Electric Utilities…

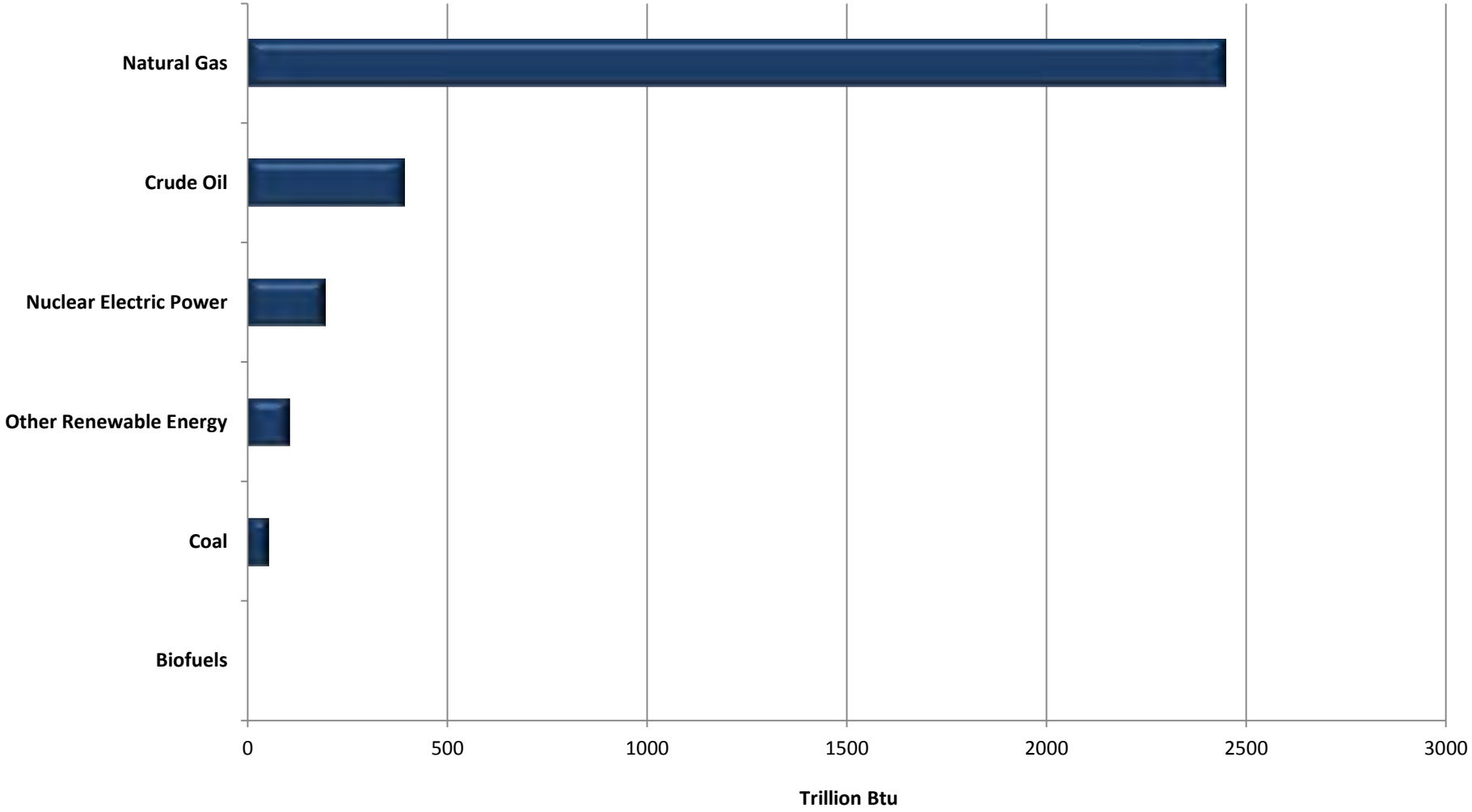
Navigating the Ever-changing Environmental Landscape

CLECO®

Agenda

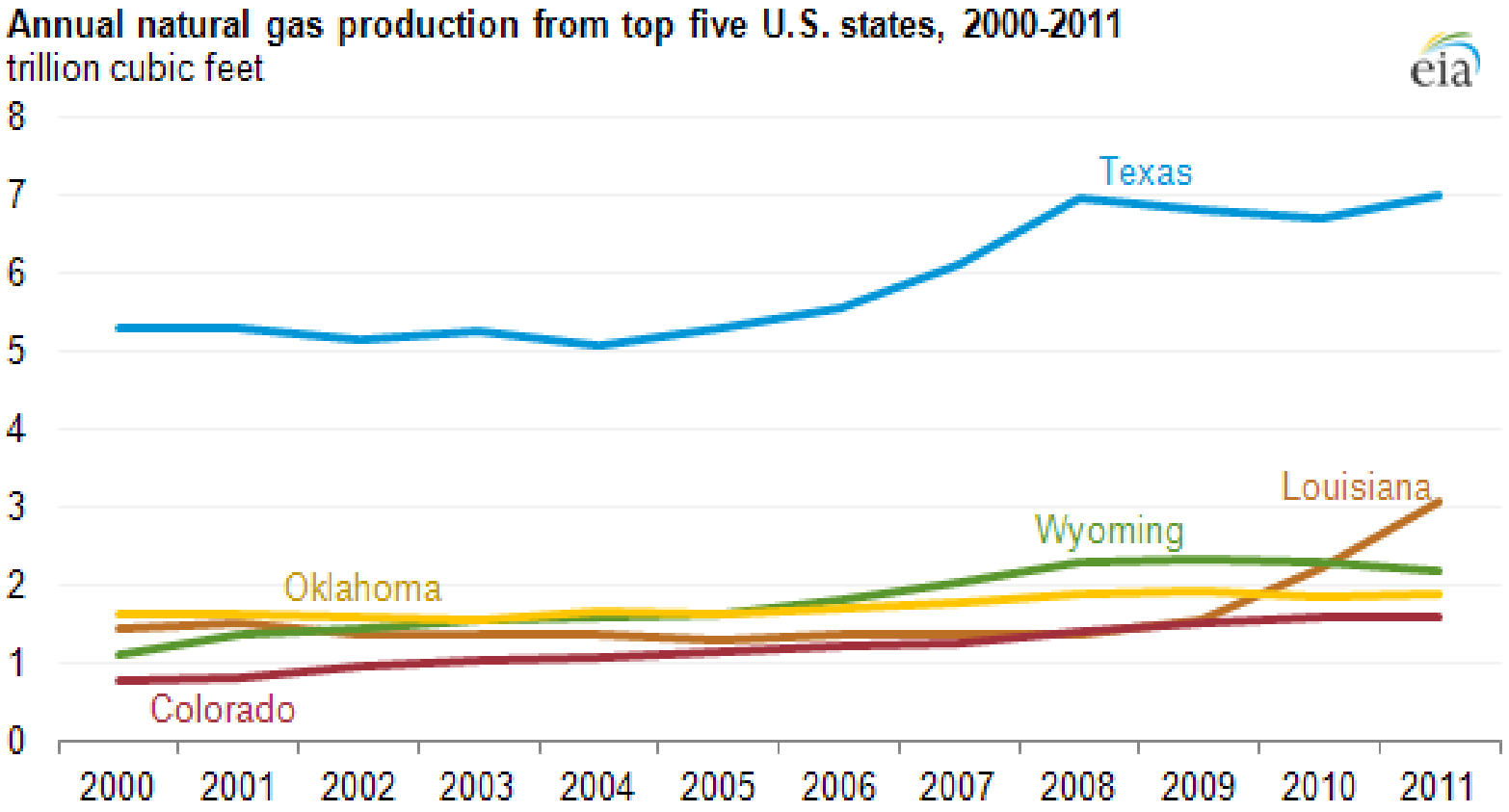
- **Energy and Electric Power in Louisiana**
- **Near-term Environmental Compliance Challenges**
  - Cross State Air Pollution Rule (CSAPR)
  - Mercury and Air Toxics Standards (MATS)
- **Longer-term Environmental Compliance Challenges**
  - 316(b) Cooling water intake structure rules
  - National Ambient Air Quality Standards (NAAQS)
  - Regulation of Coal Ash and other residuals
  - Greenhouse Gases (GHG) from new and modified sources
  - Water effluent guidelines

