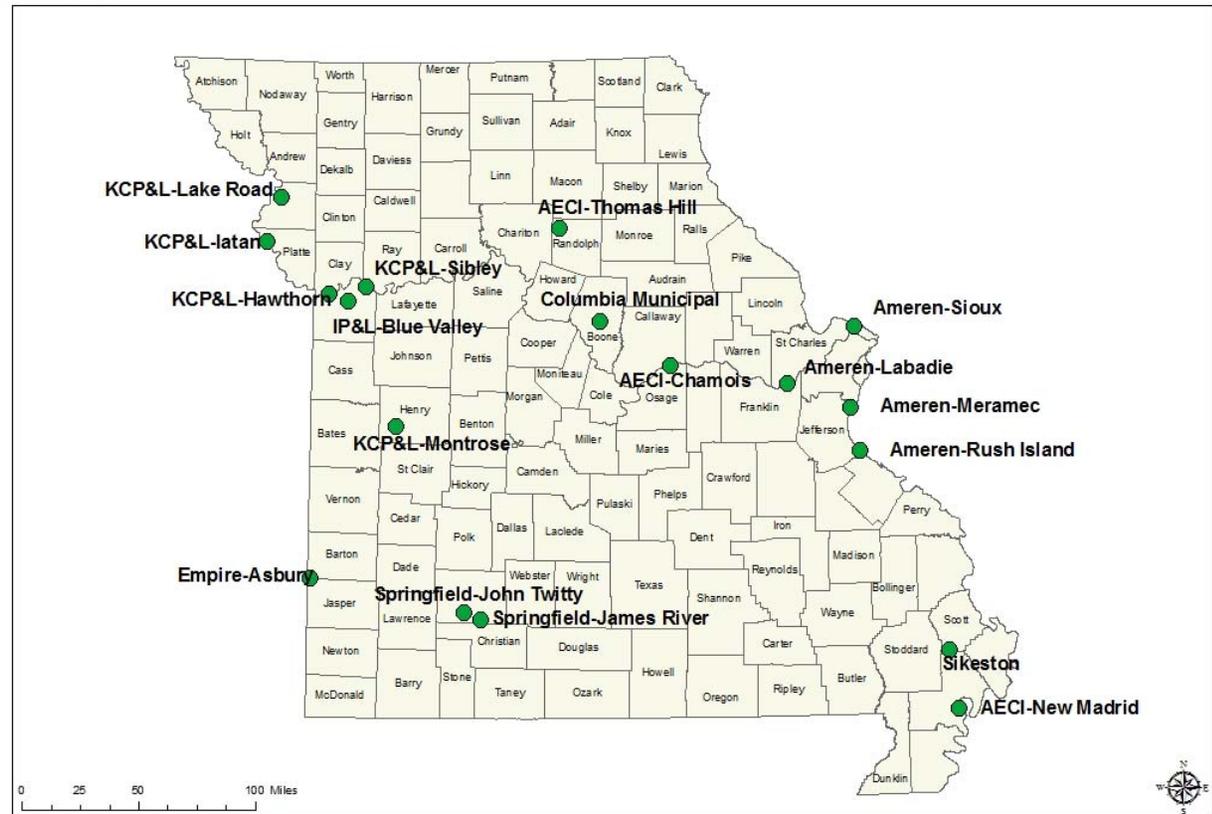


New Environmental Regulations Facing EGUs and What This Means for Missouri

Gary J. Pendergrass, PE, RG

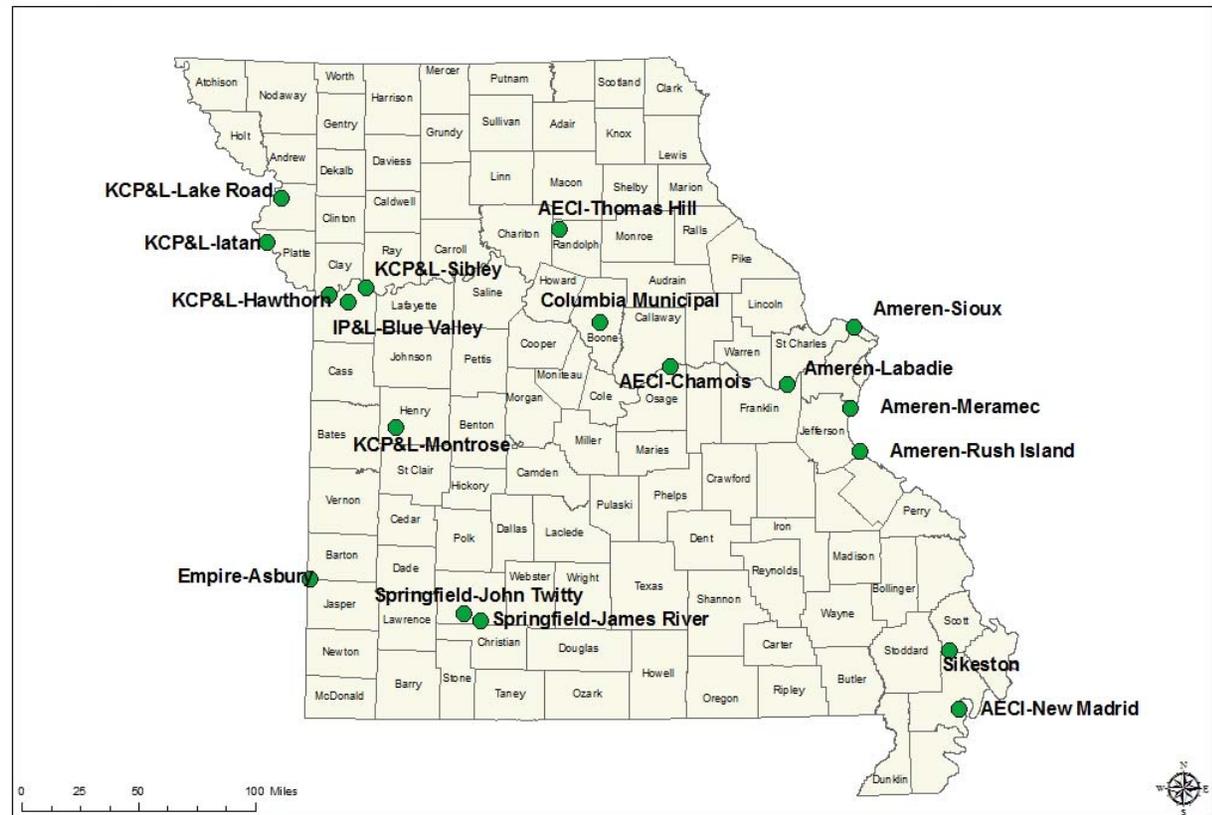
2014 Missouri Air Compliance Seminar
March 11, 2014

