Agenda

• American Electric Power overview

• Review significant EPA regulations impacting electric generating units

• Timing/Extent of Impacts

• Next Steps
AEP Overview

- 5.2 million customers with operations in 11 states
- Owns or operates 60 generating stations in US
- Generation capacity by fuel type
  - Coal – 60%
  - Natural Gas/Oil – 23%
  - Nuclear – 5%
  - Wind, Hydro, Solar, other – 12%
- Total generation capacity ~ 38,000 MW
- Transmission line miles = 39,000
AEP – Service Territory
EPA’s Regulatory Train Wreck
Significant EPA Rules

• Mercury and Air Toxics Standards (MATS)

• Greenhouse Gas Regulations (GHG)
  • New Plants
  • Existing Plants

• Revised Ozone Air Quality Standard

• Cross State Air Pollution Rule (CSAPR)

• Coal Combustion Residuals Rule (CCR)

• Effluent Guidelines Rule (ELG)
MATS Rule

• Final rule issued February 2012

• Stringent emission limits applicable to coal/oil-fired power plants

• Regulates emissions of:
  o Mercury
  o Acid Gases
  o Other metals

• Compliance deadline = April 16, 2015

• Significant impacts to utility industry
MAT-S Rule – Impacts

• Retirement of nearly 6,000 MW of AEP coal-fired power plants
  • Nationwide retirement estimates ~ 60–80 GW
  • Grid reliability concerns

• Retrofits added to over 2,300 MW
  • Activated carbon, direct sorbent injection, baghouse

• Refuel from coal to natural gas ~755 MW

• Cost for retrofits and refuel projects > $1 billion

• Transmission mitigation projects
Ozone Air Quality Standard Revision

• National Ambient Air Quality Standards
  o meant to protect human health with an adequate margin of safety

• Ozone standard revised in 2008
  o down to 75 ppb

• By December 2014, EPA must propose another revision to this standard
  o Final rule by October 2015

• Standard likely to be reduced to between 60 – 70 ppb

• Significant economic impacts possible
2014 Ozone NAAQS Potential Nonattainment

2014 Ozone NAAQS Potential Nonattainment*

County/CBSA Design Value
- > 60 ppb
- > 65 ppb
- > 70 ppb

*Based on 2010-2012 monitoring data
Updated: October 30, 2013
Monitored Areas Exceeding 60 PPB And Un-Monitored Areas Estimated To Exceed 60 PPB Based on Spatial Interpolation


Note: This map is based on partially uncertified data.
Revised Ozone Standard

• Nonattainment Designation – Implications
  o States must take action to reduce NOx & VOCs so more emission controls
  o New sources or expansion of existing sources face more difficult permitting requirements

• Potential Economic Impacts of a Stricter Ozone Std
  (NERA Economic Consulting report)
  o Reduce US GDP by $270 billion per year
  o Result in 2.9 million fewer job equivalents per year on average through 2040
  o Cost average US household $1,570 per year in lost consumption
  o Increase natural gas and electricity costs for manufacturers and households across the country

• What can you do?
  o Contact your state and federal congressmen – let them know your concerns
  o Encourage your trade organizations to submit comments to EPA
EPA’s Clean Power Plan

Greenhouse Gas Proposed Rules for Existing Plants
GHG Proposed Rules for Existing Power Plants

- EPA published proposed rules applicable to existing power plants on June 18, 2014

- Purpose – reduce emissions of carbon dioxide (CO₂)

- EPA proposed state specific CO₂ emission rate goals
  - Lbs CO₂/MWh

- Schedule for this rule
  - Final rule by June 1, 2015
  - States must submit plan for compliance by June 30, 2016 (1 yr extension)
  - EPA has 1 year to approve state plans
GHG Proposed Rules for Existing Power Plants

• How did EPA come up with each state’s CO$_2$ emission goal?

• Based on 4 Building Blocks
  1. Heat Rate Improvements
  2. Redispach of Natural Gas Over Coal
  3. Renewable Energy/Nuclear Energy
  4. Energy Efficiency

• Each building block was used to estimate the potential emission reductions possible in a given state

• Significant flaws present in assumptions on feasibility and cost of these building blocks
GHG Proposed Rules – Concerns

• Heat Rate Improvements
  o EPA assumed coal-fired plants could achieve a 6% heat rate improvement
  o Not possible nor sustainable - ~1 – 2 % more realistic

• Redispatch to Natural Gas
  o EPA assumes all NGCC plants could increase utilization to 70%
  o Would displace coal generation
  o Implementation issues with RTOs, gas supply concerns
  o EPA’s analysis shows additional 46 – 49 GW of coal retiring by 2020

• Renewable Energy
  o Does not provide the same dispatchable and ancillary attributes relative coal and natural gas-fired power plants
  o Unrealistic goals for many states

• Energy Efficiency
  o EPRI estimates show 1/3 EPA levels may be achievable
  o Proposed levels (1.5% by 2025) not proven sustainable
GHG Proposed Rules – Concerns

- **State CO₂ reduction goals vary widely**
  - West Virginia – 20% reduction from 2012 rate by 2030
  - Arkansas – 45% reduction from 2012 rates by 2030
  - Significant reductions required by 2020

- **Not enough time for utilities and states to evaluate the proposed rule and prepare comments**
  - Comments due October 16, 2014

- **Implementation Timeline Not Workable**
  - Could have 2 years or less to implement wide-ranging programs
  - Would limit actions that can be deployed to meet 2020 goals

- **Many legal questions**
  - Legal authority to go beyond the source
  - Legal authority to require redispatch to natural gas units
GHG Proposed Rules

• Next Steps
  o Prepare comments
  o Meet with state agencies (environmental, utility commissions, governors office)
  o Meet with regional transmission organizations (e.g., PJM, SPP)
  o Advise state and federal legislators on impacts of this proposal

• What can you do?
  o Become familiar with the proposed rule
  o Contact state congressman and voice your concerns
  o Speak out at public hearings
  o Submit comments to US EPA
QUESTIONS?