LA Energy Production Estimates, 2010



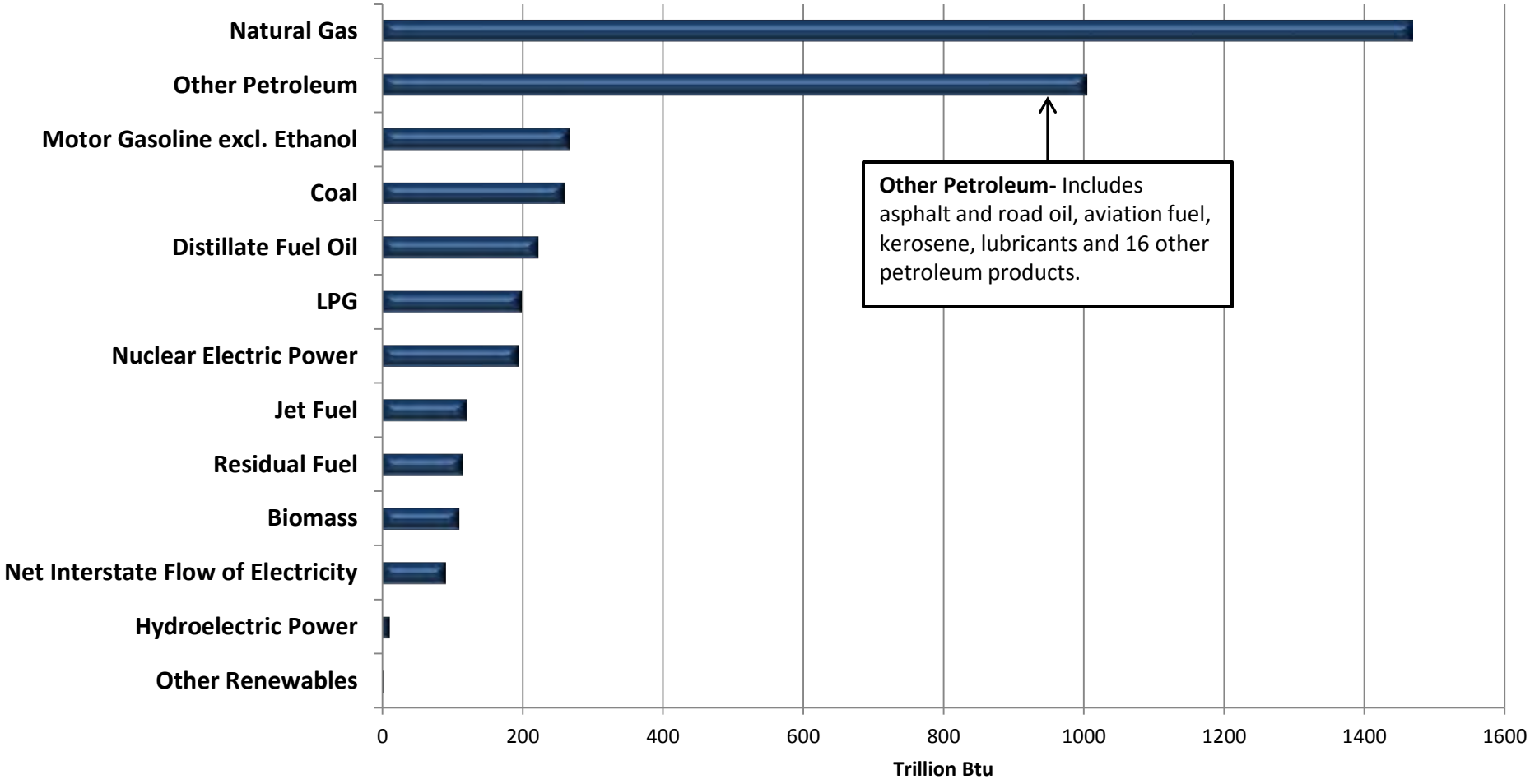
Source: Energy Information Administration, State Energy Data System

Louisiana's Natural Gas Production is Up!



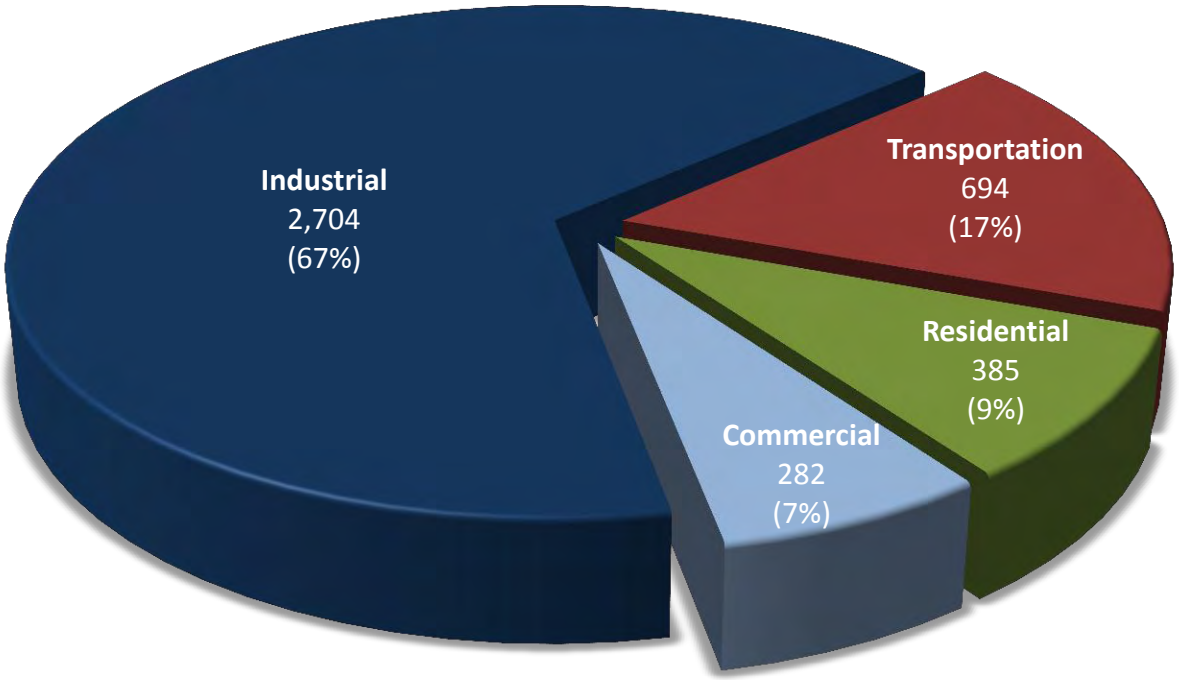
Source: EIA

LA Energy Consumption Estimates, 2010



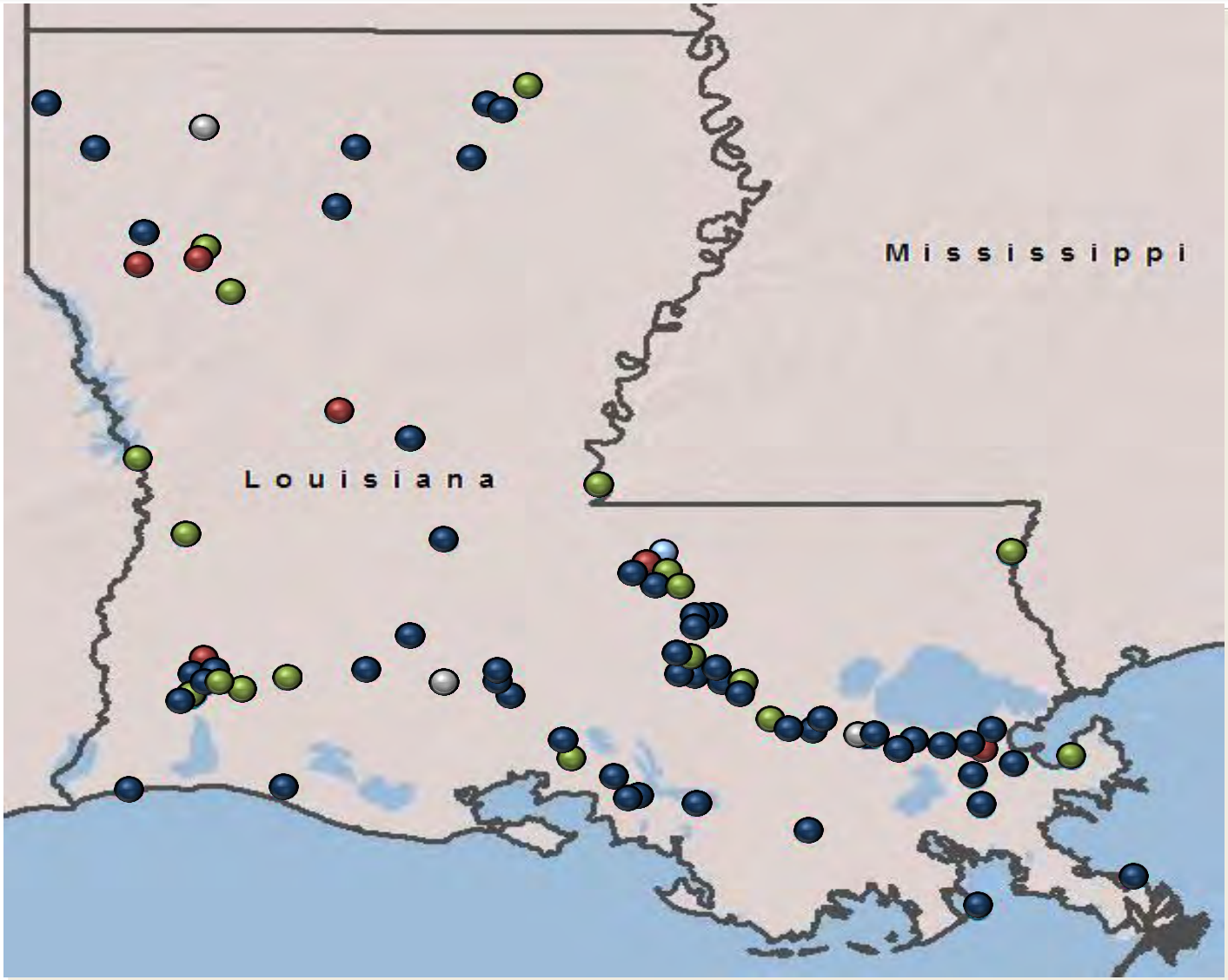
Source: Energy Information Administration, State Energy Data System

