

Air Quality Regulations

time to shift gears ...

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Startup Shutdown & Malfunction EPA's Proposed "SIP CALL"



"Sizzling...smoking...flames shooting from the hard drive
OK...that IS a malfunction and you'd best unplug it."

Why Are SSM Provisions Needed?

- During startup, shutdown, or malfunctions (SSM), emission limitations designed for normal, steady-state operations may be unachievable.
 - Some control devices cannot be engaged
 - Efficient combustion cannot be achieved
 - SSM events involve “transient” conditions
 - Accurate measurement of emissions during SSM events is difficult, if not impossible
- Without an SSM provision, these unavoidable emissions could be Clean Air Act violations.

```
A problem has been detected and Windows has been shut down to prevent damage to
your computer.

DFS_FILE_SYSTEM

If this is the first time you've seen this Stop error screen, restart your
computer. If this screen appears again, follow these steps:

Check to make sure any new hardware or software is properly installed. If this
is a new installation, ask your hardware or software manufacturer for any
Windows updates you might need.

If problems continue, disable or remove any newly installed hardware or
software. Disable BIOS memory options such as caching or shadowing. If you need
to use Safe Mode to remove or disable components, restart your computer, press
F8 to select Advanced Startup Options, and then select Safe Mode.

Technical Information:

*** STOP: 0x00000082

Beginning dump of physical memory
Physical memory dump complete.

Contact your system administrator or technical support group for further
assistance.
```

State SSM Provisions

- Most have been in State Implementation Plans (SIPs) since original EPA approval in the 1970s
- Typically not specific to industry/pollutant
- Each state's SSM provision is a little different
 - Some confirm that SSM emissions are not a “violation”
 - Some provide an “affirmative defense”
 - Some allow state authorities to determine “violations”
 - Almost all are qualified or conditioned

under certain conditions ...



Federal SSM Provisions

- NSPS 40 C.F.R. Part 60 Subpart A:
 - Operations during periods of [SSM] shall not constitute representative conditions for the purpose of a performance test **nor shall emissions in excess of the level of the applicable emission limit during periods of [SSM] be considered a violation** of the applicable emission limit
- NESHAP 40 C.F.R. Part 63 Subpart A
 - [E]mission standards set forth in this part shall apply at all times **except during periods of startup, shutdown, and malfunction**

SSM/Opacity Cases—Not an Idle Threat

- *Sierra Club v. PSC Colo.*, 894 F. Supp 1455 (D. Colo. 1996)
- *National Parks Conservation Assoc. v. Tennessee Valley Authority*, No. 00-00547 (E.D. Tenn. 2000)
- *Sierra Club v. Tri-State Generation and Transmission, PSC of Colo., Salt River Project Agricultural Improvement and Power District, Pacificorp, and Platte River Power Authority*, No. 96-02368 (D. Colo. March 19, 2001)
- *Sierra Club v. TVA*, No. 02-02279 (N.D. Ala. 2002)
- *United States v. Exelon Mystic LLC*, No. 04-10213 (D. Mass. Jan. 29, 2004)
- *Biodiversity Conservation Alliance, et. al. v. Mountain Cement Co.*, No. 04-00361 (D. Wyo. Nov. 17, 2004)
- *Grand Canyon Trust v. PSC New Mexico*, No. 02-00552 (D.N.M. Mar. 10, 2005)
- *Illinois v. S. Illinois Power Co., Illinois Pollution Control Board, PCB No. 04-201* (Feb. 16, 2006)
- *Citizens for Pennsylvania's Future v. Allegheny Energy Supply Co.*, No. 05-00186 (W.D. Pa. July 13, 2006)
- *Sierra Club v. Georgia Power*, 365 F. Supp. 2d 1297 (N.D. Ga. 2004), reversed and remanded by 443 F.3d 1346 (11th Cir. 2006), summary judgment granted for Defendant in No. 02-00151, 2007 U.S. Dist. LEXIS 100219 (N.D. Ga. Jan. 11, 2007)
- *Sierra Club and Wyoming Outdoor Council v. PacifiCorp*, No. 07-cv-042-J (D. Wyo. Feb. 21, 2007)
- *Md. Dept. of Env't v. Constellation Power Source Generation, Inc.*, No. 02-CV-07122918 (Md. Cir. Ct. Sept. 28, 2007)
- *PennFuture v. FirstEnergy Corp.*, No. 07-01412 (W.D. Penn. Oct. 15, 2007)
- *Conservation Law Foundation, Inc. and HealthLink, Inc. v. Dominion Energy New England, Inc.*, No 1:10-cv-11069 (D. Mass. Dec. 21, 2011)
- *Sierra Club v. Ameren Corp.*, No. 4:14-CV-00408 (E.D. Mo. Filed March 5, 2014)
- *Sierra Club v. Energy Future Holdings Corp.*, No. W-12-CV-108 (W.D. Tex. March 28, 2014)
- *Sierra Club v. DTE Energy Co.*, No. 2:13-cv-11103 (E.D. Mich. Oct. 16, 2014) (stipulation of voluntary dismissal without prejudice).
- *Sierra Club v. Energy Future Holdings Corp.*, No. 5:10-cv-00156 (E.D. Tex. Jan. 30, 2015) (order reassigning case).

