

STEAM ELECTRIC ELG RULEMAKING

UMRA AND FEDERALISM IMPLICATIONS: CONSULTATION MEETING

October 11, 2011



AGENDA

- **Background**
- **Timeline**
- **Profile of Potentially Affected Entities**
- **Considerations of Rulemaking**
- **Appendix - List of Potentially Affected Entities**

BACKGROUND

- **Effluent Limitations Guidelines (ELG)**
 - National standards, based on performance of treatment and control technologies, for wastewater discharges to surface water and municipal sewage treatment plants
 - Developed on an industry-by-industry basis
 - Represent pollutant reductions that are *economically achievable* for an industry using the *best available technology*.

- **ELG implementation**
 - Direct dischargers: Implemented through National Pollutant Discharge Elimination System (NPDES) program
 - Indirect dischargers: Implemented through national pretreatment program

BACKGROUND (CONT'D)

- **Steam Electric Power Generating ELG (40 CFR 423):**
 - Facilities “primarily engaged in the generation of electricity for distribution and sale which results primarily from a process utilizing fossil-type fuel (coal, oil, or gas) or nuclear fuel in conjunction with a thermal cycle employing the steam water system as the thermodynamic medium.”

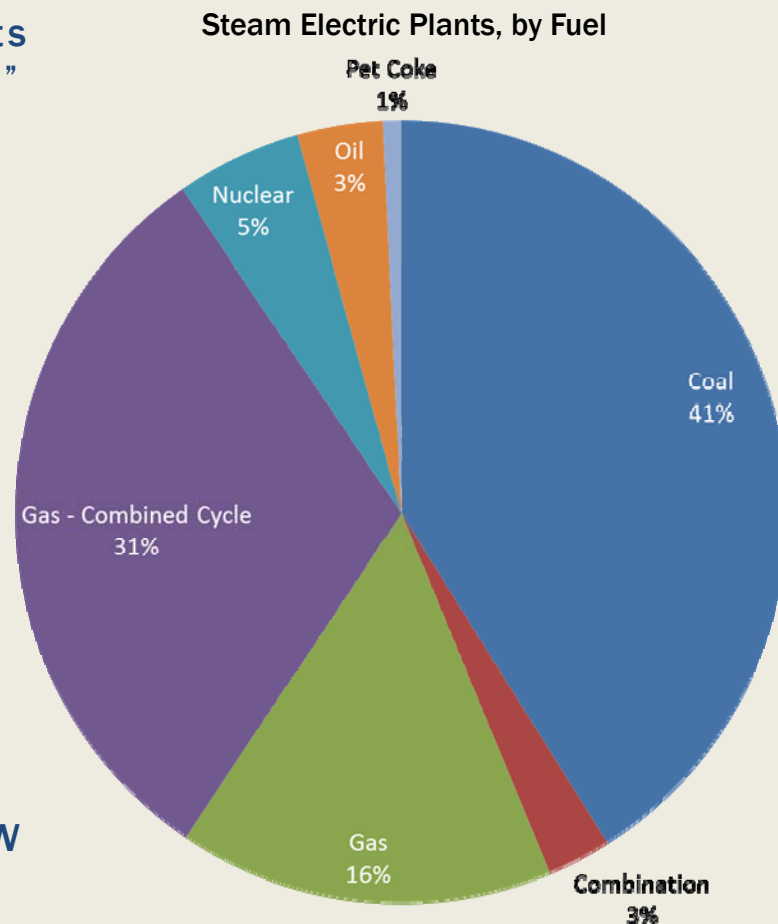
- **Relevance to State, local and tribal governments**
 - As steam electric plant owners (e.g., municipal utilities)
 - As regulators (e.g., NPDES program implementation)