Energy Consumption by End-Use Sector, 2010 (Trillion Btu)



Source: Energy Information Administration, State Energy Data System

Louisiana Power Plants by Fuel Type



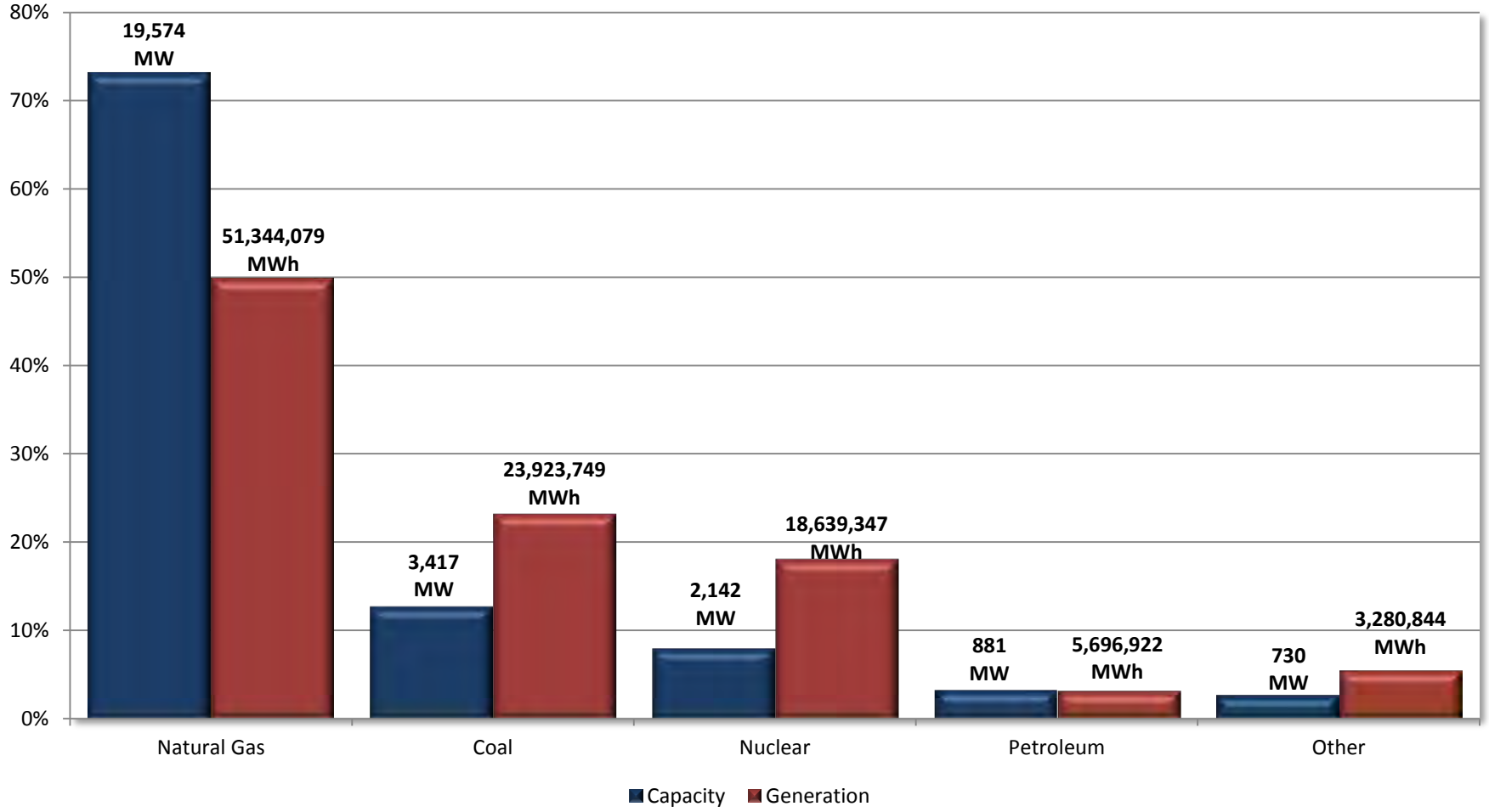
Source: SNL

Ten Largest Plants by Generating Capacity

Plant Name	Fuel Type	Plant Operator	Technology Type	Operating Capacity (MW)	COD
Willow Glen	Gas	Entergy Gulf States Louisiana, LLC	Steam Turbine	1,790	1960
Ninemile	Gas	Entergy Louisiana Holdings, Inc.	Steam Turbine	1,760	1951
Big Cajun 2	Coal	Louisiana Generating LLC	Steam Turbine	1,743	1981
Brame Energy Center	Gas/Coal	Cleco Power LLC	Steam Turbine	1,552	1975/1982/2010
R S Nelson	Gas/Coal	Entergy Gulf States Louisiana, LLC	Steam Turbine	1,370	1959/1960/1982
Acadia Energy Center	Gas	Cleco Power LLC/Entergy Louisiana LLC	Combined Cycle	1,242	2002
Little Gypsy	Gas	Entergy Louisiana Holdings, Inc.	Steam Turbine	1,189	1961
Waterford 3	Nuclear	Entergy Louisiana Holdings, Inc.	Nuclear	1,180	1985
River Bend	Nuclear	Entergy Gulf States Louisiana, LLC	Nuclear	988	1986
Plaquemine Cogeneration	Gas	Dow Chemical Company	Combined Cycle	933	2004