Missouri Coal-Fired Electric Generating Units



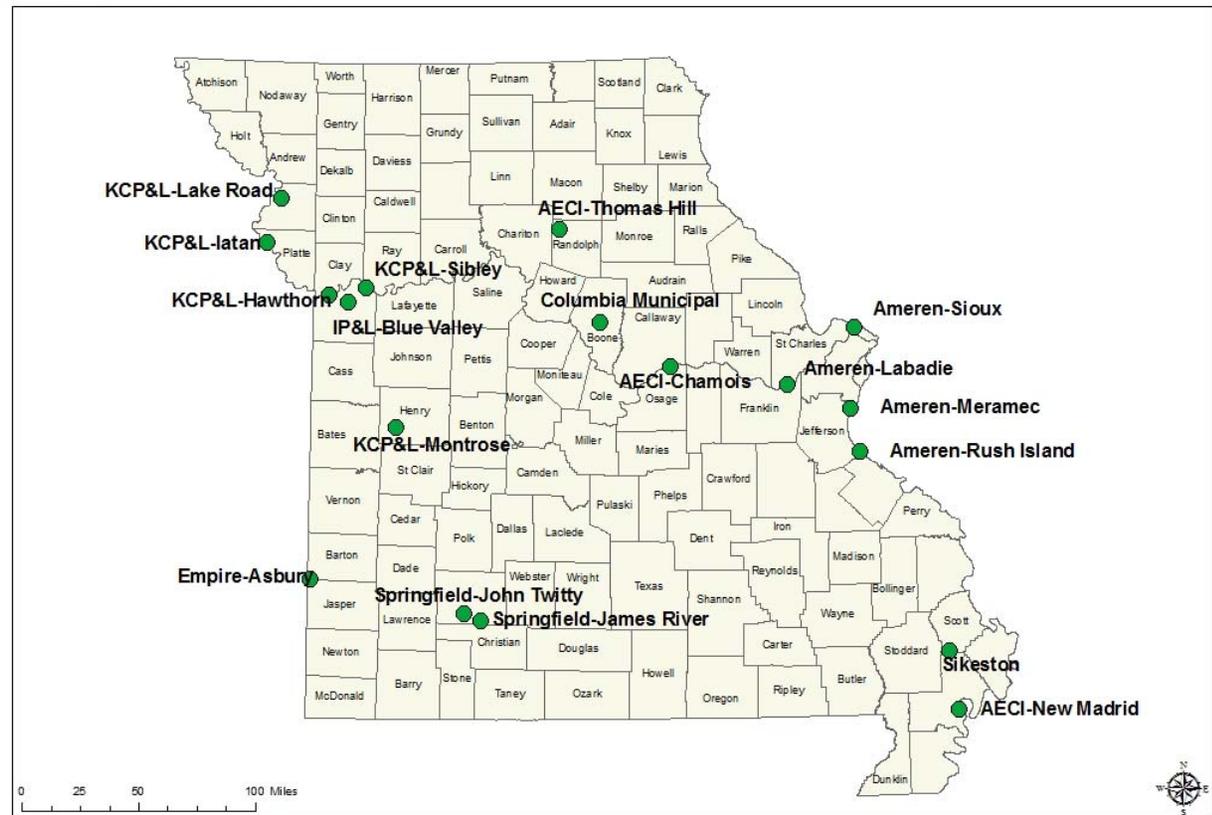
Missouri Coal-Fired Electric Generating Units

- These 18 EGUs provide the vast