TIMELINE

- **1982: EPA finalizes current effluent guidelines**
 - **2005: Annual ELG review highlights Steam Electric industry as major contributor of toxic and nonconventional pollutants**
 - Significant process and technology changes since 1982
 - **Fall 2009**
 - Detailed Study completed
 - EPA announces its intent to update the effluent guidelines
 - **Summer 2010: Information Collection Request (ICR)**
 - Detailed questionnaire sent to 733 facilities, out of approximately 1,200 fossil and nuclear-fueled steam electric power plants
 - All coal- and petroleum coke-fired units and sample of oil, natural gas, and nuclear units
 - Gather technical information about plant processes, effluent and waste characteristics and financial/economic data
-
- **July 2012: Proposed regulation**
 - **January 2014: Final regulation**
 - **2014 – 2019: Implement new requirements through 5-year NPDES permit cycle**

PROFILE OF STEAM ELECTRIC INDUSTRY

- **Approximately 500 plants with coal-fired units**
 - Many steam-fueled generating units are “base-load” with generally high capacity factors
 - Account for approximately 48% of nationwide net generation
- **~40 plants with oil-fired units**
 - Many oil-fired generating units are peaking units with low capacity utilization
 - Approximately 1 percent of nationwide net generation
- **~200 plants with natural gas-fired units**
 - 22% of nationwide net generation
- **63 nuclear plants**
 - 19% of nationwide net generation
- **Fossil-fueled steam-turbine generating units range in size (nameplate capacity) from 1 MW to more than 1,000 MW**



PROFILE OF POTENTIALLY AFFECTED ENTITIES

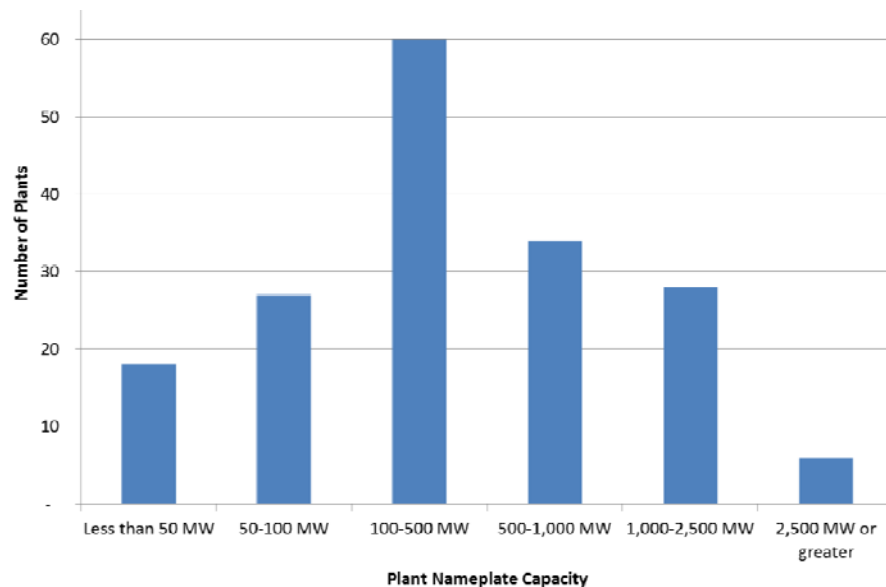
- **Industry includes investor-owned, publicly-owned, and rural cooperatives**
 - **Investor-owned utilities:** For-profit businesses organized as individual corporations or holding companies
 - **Publicly-owned electric utilities:** State authorities, municipalities, political subdivisions, and Federally-owned facilities
 - **Cooperative electric utilities (“coops”):** Member-owned entities established under the Rural Electrification Act of 1936, provide electricity to small rural and farming communities
- **Plants often have multiple owners with varying shares in different generation units**