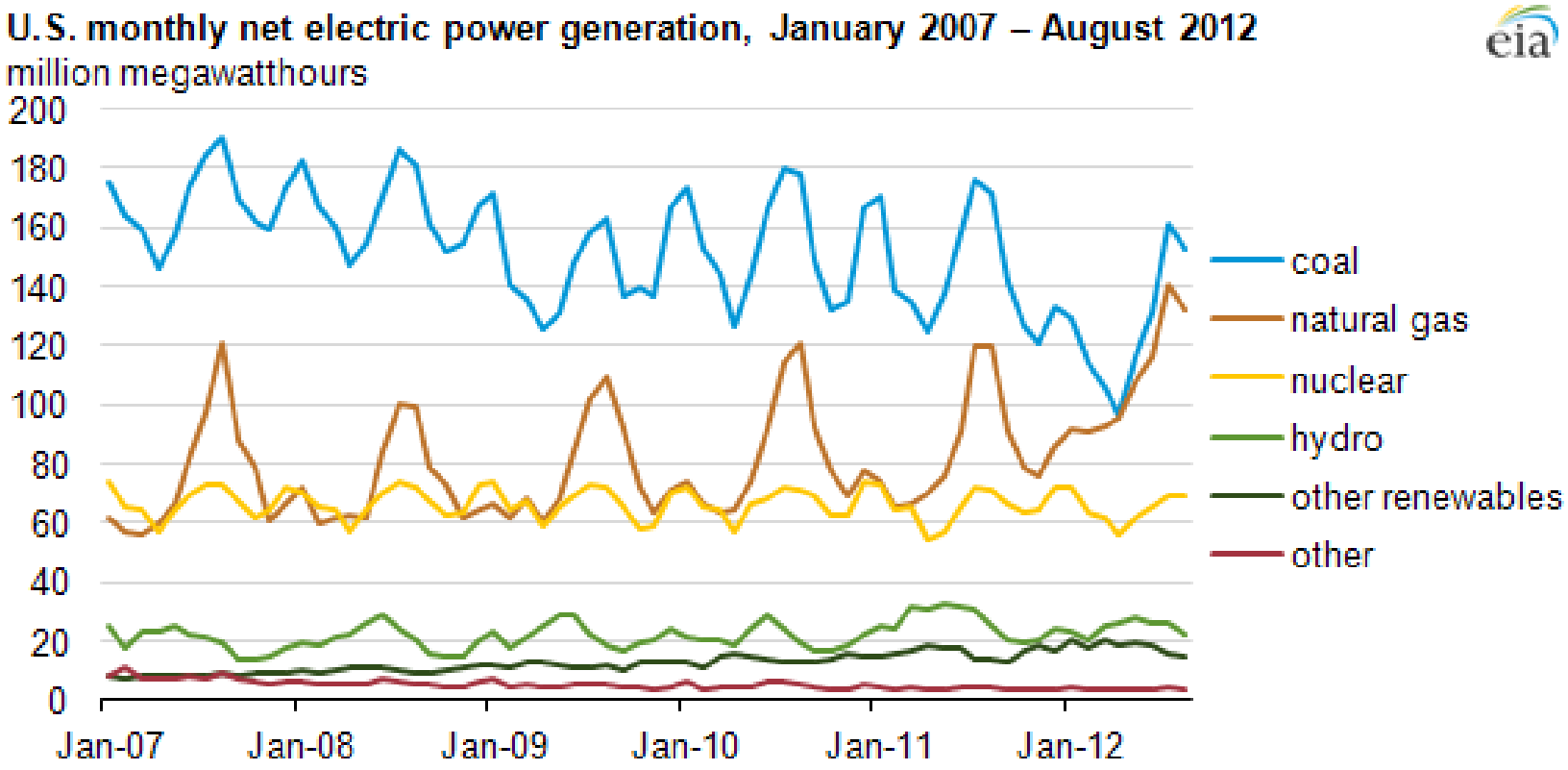
Source: SNL

LA Electric Power - Generation & Capacity



Source: Energy Information Administration, State Energy Data System

The “Dispatch Phenomenon”

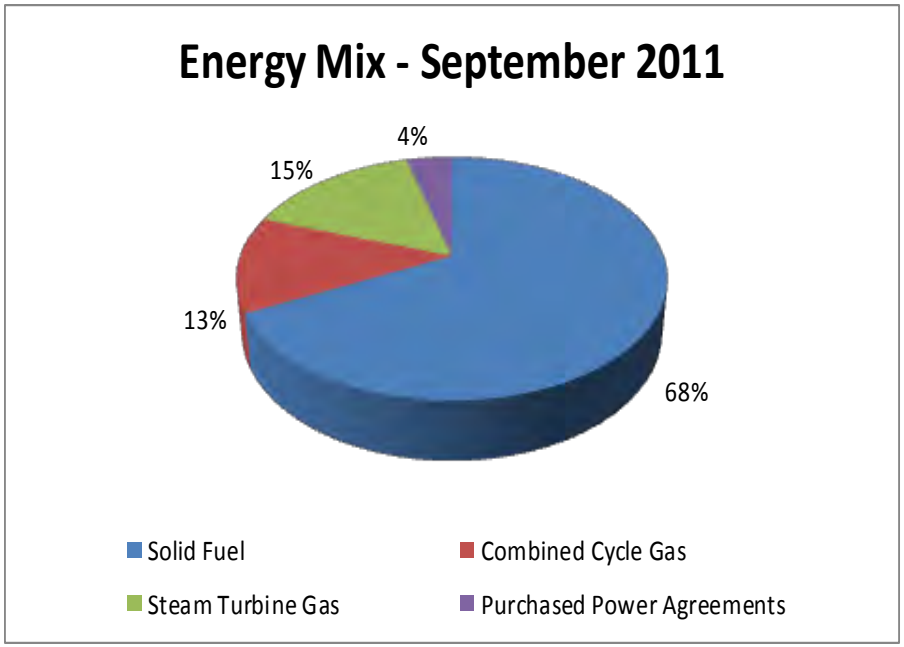


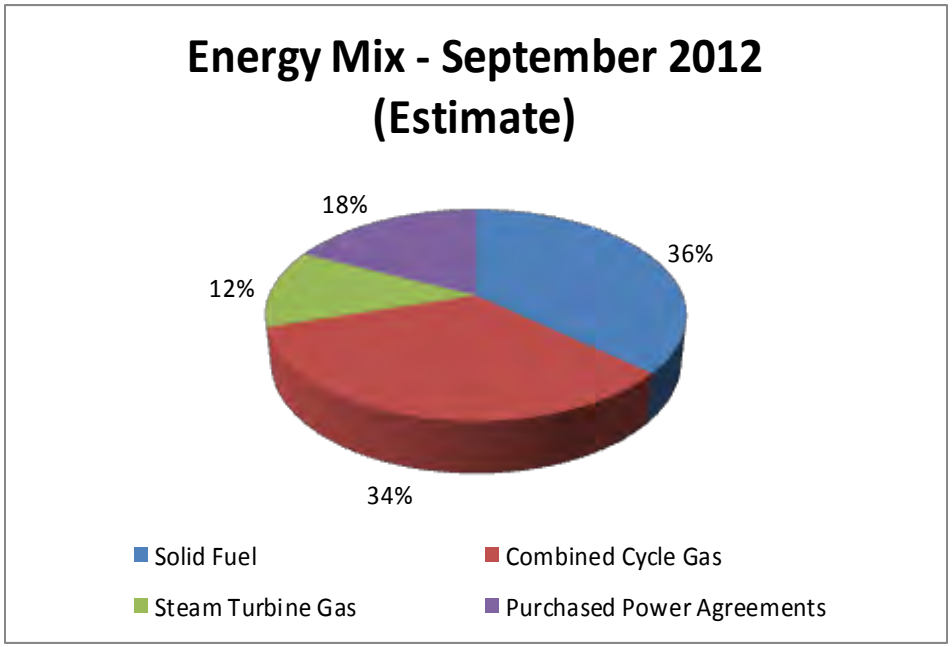
In late summer 2012, coal produced 39% of U.S. electricity, up from a low of 32% in spring 2012, when the natural gas share of generation equaled that of coal.

Source: EIA

Cleco Power's Change in Dispatch

Energy mix impacts due to reductions in gas price





Environmental Regulations Overview

Finalized Rules

- CSAPR (depends on Court)
- MATS
- NAAQS Ozone
- NAAQS SO_2
- Regional haze

Proposed Rules

- 316(b) cooling water intake rule
- Coal ash
- New National Ambient Air Quality Standards
- GHG NSPS
- EGU Effluent Guidelines (not yet proposed)

Future Drivers of Regulations

- Expirations of exemptions
- States' inability to meet federal rules
- More scientific data
- Legislation by individual states
- **Litigation by states and environmental groups**

EGU's will have to navigate through a maze of regulatory unknowns to ensure that customer's power supply remains reliable and affordable

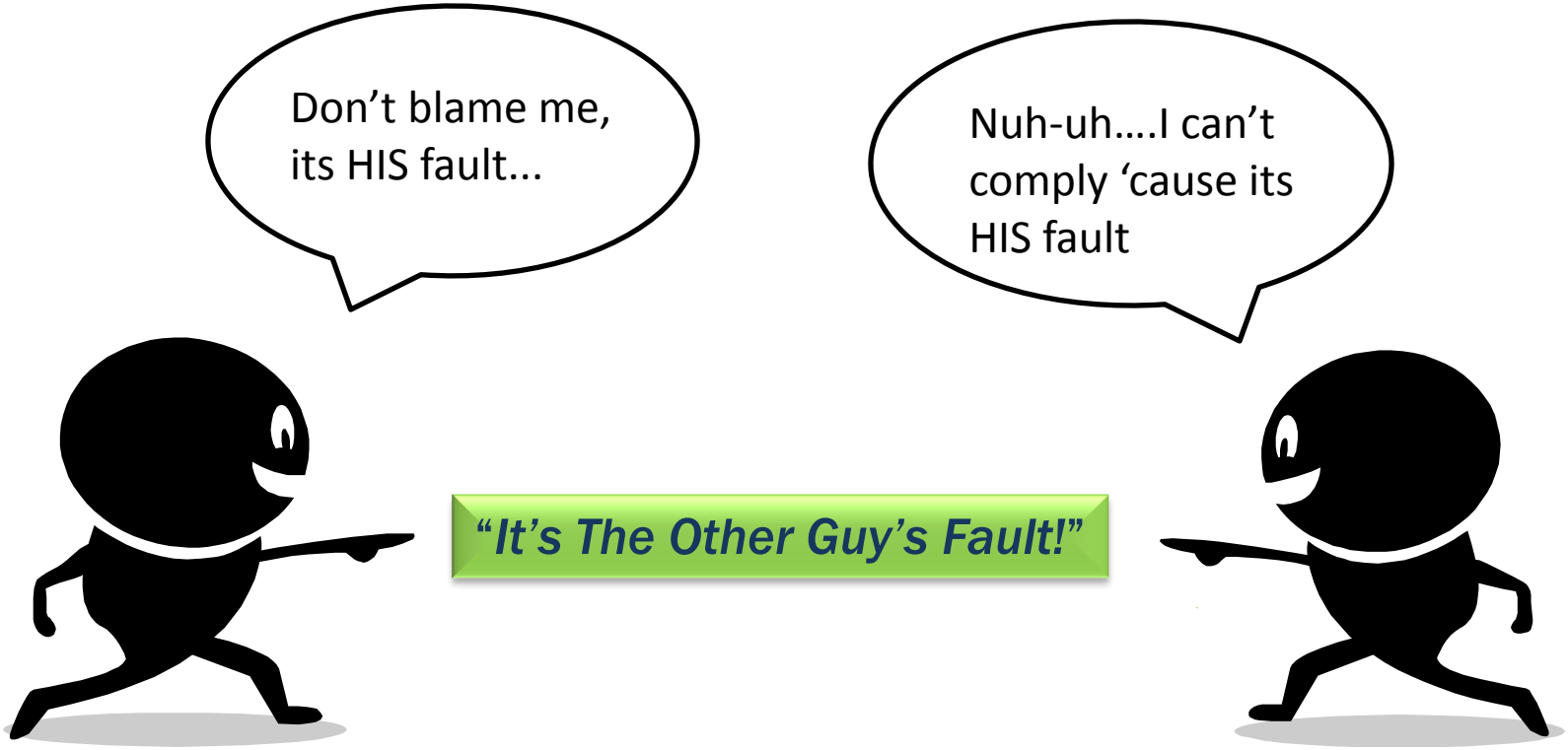
Near-term Environmental Compliance Concerns