majority of the energy used by Missouri's families, farms, and businesses.



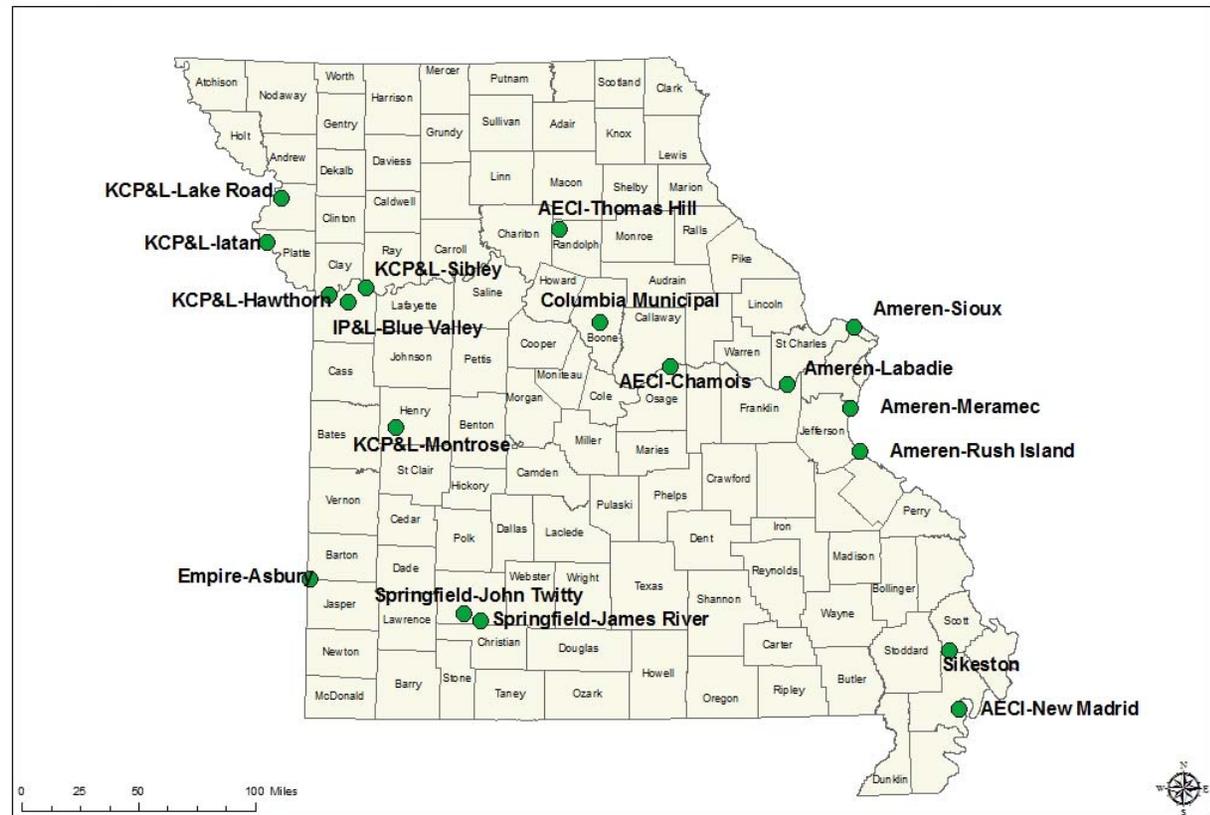
Missouri Coal-Fired Electric Generating Units