PROFILE OF PLANTS OWNED BY GOVERNMENT ENTITIES AND COOPERATIVES

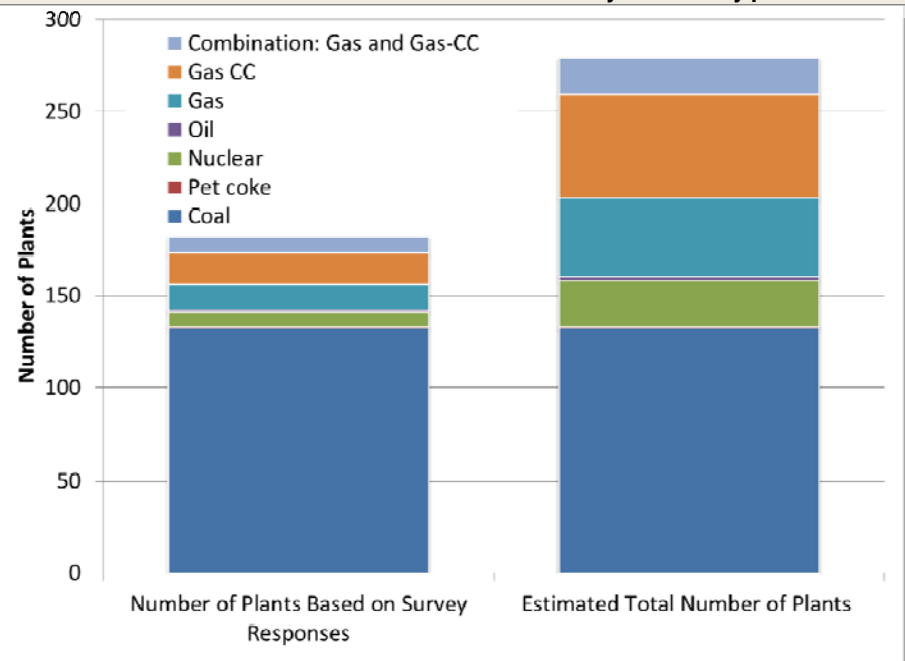
Based on survey responses (out of a total of 677 plants within the scope of the survey):

- 158 states/local governments and cooperatives are estimated to be potentially impacted by the regulation
- These entities have ownership (or part ownership) in 182 plants
- A government entities is the dominant owner in 152 surveyed plants

Government-Owned Plants by Nameplate Capacity



Government-Owned Plants by Fuel Type



- The 182 government-owned plants in survey account for ~100,000 MW in aggregate nameplate power generation capacity
- Plant nameplate power generation capacities range from less than 20MW to over 3,300MW (Median 400MW)

CONSIDERATIONS OF RULEMAKING

- **Scope of rulemaking**
 - Flue gas desulfurization (FGD) wastewater
 - Ash handling (fly ash, bottom ash)
 - Landfill operations (leachate)
 - Other waste streams, if warranted
- **Subcategorization, if warranted**
- **Coordination with other EPA rules affecting Steam Electric industry**
- **Energy supply impacts**
 - Supply impacts on marginal, low-capacity factor, peaking units
 - Compliance could result in closure
 - Some oil-fired plants are required to have oil capability for times of natural gas shortages (e.g., adverse weather conditions)
- **Small Business Regulatory Enforcement Fairness Act (SBREFA), Federalism, Unfunded Mandate Reform Act, and Tribal considerations**
- **Environmental Justice and Children's Health considerations**

UMRA AND FEDERALISM

- **UMRA: “Federal mandates” that might result in expenditures by State, local, and Tribal governments, in the aggregate, or by the private sector, of \$100 million* or more in any one year**
- **UMRA analysis**
 - **Include State, local, and Tribal governments (exclude Federal governments)**
 - **Determine the domestic parent entity(ies) for each plant that will incur direct compliance costs**
 - **Calculate parent entity-level compliance costs**
 - **Evaluate magnitude of the regulatory impact on government entities, considering:**
 - **Compliance costs incurred by government entities owning facilities**
 - **Administrative costs incurred to implement the revised Steam Electric ELGs.**

* Indexed. The current threshold is \$147 million.