Sierra Club v. Georgia Power

443 F.3d 1346 (11th Cir. 2006)

- In 2002, the **Sierra Club** sued Georgia Power alleging ~4000 opacity violations at Plant Wansley in 5 years (1% operating time).
- Georgia Power submitted factual and expert testimony that Plant Wansley met Georgia SSM rule for each excess opacity event.

District Court: granted summary judgment for Sierra Club because the Plant's permit used "may allow" instead of "shall allow," as in the SSM rule.



Sierra Club v. Georgia Power

443 F.3d 1346 (11th Cir. 2006)

11th Circuit: held that the Georgia SSM rule establishes a valid affirmative defense

- “Ultimately, it appears that Sierra Club's real complaint is not with Georgia Power's permit compliance, but rather with Georgia's SSM Rule itself. ... **Sierra Club could petition the EPA** for rulemaking, asking the EPA to demand that Georgia alter its SIP to conform to the EPA's SSM policy... For purposes of this particular enforcement action, however, Georgia's SSM Rule remains the law....”
- During the case, Sierra Club asked EPA for a “SIP Call,” which the **Bush Administration** denied. Under the **Obama Administration**, Sierra Club tried again ...



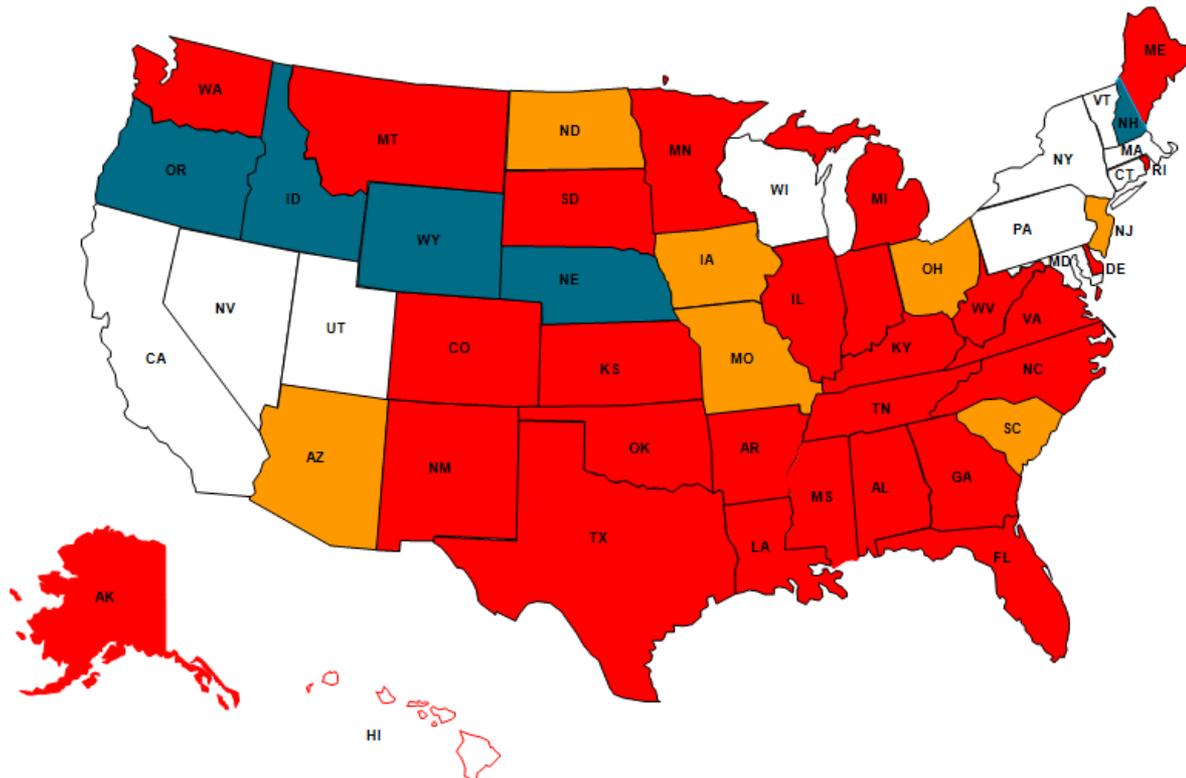
EPA's Proposed SSM SIP Call

- Proposed February 22, 2013; supplemented September 17, 2014
- Proposed to grant Sierra Club's Petition for 36 states, deny for 3; supplemental proposal added 2 more states (CA, TX)
- Require states to eliminate