- These 18 EGUs provide the vast majority of the energy used by Missouri's families, farms, and businesses.
- These 18 EGUs collectively produced 77,330 Giga-watt hours (GW-HRS) of generation in calendar year 2012.



Missouri Coal-Fired Electric Generating Units

- These 18 EGUs provide the vast majority of the energy used by Missouri's families, farms, and businesses.
- These 18 EGUs collectively produced 77,330 Giga-watt hours (GW-HRS) of generation in calendar year 2012.
- These 18 EGUs are the lifeblood of Missouri's economy and represent a tremendous investment of time, resources, and infrastructure that is not easily replaced.



The Role of Coal-Fired EGUs in Missouri's Energy Future

- Maintenance of existing coal-fired EGUs is essential to Missouri's energy future.
- We must find ways to continue to operate them in light of increasing environmental regulation.
- Electric generation should be local. Electricity is transmitted over great distances only at great expense and great loss of efficiency.



The Role of Renewables in Missouri's Energy Future

- Renewables are important, and development of efficient, cost-effective renewables should continue.
- Renewables, however, are not sources of base load energy – the sun doesn't always shine and the wind doesn't always blow.
- Renewables must be backed up by reliable, quick-starting generation (gas turbines).
- Renewables will not easily replace 77,330 Giga-watt hours of generation.



Status of New Air Regulations

- GHGs
 - New EGUs will be subject to New Source Performance Standards.
 - If you burn coal, you must sequester carbon.
 - No requirements for existing EGUs – yet.

GHG regulations are driven by the President's Climate Action Plan. The plan requires GHG emissions to be reduced to 17% below 2005 levels by 2020, The Climate Action Plan calls for new regulations by June 2014, with a 3 to 5 year compliance window.

New generation will be gas.

Status of New Air Regulations

- Mercury and Toxic Substance (MATS) Rule
 - MATS imposes emission limits for coal-fired boilers for mercury, acid gases, specific trace metals, and dioxin/furans.
 - Utility boilers larger than 25 megawatts must comply by April 16, 2015.
 - New units will be subject to more stringent standards than existing units.

New generation will be gas – or – new generation won't be built.

Status of New Air Regulations

- PSD
- CAIR/CSAPR/CAIR/Son of CSAPR
- SO₂ 1-Hour Standard
- Regional Haze

- All have a common theme – delay and uncertainty in rulemaking.

Rulemaking Process

- If you come to the monthly MACC meeting, you will hear Wendy Vit lay out the normal rulemaking process:
 - Draft Rule out for Department Review
 - Public Notice for Comments
 - File with Secretary of State
 - Published in Missouri Register
 - Public Hearing
 - Public Comment Period Closes
 - Commission Vote on Rule Action
 - File with Secretary of State
 - Rule Effective

Rulemaking Process

- However, we rarely seem to follow this plan. The “new normal” for rulemaking has become something like:
 - Propose Rule
 - Litigate
 - Accept Public Comment
 - Delay
 - Re-Propose Rule
 - Litigate
 - Postpone
 - Litigate
 - Set New Target Dates

Rulemaking Process

- When pollution control upgrades run in the tens of millions of dollars, you need to know:

WHAT?