UMRA AND FEDERALISM (CONT'D)

- **Federalism: “Substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.” (E.O. 13132)**
- **EPA’s Numerical tests for “substantial direct effects”**
 - **Annualized direct compliance costs to state and local governments \$25 million or more, in the aggregate, in any one year**
 - **Annualized direct compliance costs to state and local governments equal or greater than 1% of annual revenues of small governments**

IDENTIFICATION OF POTENTIALLY AFFECTED GOVERNMENT ENTITIES

- EPA identified facilities using the questionnaire responses.
 - Ownership shares for all entities
 - Industry sector (NAICS code), total electric generation, revenue, and employment data obtained for parent entities
 - Population data from U.S. Census
 - Complemented with data from EIA, FERC, Dun & Bradstreet, Standard & Poor's, and American Business Information
- Additional screening for small government entities
- Preliminary findings (based on survey of 677 Steam Electric plants):
 - 158 states/local governments and cooperatives are estimated to be potentially impacted by the regulation, based on ownership (or part ownership) in 182 plants
 - Government entity is the dominant owner (largest ownership share) in 152 of these plants
 - 108 *small* government or cooperative entities have ownership shares in 121 steam electric plants

QUESTIONS?

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POTENTIALLY AFFECTED STATE AND LOCAL GOVERNMENT ENTITIES

Appendix

STATE AND LOCAL GOVERNMENTS POTENTIALLY SUBJECT TO REGULATION

Non-Small State/Regional Governments

Name	State	Number of Plants
Central Valley Financing Authority	CA	1
Kansas City Board of Public Utilities	KS	2
Lower Colorado River Authority	TX	3
Massachusetts Municipal Wholesale Electric Company	MA	1
Municipal Electric Authority of Georgia	GA	4
Municipal Energy Agency of Nebraska	NE	2
Nebraska Public Power District	NE	3
North Carolina Eastern Municipal Power Agency	NC	2
Oklahoma Municipal Power Authority	OK	1
Platte River Power Authority	CO	1
Salt River Project Agricultural Improvement and Power District	AZ	8
Santee Cooper	SC	4
Southern Minnesota Municipal Power Agency	MN	1
State of California, Department of Water Resources	CA	1
Texas Municipal Power Agency	TX	1
Utah Municipal Power Agency	UT	2

Preliminary list based on plants covered by survey

STATE AND LOCAL GOVERNMENTS POTENTIALLY SUBJECT TO REGULATION (CONT'D)

Non-Small Municipal Governments

Name	State	Number of Plants
City of Corona	CA	1
City of Glendale	CA	1
City of Los Angeles, CA	CA	2
City of Pasadena - Department of Water and Power, Power Division	CA	1
LADWP -Power System	CA	1
Colorado Springs Utilities	CO	3
City of Gainesville,Gainesville Regional Utilities	FL	2
City of Tallahassee	FL	2
Dept. of Electric Utilities, City of Lakeland	FL	1
JEA	FL	3
Orlando Utilites Commission	FL	1
Ames Municipal Electric Services	IA	1
Springfield, Illinois- Office of Public Utilities	IL	1
Owensboro Municipal Utilities	KY	1
City of Lafayette, LA	LA	1
Taunton Municipal Lighting Plant	MA	2
Lansing Board of Water and Light	MI	2
Rochester Public Utilities	MN	1
City of Columbia Missouri	MO	1
City of Independence	MO	2
City of Springfield, MO	MO	2
Public Works Commission of the City of Fayetteville, NC	NC	1
City of Lincoln, NE	NE	2
Omaha Public Power District (OPPD)	NE	2
City of Vineland	NJ	1
City of Hamilton Electric Department	OH	1
Heartland Consumers Power District	SD	1
Brownsville Public Utilities Board	TX	3
City of Austin, TX	TX	1
CPS Energy	TX	3
Garland Power & Light	TX	2
Clark Public Utilities	WA	1