 - All automatic exemptions
 - All "director's discretion" provisions
 - All affirmative defenses
- Very little discussion of alternatives



EPA's Final SSM SIP Call

- Issued May 22, 2015; SIPs revisions due **Nov. 22, 2016**
- 36 states have “substantially inadequate” SIPs



EPA's Final SSM SIP Call

In short, the SSM SIP Call:

- 1. Binding:** Requires states to eliminate or revise their SSM provisions to remove all affirmative defenses and ensure “emission limitations” are “continuous”
- 2. Guidance:** “recommendations” on what EPA believes to be an appropriate and approvable “alternative emission limitation” (AEL)

- EPA's new SSM Policy is a “policy statement” and thus “guidance;” it “does not bind states ...”



EPA's Final SSM SIP Call



- **“Good Cop”**
 - Not every numeric emission limitation must always apply “continuously”—combinations of numeric and non-numeric standards can form a “continuous” “emission limitation”
- **“Bad Cop”**
 - EPA claims that “general duty” clauses will not suffice
 - EPA cites 7 criteria for alternative limitations

What's next?

- **LITIGATION!**

1. Are States required to ensure all control measures are “continuous emission limitations”?
2. Are States authorized to define a “violation”?
3. What makes a SIP “substantially inadequate”?

- **SIP Revisions** (stay is unlikely)

1. Enforcement discretion (“may”) is not enough.
2. “Alternative emission limitations”—non-numeric work practice standards—may be the only viable option

