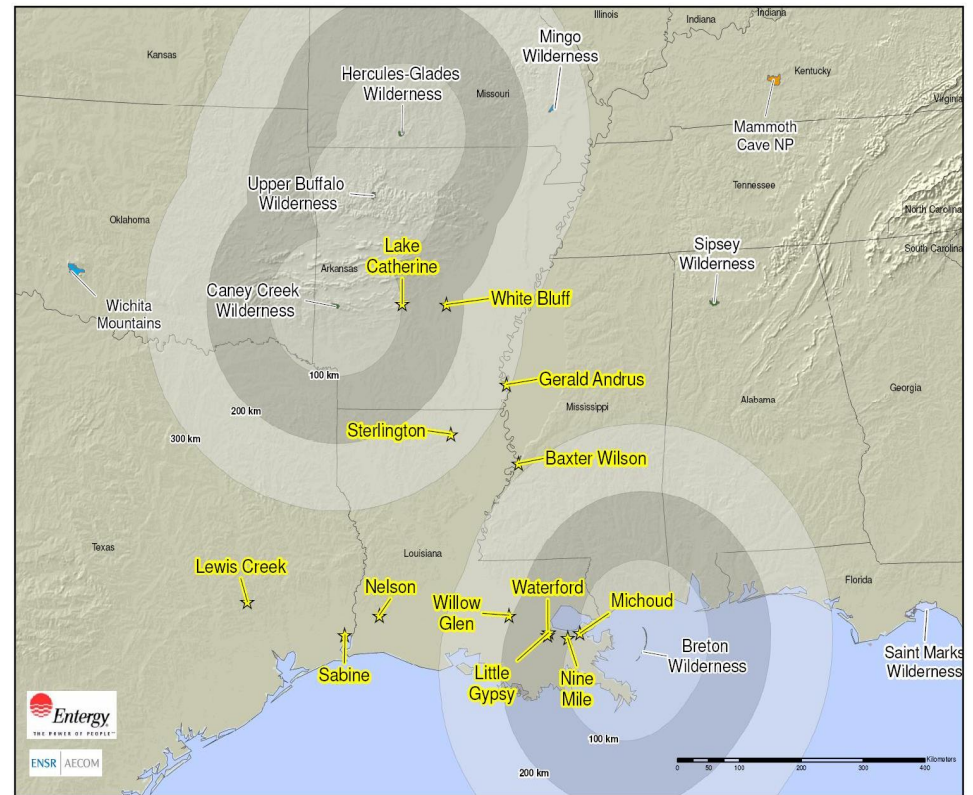
Eligible units are those that were not in Operation before August 1962 and in existence before August 1977.

Four Class 1 areas within 150km of EAI BART eligible facilities: Caney Creek, Upper Buffalo, Hercules Glade, and Mingo Wilderness

Best Available Retrofit Technology (BART) is described in the Regional Haze Rule for Affected Units

Arkansas Dept. of Environmental Quality developed State Implementation Plan to reduce SO₂ and NO_x at affected facilities.

Adopted into State Regulation 19 on September 28, 2007.



Regional Haze Rule Arkansas

- March 12, 2012, EPA published in the Federal Register its final rule disapproving most of the emission limits in the Arkansas Regional Haze State Implementation Plan (SIP)
 - Within 24 months following the final disapproval, EPA must either approve an ADEQ submitted SIP or promulgate a Federal Implementation Plan (FIP)
 - EPA expressed a preference for a SIP if the ADEQ submits a revised plan that EPA can approve before the expiration of the mandatory FIP clock for the portions of the SIP that were disapproved in the final rulemaking
 - Stakeholders are working with ADEQ to prepare Best Available Retrofit Analysis to be used in submittal of the disapproved portions of the Arkansas Regional Haze SIP

Regional Haze Rule

- June 7, 2012, EPA published in the Federal Register, its final rule allowing states to use their participation in the Cross-State Air Pollution Rule (CSAPR) trading programs to satisfy regional haze requirements
 - States can substitute participation in CSAPR for source-specific Best Available Retrofit Technology (BART) for sulfur dioxide and/or nitrogen oxides emissions from power plants.
 - The rule disapproves state implementation plans that relied on the Clean Air Interstate Rule (CAIR)
 - The rule finalized federal implementation plans that replace reliance on CAIR with reliance on CSAPR

National Ambient Air Quality Standards (NAAQS)

- NAAQS continually ratcheted down over time
 - Ozone – 1997, 2008, 2011
 - PM 2.5 – 1997, 2006, 2012
 - “Transport Rule” developed to address 1997 and 2006 standards
- EPA implementing 2008 ozone standard
 - On April 30, 2012 final rule released designating the non-attainment areas for Ozone
 - Attainment dates set for each non-attainment category
- New 1-hour NO₂ and SO₂ standards issued in 2010
 - On July 17, 2012, the U.S. Court of Appeals for the D.C. Circuit issued a decision upholding the 1-hour NO₂ National Ambient Air Quality Standard
- State Implementation Plans
 - Establishes requirements for in-state sources
- On June 15, 2012 EPA announced the reduction of the PM 2.5 standard for ambient air. The final standard to be issued by December 14, 2012