- **Cross-State Air Pollution Rule (CSAPR)**
  - Purpose is to reduce NOx and SO_2 in 28 states
  - Emissions trading based rule
  - Applied to Electric Generating Units only (EGU's)

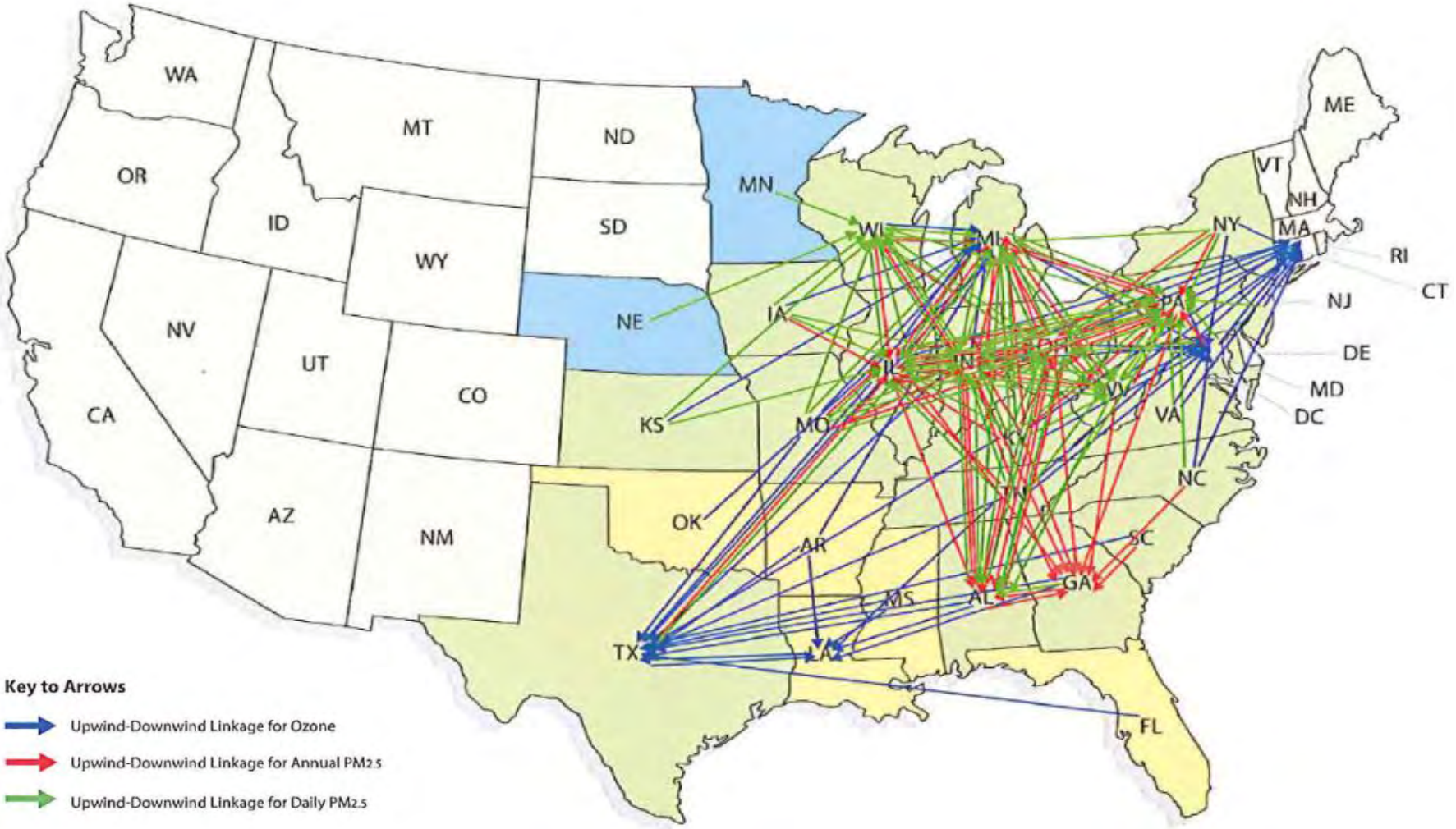
- **Mercury and Air Toxics Rule (MATS)**
  - Title III of CAA – Control of Hazardous Air Pollutants
  - Command & Control Rule Based
  - Imposes specific numeric standards for hazardous air pollutants from coal and oil-fried utility boilers

CROSS STATE AIR POLLUTION RULE (CSAPR)

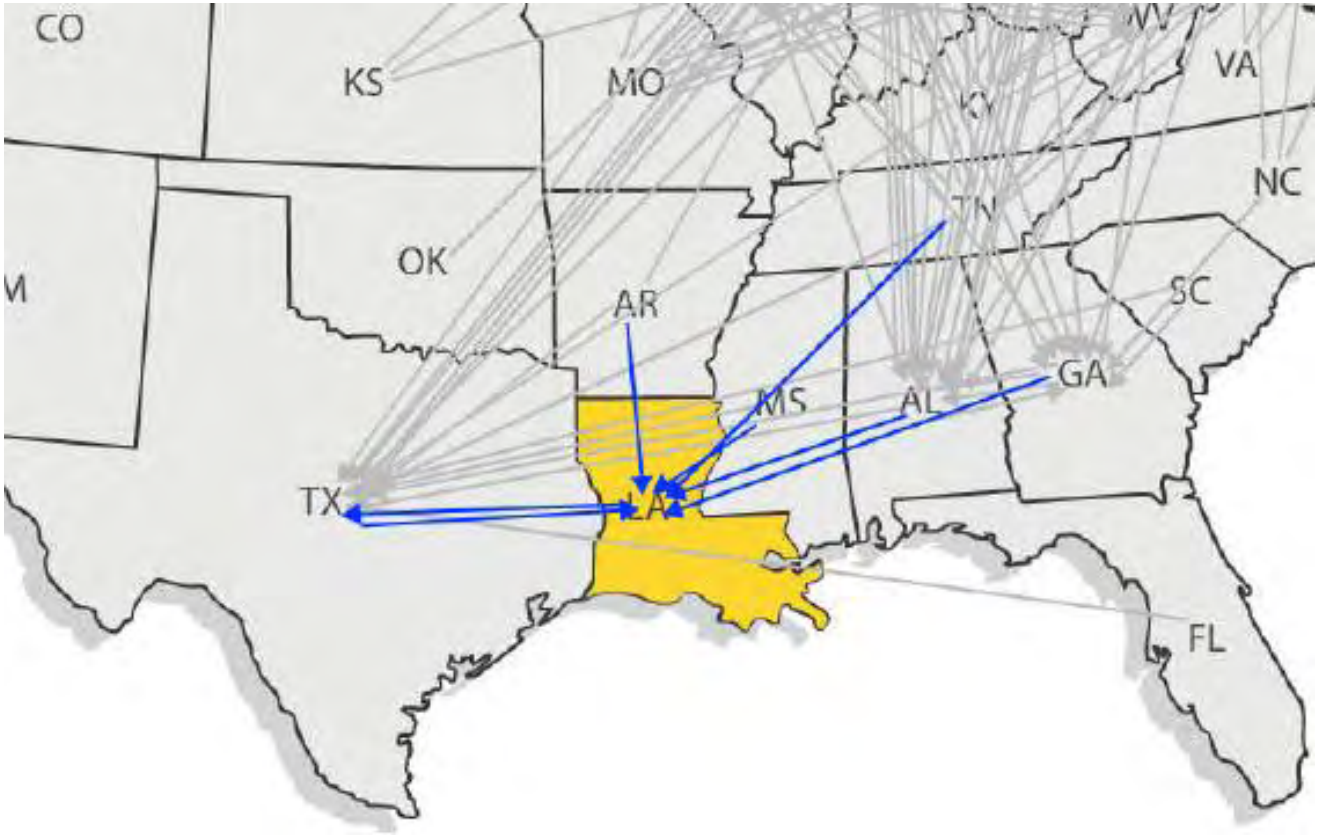
Premise behind the CSAPR rule.....