WHEN?

So you can determine:

HOW_{TECHNICAL}

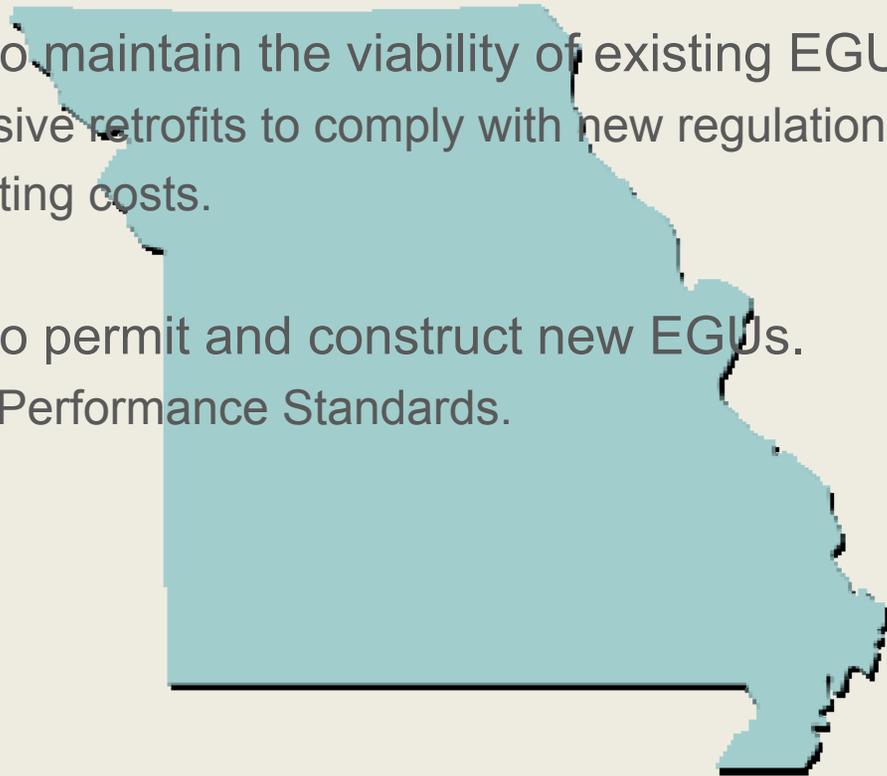
HOW_{FINANCIAL}

So, What does all of this mean for Missouri?