Preliminary list based on plants covered by survey

STATE AND LOCAL GOVERNMENTS POTENTIALLY SUBJECT TO REGULATION (CONT'D)

Small Municipal Governments

Town/City/Municipality	State	Number of Plants	Town/City/Municipality	State	Number of Plants
City of Lamar	CO	1	Peru Utilities	IN	1
City of Dover	DE	1	Richmond Power & Light	IN	1
City of Dalton, GA	GA	2	Hudson, MA	MA	1
Crisp County Power Commission	GA	1	City of Escanaba	MI	1
Alta Municipal Utilities	IA	1	City of Grand Haven Board of Light and Power	MI	1
Atlantic, IA	IA	1	City of Wyandotte, Department of Municipal Service	MI	1
City of Algona, Iowa	IA	1	Holland BPW	MI	1
City of Bancroft, IA	IA	1	Marquette Board of Light and Power	MI	1
City of Elridge, IA	IA	2	Austin Utilities	MN	1
City of Harlan, IA	IA	1	Hibbing Public Utilities	MN	1
City of Milford, IA	IA	1	Hutchinson Utilities Comm	MN	1
City of Montezuma, IA	IA	1	New Ulm Public Utilities	MN	1
City of Pella, IA	IA	1	Northern Municipal Power Agency	MN	1
City of Tipton, IA	IA	1	Virginia Public Utilities	MN	1
Coon Rapids, IA	IA	1	Willmar Municipal Utilities	MN	1
Graettinger, IA	IA	1	City of New Madrid, MO	MO	1
Laurens, IA	IA	1	MMU	MO	1
Muscatine Power and Water	IA	1	Sikeston BMU	MO	1
New Hampton, IA	IA	1	Clarksdale Public Utilities	MS	1
Pella, City of	IA	1	Greenwood Utilities Commission	MS	1
Spencer, IA	IA	2	City of Fremont, Nebraska	NE	1
Sumner, IA	IA	1	City of Grand Island	NE	2
The Municipal Electric Utility of the City of Cedar Falls	IA	3	Hastings Utilities	NE	1
Waverly, IA	IA	2	City of Farmington Electric Utility System	NM	1
Webster City, IA	IA	1	Jamestown Board of Public Utilities	NY	1
West Bend, IA	IA	1	City of Dover - Ohio	OH	1
City of Geneseo, IL	IL	1	City of Orrville	OH	1
City of Jasper	IN	1	City of Painesville	OH	1
Crawfordsville Electric Light & Power	IN	1	City of Shelby	OH	1
Logansport Municipal Electric	IN	1	Manitowoc Public Utilities	WI	1

Preliminary list based on plants covered by survey

STATE AND LOCAL GOVERNMENTS POTENTIALLY SUBJECT TO REGULATION (CONT'D)

Non-Small Cooperatives

Name	State	Number of Plants
PowerSouth Energy Cooperative	AL	2
Arkansas Electric Cooperative Corporation	AR	2
Southern California Public Power Authority	CA	1
Tri-State Generation and Transmission Association, Inc.	CO	5
Seminole Electric Cooperative, Inc.	FL	1
MEAG Power	GA	1
Oglethorpe Power Corporation	GA	3
Hoosier Energy REC, Inc	IN	3
Indiana Municipal Power Agency	IN	2
Wabash Valley Power Association, Inc.	IN	3
Big Rivers Electric Corporation	KY	5
East Kentucky Power Co- operative	KY	3
Great River Energy	MN	2
Associated Electric Cooperative, Inc.	MO	3
Missouri River Energy Services	MO	1
South Mississippi Electric Power Association	MS	1
Basin Electric Power Cooperative	ND	3
Minnkota Power Cooperative, Inc.	ND	1
Buckeye Power, Inc.	OH	1
GRDA	OK	1
WFEC	OK	3
Brazos Electric Power Cooperative	TX	1
Deseret Generation & Transmission Cooperative	UT	2
Intermountain Power Agency	UT	1
Utah Associated Municipal Power Systems	UT	1
Dairyland Power Cooperative	WI	3
WPPI Energy	WI	1