National "Linkages"



Louisiana “Linkages”



Key to Arrows:

Upwind-downwind linkage for Ozone

Allocation of Allowances

Cleco Power CSAPR Allocations

	Original Transport Rule	1st NODA	3rd NODA Method 1	3rd NODA Method 2	July 2011 Final Rule Allocation	Feb 2012 Revisions Rule	Feb 2012 Direct Final Rule
Date	Aug 2010	Sep 2010	Jan 2011	Jan 2011	July 2011	Feb 2012	June 2012
Ozone Season	5,445	3,107	1,669	1,926	1,588	2,091	2,122

61% reduction of allowances from Aug 2010 to June 2012

Latest on CSAPR

- On August 21st the D.C. Circuit Court of Appeals vacated CSAPR by a 2-1 vote. The Court ruled that EPA's exceed its authority under the CAA in two key areas:
  1. CSAPR required upwind states to reduce their emissions beyond their "significant contributions" to downwind states, and
  2. EPA's simultaneous issuance of the CSAPR rule and CSAPR "FIPs" did not provide states adequate time to develop their own SIP to address emission transport issues

…..the "good neighbor provision" of the Act was not a "blank check" for EPA to regulate interstate pollution….

…..CSAPR's federal-first regulation regime violated the Clean Air Act's "cooperative federalism" structure…..

- The Court ordered EPA to rewrite the rule in an expeditious fashion
- CAIR is reinstated as law of the land….for now
  - CAIR itself has been ruled illegal
  - EPA has requested a rehearing, so we're back in limbo until we hear from the D.C. Circuit Court
- The Allowance Market for CAIR allowances are depressed
  - Significant bank of SO_2 allowances
  - Unlike CSAPR, unlimited trading between states, units, etc.

Future CSAPR Uncertainties

- Will the Court rehear the case?
  - And if it is reheard, what's the outcome?
- Will EPA begin writing a new rule to address emission transport issues?
  - Will the scope of a new rule go beyond EGU's?
  - Will EPA issue a SIP call to states (3 year process)?
- Would a new rule be issued to address newer PM 2.5 and Ozone standards?
  - CSPAR addressed old standards: 1997-annual PM2.5, 1997-Ozone, 2006-24hr PM2.5
- How does this impact Regional Haze rule compliance?
- Other than an overturned decision from the Court, a new transport rule is likely delayed

MERCURY AND AIR TOXICS STANDARDS (MATS)

Utility MATS Rule

- **By far….the toughest rule to ever affect EGU's**
- **Strict "Command & Control" numeric emission limits**
  - Hard-number limits for Mercury, Particulate Matter (metals), HCl (acid gas)
  - Must meet the limit achieved by the top performing 12 % of similar sources
  - Work practice standards (no hard-number limits) for Dioxin/furans
  - Strict monitoring, reporting and recordkeeping
  - Strict startup/shutdown provisions
    - Revised definitions of su/sd to cover only those periods in which "no electricity is being sold or used onsite"
- **Compliance required by April, 2015, unless 1-yr extension is granted by permitting authority**
  - Some existing units comply w/current controls
  - Some units will retire rather than invest in controls
  - "Reliability critical units" can operate under an Administrative Order

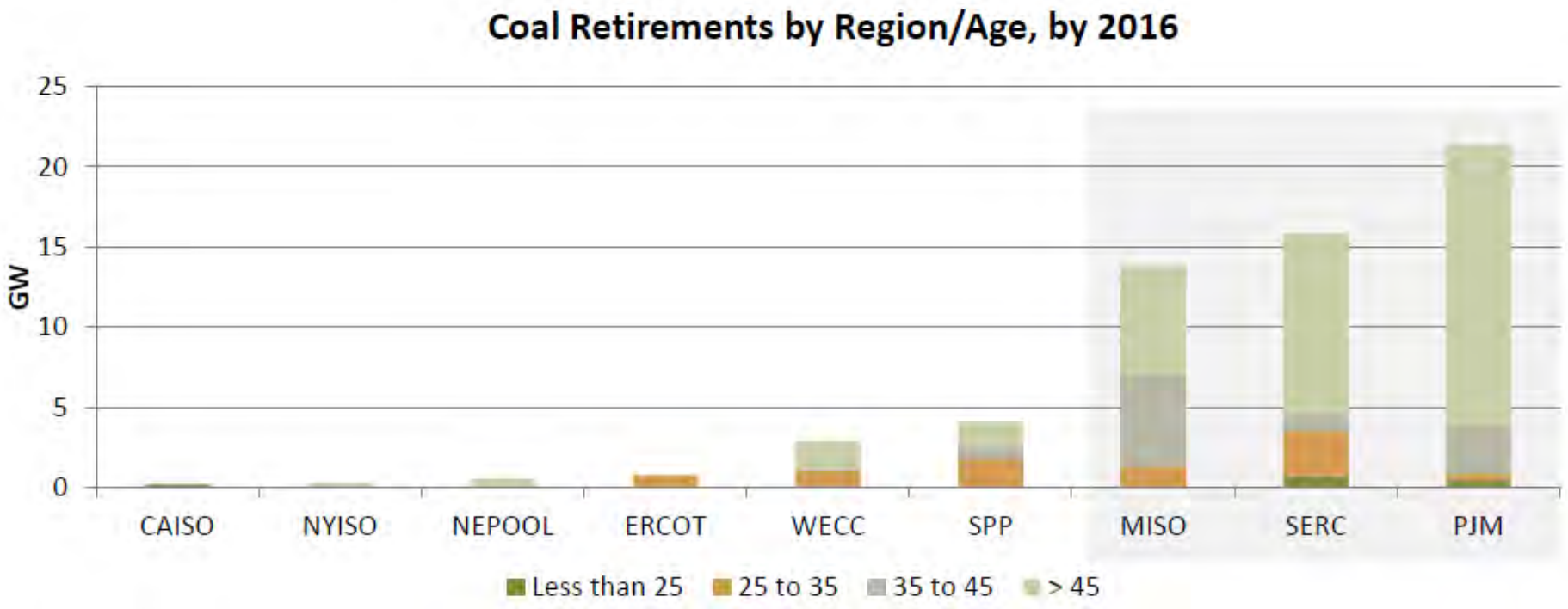
Utility MATS Rule

- **For most affected coal-fired units, required controls include:**
  - Activated Carbon Injection (ACI) – 90 GW
  - Upgraded particulate controls – 150 GW
  - Dry Sorbent Injection (DSI) – 75 GW - OR- Dry Scrubber – 15 GW

Controls to cost $100 - $200 million for the average coal plant

- **Rule was challenged**
  - Standards and methods of obtaining the standards
  - Additional time for compliance
  - NSPS issued with this rule

Impacts of the Rule



Approximately 60 GW to retire by 2016 driven by:

- Lower natural gas prices
- Cost of controls
- Speculation of other environmental regulations (316(b), Coal Ash, Effluent Standards, Carbon)

MATS Emission Limits

Subcategory	Filterable Particulate Matter	Hydrogen Chloride	Mercury
Existing coal	0.03 lb/MMBtu	0.002 lb/MMBtu	1.2 lb/TBtu
Existing coal (lignite)	0.03 lb/MMBtu	0.002 lb/MMBtu	4.0 lb/TBtu*
Existing IGCC	0.04 lb/MMBtu	0.0005 lb/MMBtu	2.5 lb/TBtu
Existing solid-oil derived	0.008 lb/MMBtu	0.005 lb/MMBtu	0.2 lb/TBtu
New coal	0.007 lb/MWh	0.4 lb/GWh	0.0002 lb/GWh
New coal (lignite)	0.007 lb/MWh	0.4 lb/GWh	0.04 lb/GWh