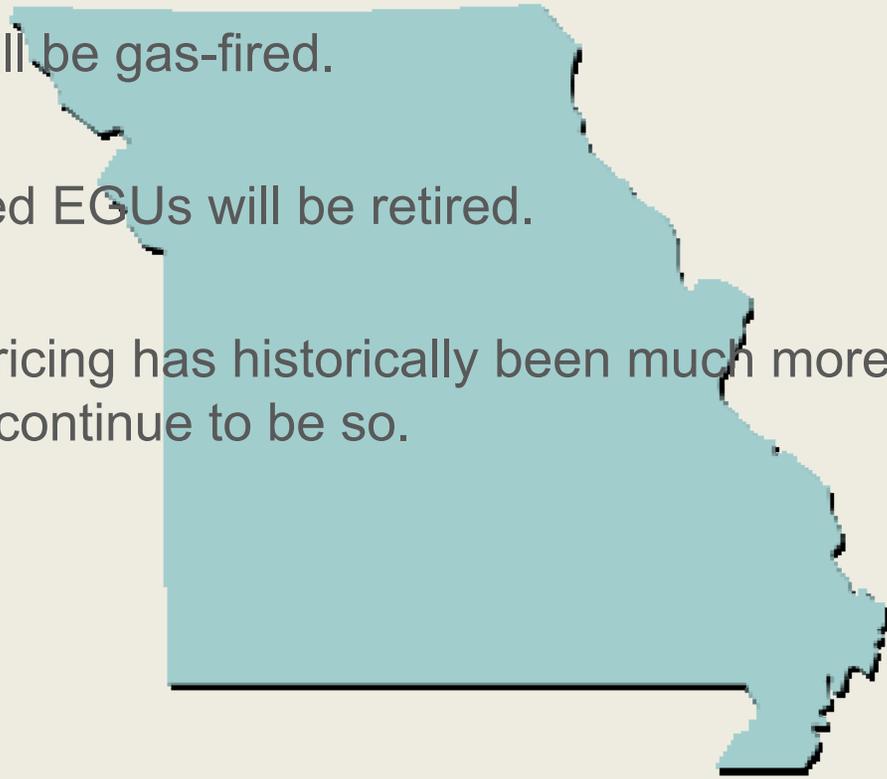
Higher Energy Costs

- Higher costs to maintain the viability of existing EGUs.
 - Capital-intensive retrofits to comply with new regulations.
 - Higher operating costs.
- Higher costs to permit and construct new EGUs.
 - New Source Performance Standards.
 - Litigation.

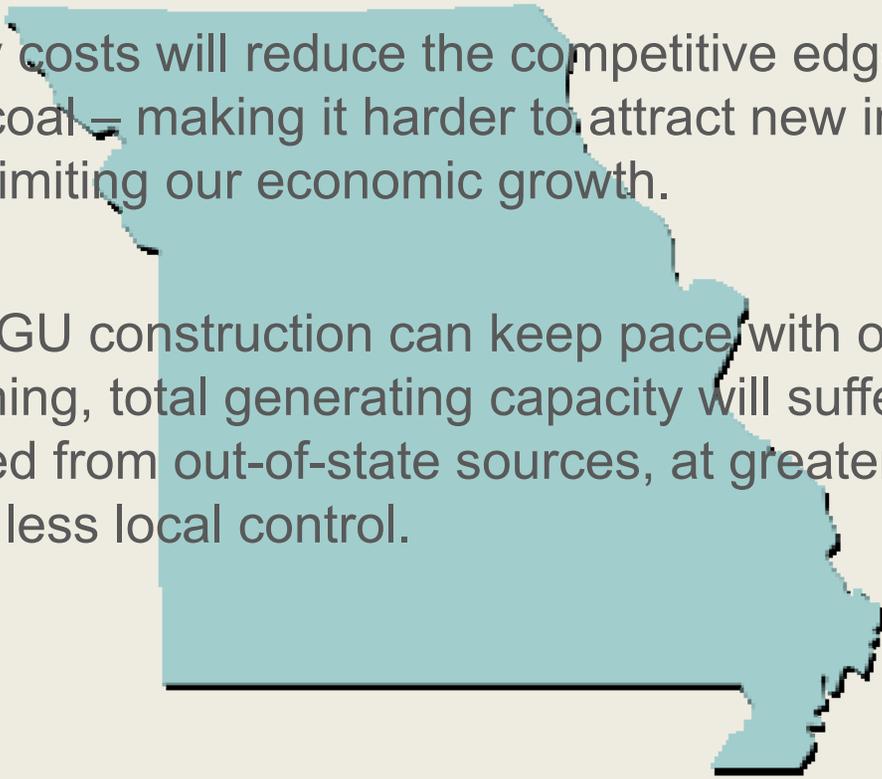


Higher Volatility in Energy Costs

- New EGUs will be gas-fired.
- Older coal-fired EGUs will be retired.
- Natural gas pricing has historically been much more volatile than coal, and will continue to be so.



An Energy-Limited Missouri

- Higher energy costs will reduce the competitive edge we have always enjoyed with coal – making it harder to attract new industry to Missouri and limiting our economic growth.
 - Unless new EGU construction can keep pace with older EGU decommissioning, total generating capacity will suffer – or – energy will be imported from out-of-state sources, at greater expense, lower reliability, and less local control.
- 

The Path Forward

- Find Compromises.
- Balance environmental protection with quality of life.
- Based on good science, determine how clean is “clean enough.”
- Work together for the common good.



Questions or Comments?