Cooling Water Intake Structure 316(b)

- Rule proposal published in Federal Register April 20, 2011
 - Comments submitted August 19, 2011
 - EPA Published a Notice of Data Availability on June 12, 2012
 - Final Rule due July 27, 2012 (Court ordered deadline)
 - On July 18, 2012 deadline extended one year
 - Implementation expected 2018 - 2020
- Affects all facilities with design intake capacity greater than 2 million gallons per day that use more than 25% of water withdrawal for cooling purposes
 - Approximately 890 steam electric generating units likely to require modifications
- More prescriptive than remanded rule
 - Fine mesh screens with fish handling systems designated as BTA for impingement standards
 - State agencies will select site-specific requirements for entrainment standards
 - Cooling towers not selected as BTA for either at national level

Cooling Water Intake Structure 316(b) Implications

- Facilities with intake flow greater than 2 MGD must demonstrate compliance with impingement standards
 - Intake flow velocity less than 0.5 ft/sec
 - OR -
 - Annual average impingement mortality less than 12% with monthly average impingement mortality less than 31%

- Facilities with intake flow greater than 125 MGD must also demonstrate compliance with entrainment standards regardless of the source water body type
 - Will require a number of peer reviewed studies
 - Site-specific requirements determined by state permitting authority
 - Timeline for implementation and compliance is negotiated with the permitting agency

- Rule also includes entrapment standards

Coal Combustion Residuals

- EPA proposed 2 options in June 2010:
 - Subtitle C, “Special” hazardous waste listing
 - Beneficial use exempt from regulation
 - Subtitle D (non-hazardous waste) regulations

- Final Rule expected in late 2012; no court ordered deadline
 - If regulated under Subtitle C, each state has to adopt the listing in the hazardous waste regulations before requirements are effective (2+ years)
 - If regulated under Subtitle D, rule goes into effect within 6 months after rule finalized

EPA's GHG Regulations Upheld

On June 26, 2012, the U.S. Court of Appeals for the D.C. Circuit upheld EPA's greenhouse gas ("GHG") regulations:

- The GHG Endangerment Finding - the foundation for EPA's regulation of GHGs under the Clean Air Act
- Tailpipe Rule – made GHGs subject to regulation under the CAA, triggering the applicability of PSD and Title V permitting programs
- Tailoring Rule – temporarily raises the statutory thresholds for PSD and Title V permitting requirements to avoid an overwhelming number of newly regulated sources

Requirements Focus on Largest Emitters

- New facilities with GHG emissions of at least 100,000 tons per year (tpy) carbon dioxide equivalent (CO₂e) will be required to obtain Prevention of Significant Deterioration (PSD) permits
- Existing facilities that emit 100,000 tpy of CO₂e and make changes (Modified Sources) increasing the GHG emissions by at least 75,000 tpy of CO₂e, must also obtain PSD permits
- Facilities that must obtain a PSD permit, to include other regulated pollutants, must also address GHG emission increases of 75,000 tpy or more of CO₂e

Applicability of the GHG New Source Performance Standards (NSPS)

- This new rule is based on the assumption that Natural Gas Combined Cycle technology constitutes the best system of emissions reductions
- Applies only to new fossil-fuel-fired electric utility generating units (EGUs)
 - EGUs include:
 - fossil-fuel-fired boilers,
 - integrated gasification combined cycle (IGCC) units
 - stationary combined cycle turbines
- The rule is an output-based emission standard of 1,000 pounds of CO₂e per MWh

Applicability of GHG NSPS

Sources are grouped into one New Source Performance Standard source category:

- Gas
- Oil
- Coal refuse
- Coal
- Pet coke-fired EGUs

Exempt Sources include:

- Transitional Sources
- Simple Cycle Turbines
- Peaking Units

Implications

Potential Impacts

- **The challenge utilities face is unprecedented in terms of:**
 - **The number of rules coming due simultaneously**
 - **The compressed timeframe for compliance with the near-term rules**
 - **The continuing ratcheting down of compliance obligations**
- **Approximately 34 GW of coal-fired generation retirements have been announced already**
- **Will require significant amount of investment**
- **Key factors and uncertainties:**
 - **What will final rules look like**
 - **Litigation**
 - **Congressional activity**
 - **Impact of 2012 elections**
 - **Will there be extensions?**

Industry's Predicament

- And still no long-term carbon policy exists
 - Without a long term carbon policy, industry faces the possibility of uneconomic investments
 - Industry needs satisfactory resolution of both the current regulatory challenges and a long-term legislative solution on carbon to allow for the most efficient transition to a cleaner generation fleet

EAI Power Plants

- ❑ EAI continues to evaluate options for environmental compliance for the EAI coal units
- ❑ EAI has not determined what compliance technology may be required and when
- ❑ Work is on-going