**EPA went beyond the floor with a limit of 4 lb/TBtu for existing lignite units. The limit was initially established at 11 lb/Tbtu.*

OTHER ENVIRONMENTAL REGULATIONS

Longer-term Environmental Compliance Concerns

- 316(b) Cooling Water Intake Rule
  - To protect fish and aquatic life from cooling water intakes
- NAAQS Standards
  - Ozone
  - SO_2
- Coal Ash
- Carbon
  - Permitting
  - NSPS
- Steam Effluent Guidelines
  - Reduce metals and other pollutants from steam electric power plant water discharges

316(b) Principal Requirements

- Sets separate standards for ***"Impingement"*** of fish and ***"Entrainment"*** of fish and larvae
  - Applies to ALL species
- "Impingement" - Two Compliance Options
  - No more than 12% mortality annual avg (31% monthly avg,)

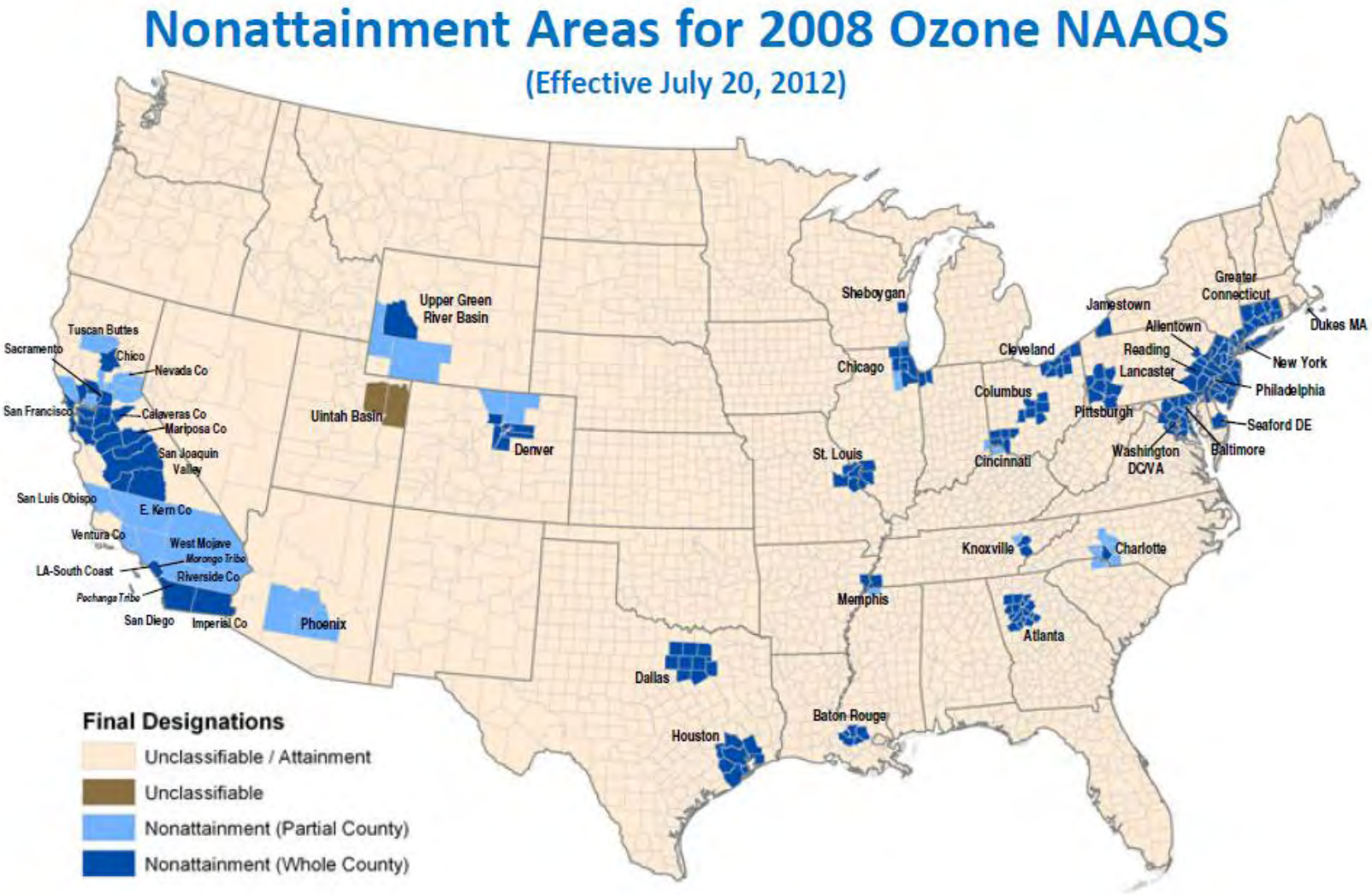
    -OR-
  - Water Intake Velocity ≤ 0.5 feet per second
- "Entrainment" – Compliance Determined at State Level
  - Case-by-case entrainment mortality limits based on site-specific analysis
  - 4 Studies - (Characterization Study, Technical Feasibility and Cost Evaluation, Benefits Valuation, Non-water quality impacts)
  - BTA is determined - Permit writer must defend his technology choice
- New Units – flow commensurate with closed cycle cooling
- Final Rule Expected no later than June 27, 2013

NAAQS Requirements

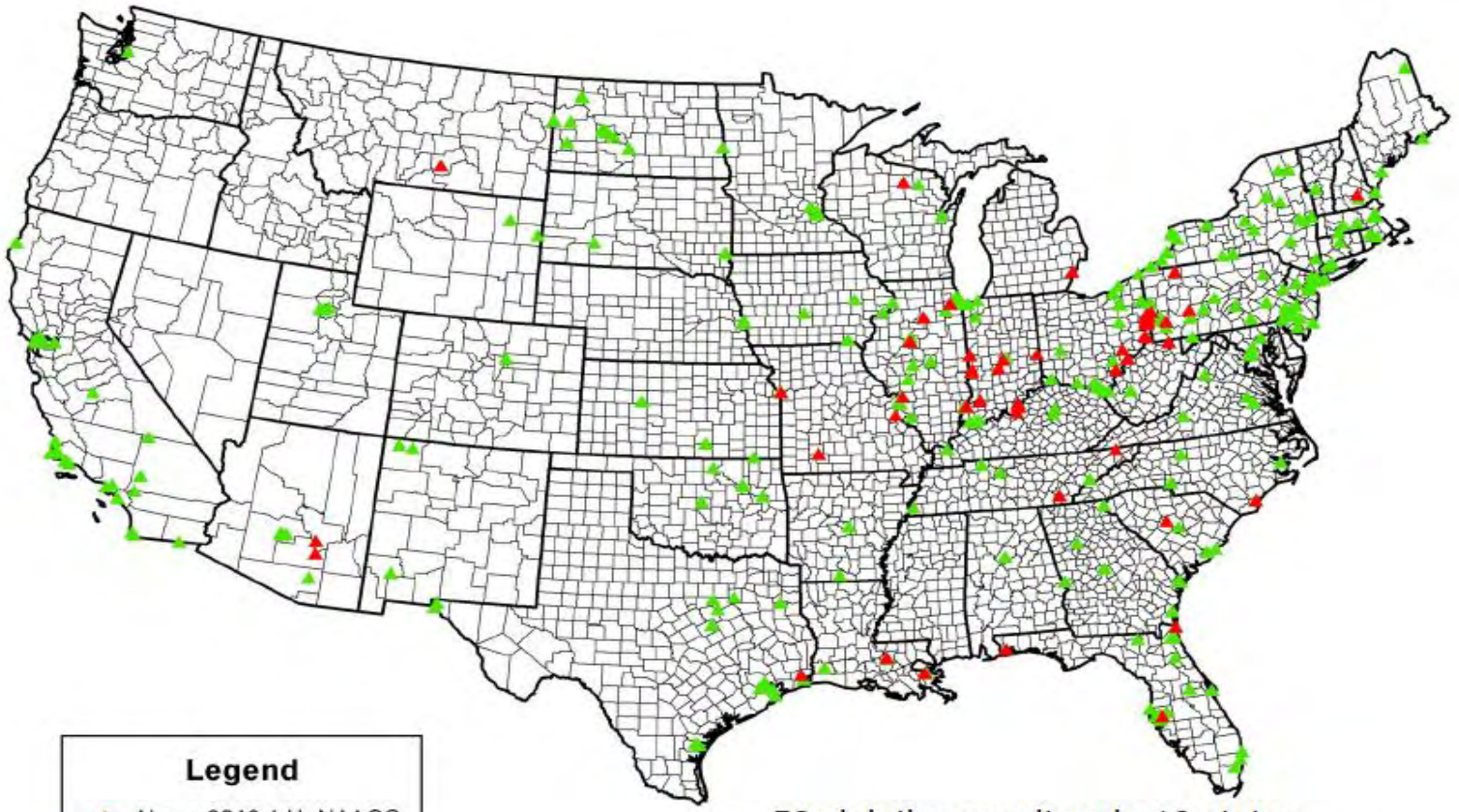
- **Ozone - 2008 standard of 75 ppb in effect**
  - Attainment area designations made by LDEQ
    - 5 Parish Baton Rouge Area marginal nonattainment
  - Compliance required by affected sources as early as December 2015
  - In 2014 - anticipate further reductions by EPA under normal review cycle (55 ppb?)