Preliminary list based on plants covered by survey

STATE AND LOCAL GOVERNMENTS POTENTIALLY SUBJECT TO REGULATION (CONT'D)

Small Cooperatives

Name	State	Number of Plants
Golden Valley Electric Association, Inc.	AK	1
Arizona Electric Power Coop, Inc.	AZ	1
Kauai Island Utility Cooperative	HI	1
Central Iowa Power Cooperative	IA	3
Corn Belt Power Cooperative	IA	3
Northwest Iowa Power Cooperative	IA	1
Illinois Municipal Electric Agency	IL	1
Prairie Power Inc	IL	1
Southern Illinois Power Cooperative	IL	1
Kansas Electric Power Cooperative	KS	1
Mid-Kansas Electric Company, LLC	KS	1
Sunflower Electric Power Corporation	KS	2
Louisiana Energy & Power Authority	LA	2
Michigan South Central Power Agency	MI	1
MMPA	MN	1
Central Electric Power Cooperative	MO	1
Square Butte Electric Cooperative	ND	1
Power Resources Cooperative	OR	1
San Miguel Electric Cooperative, Inc.	TX	1
Wyoming Municipal Power Agency	WY	1

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SUPPLEMENTAL INFORMATION

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TECHNOLOGIES UNDER CONSIDERATION & PRELIMINARY COMPLIANCE COSTS

(Costs for plant capacity of 50-600 MW)

- **FGD wastewater**
 - Option 1: No change to ELG (*No cost*)
 - Option 2: Chemical precipitation (*\$0.9 - \$3.2 million/yr*)
 - Option 3: Chemical precipitation + Biological (*\$1.7 - \$4.5 million/yr*)
 - Option 4: Chemical precipitation + Evaporation (*\$4.2 - \$10.2 million/yr*)

- **Leachate from landfills/ponds containing coal combustion residues**
 - Option 1: No change to ELG (*No cost*)
 - Option 2: Chemical precipitation (*\$0.5 - \$1.6 million/yr*)
 - Option 3: Chemical precipitation + Biological (*\$1.1 - \$2.5 million/yr*)

Note: The costs shown are for a new treatment system and do not take into account the savings associated with ceasing operation of an existing treatment system (e.g., avoiding construction of a new settling pond or ceasing operation of an existing settling pond designed to comply with current effluent limits for total suspended solids).

TECHNOLOGIES UNDER CONSIDERATION & PRELIMINARY COMPLIANCE COSTS

(Costs for plant capacity of 50-600 MW)

- **Fly ash**
 - Option 1: No change to ELG (*No cost*)
 - Option 2: Zero discharge of fly ash transport water, based on conversion to dry fly ash transport (*\$0.3 - \$2.2 million/yr*)

- **Bottom ash**
 - Option 1: No change to ELG (*No cost*)
 - Option 2: Zero discharge of bottom ash transport water, based on either complete recycle of transport water or conversion to dry bottom ash transport (*\$0.9 - \$3 million/yr*)

Note: The costs shown are for a new treatment system do not take into account the savings associated with ceasing operation of an existing treatment system (e.g., avoiding construction of a new settling pond or ceasing operation of an existing settling pond designed to comply with current effluent limits for total suspended solids).

TECHNOLOGIES UNDER CONSIDERATION & PRELIMINARY COMPLIANCE COSTS

(Costs for plant capacity of 50-600 MW)

- **Flue gas mercury control wastes (e.g., activated carbon injection)**
 - Option 1: No change to ELG (*no cost*)
 - Option 2: Zero discharge, based on dry handling practices (*minimal cost, if any*)

- **Gasification wastewater**
 - Option 1: No change to ELG (*no cost*)
 - Option 2: Evaporation (*no cost*)
 - Option 3: Evaporation + Cyanide destruction (*minimal cost*)