- **SO_2 – June 2010 EPA lowered the standard to 75 ppb**
  - Attainment area designations by June 2013 by EPA
    - Recently extended by EPA
  - SIPS addressing non-attainment areas due Feb 2015
  - Compliance required of affected sources as early as 2017-18
  - States could call for further reductions of SO_2 under this rule
  - Power plants predominant SO_2 emitter in the US and in LA
  - However, large sources may not be the problem

Ozone


Nonattainment Areas for 2008 Ozone NAAQS
(Effective July 20, 2012)
Upper Green River Basin
Uintah Basin
Denver
Phoenix
Tuscan Buttes
Sacramento
Chico
Nevada Co
San Francisco
Calaveras Co
Mariposa Co
San Joaquin Valley
San Luis Obispo
E. Kern Co
Ventura Co
West Mojave
Morongo Tribe
LA-South Coast
Riverside Co
Pechanga Tribe
San Diego
Imperial Co
Sheboygan
Chicago
St. Louis
Dallas
Houston
Memphis
Baton Rouge
Atlanta
Knoxville
Charlotte
Cincinnati
Columbus
Cleveland
Pittsburgh
Jamestown
Allentown
Reading
Lancaster
Greater Connecticut
Dukes MA
New York
Philadelphia
Seaford DE
Baltimore
Washington DC/VA
Final Designations
Unclassifiable / Attainment
Unclassifiable
Nonattainment (Partial County)
Nonattainment (Whole County)

SO_2 Monitoring Data



59 violating monitors in 18 states and 1 territory, (48 counties)

2008-2010 design values

Coal Ash Regulations Delayed…

Subtitle C – Hazardous Waste

- Treatment Ponds must be closed 5-7 years after final rule (2017-19) – no water discharges unless treated
- Landfill liners on new cells must meet stringent new requirements
- Stringent groundwater monitoring
- Stringent permit requirements for Tanks, Silos, Buildings used to handle ash

Subtitle D – Industrial Waste

- Treatment Ponds closed after 5 years or retrofitted with new liners and leachate collection
- Landfill liners on new cells must meet stringent new requirements
- Stringent groundwater requirements
- No requirements for Tanks, Silos, Buildings used to handle ash

Final rule delayed pending NODA - final rule expected mid-2013?

Greenhouse Gases

- **Greenhouse Gas(GHG) Regulations**
  - In June, the D.C. Circuit Court ruled against industry and in favor of EPA's GHG rules
    - Ruling confirms the EPA's endangerment finding, timing rule, and tailoring rule
  - Existing units not impacted unless a "major modification" is made to a unit
    - Triggers a "best available control technology (BACT)" evaluation
    - For now, a BACT analysis consists of consideration of energy efficiency in various aspects of the generation cycle
    - Over time requirements will be come more stringent as technology advances
    - Expect permitting delays from environmentalist intervening in permitting new sources or modifying existing sources
  - New units must address GHG's in permit applications

- **New Source Performance Standards (NSPS)**
  - EPA promulgated an NSPS for new sources (none for existing sources…yet)
  - Standard is CO_2 emission rate equal to that of a CCGT (1,000 lbs/MWhr)
    - State of the art coal unit CO_2 emissions are 2,200 lbs/MWhr

EGU Effluent Guidelines

- Rule proposal – December 2012
- Rule finalized – May 2014
- Rule Focus – Reduction of metals discharge to surface waters
  - Expected lower discharge limits - As, Cr, Cu, Se, Zn in PPB range and Hg in the PPT range
- Sources of pollutants - Ash impoundments and landfill runoff/leachate
- Possible compliance/treatment options:
  - Zero discharge (dry ash handling or thermal evaporation) and daily landfill cover
  - Chemical precipitation
  - Chemical precipitation followed by biological treatment

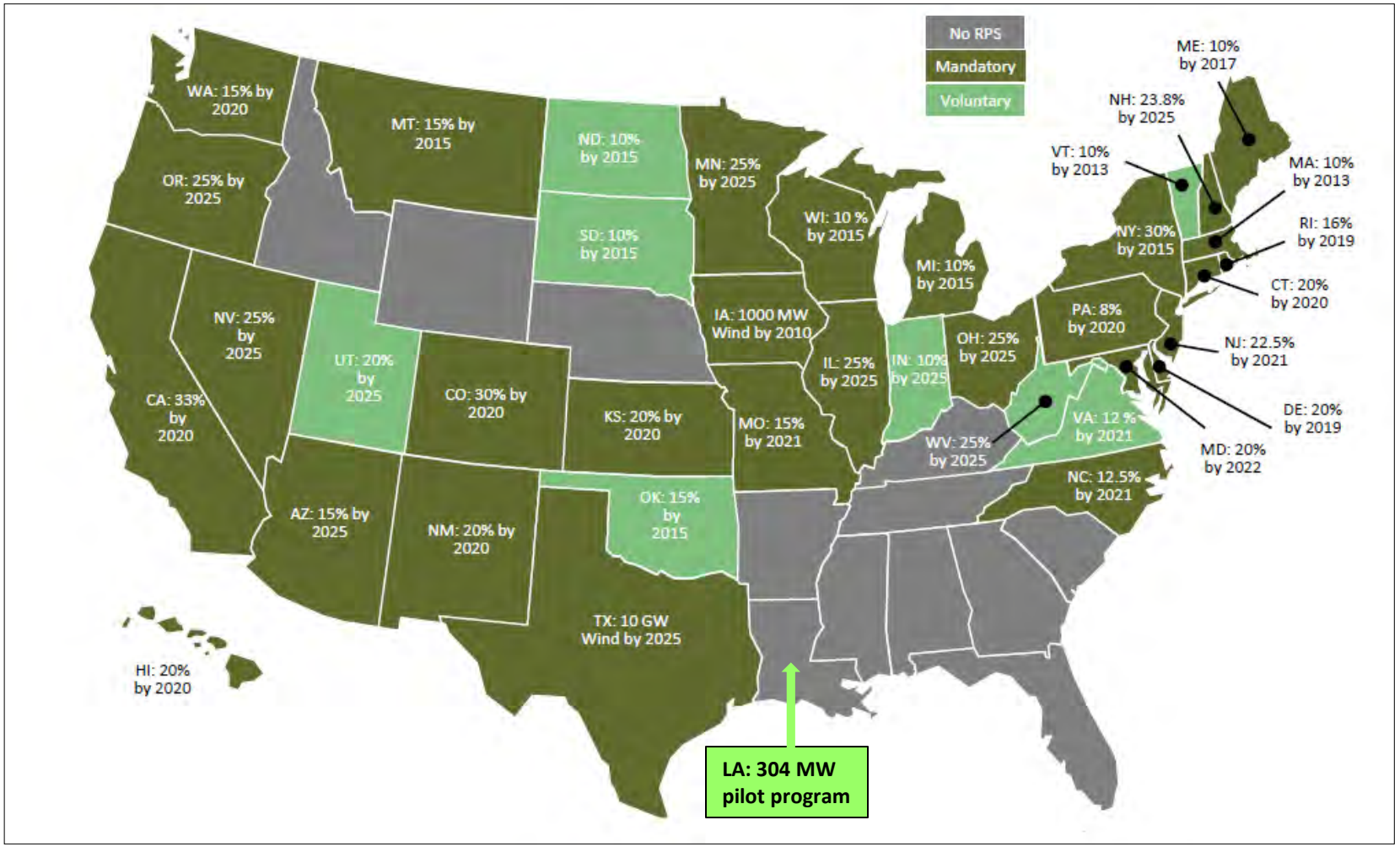
How Do Utilities Plan for This?

Likely controls to consider*

	CSAPR (or Sub)	MATS	NAAQS Ozone	NAAQS SO2	316(b)	Coal Ash
Legacy Coal	SNCR	Sorbent Injection, Baghouse, ACI	SCR ?	Scrubbers, 2nd Stage Sorbent-Injection	Intake Mods	Liners, close/modify ponds
New Coal	---	ACI	---	---	---	Likely up to standards
Legacy Gas	LNB's	---	SNCR/FGR	Remove Oil Firing	Intake Mods	---
CCGT Gas	---	---	---	---		---

The jury is still out on EGU effluent guidelines.

Renewable Energy Standards



Questions?