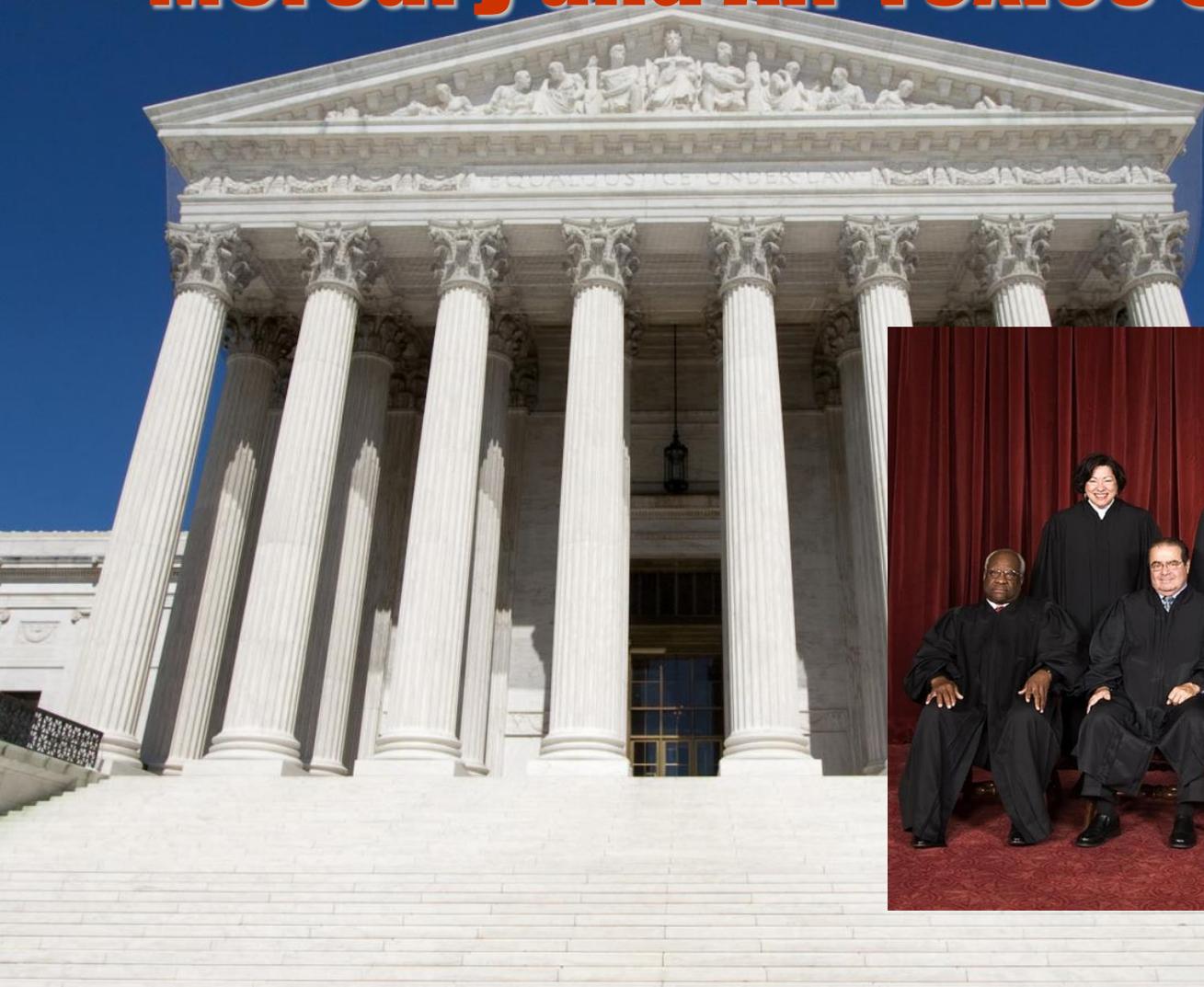


“But what about sources that don’t rely on an states’ SSM provision?”

- EPA only addressed the provisions cited by Sierra Club and “affirmative defenses;” a more complete review of SIPs in the future is likely.
- EPA is in the process of applying these same concepts to its own NSPS and NESHAP rules.

stay tuned ...

Mercury and Air Toxics Standards



Clean Air Act Section 112

- **§112(d) Maximum Achievable Control Technology**
 - **MACT FLOOR** for all “major sources” of hazardous pollutants
 - “Existing sources”: average of top 12%, regardless of cost
 - “New sources”: best performing similar source
 - Cost ONLY considered in “beyond the floor” standards
- **§112(n)(1)(A) Electric Utility Steam Generating Units**
 - “[EPA] shall perform a study of the **hazards** to public health ...
 - “[EPA] shall develop and describe ... alternative **control strategies** for emissions which may warrant regulation ...
 - “[EPA] shall regulate ... if [EPA] finds such regulation is **appropriate and necessary**”

Mercury and Air Toxics Standards

“MATS” issued February 16, 2012:

- MACT FLOOR applied to all categories of coal and oil utility units except one (lignite)
- Mercury, hydrogen chloride, and particulate matter limits requiring expensive new controls at most units
 - Activated carbon injection
 - Sorbent injection
 - Baghouses
 - Scrubbers & SCRs



Mercury and Air Toxics Standards

“Appropriate & Necessary”?



- Costs: \$9.6 billion annually
- Benefit: \$90 billion, but the “great majority” related to PM-related mortality and climate change “**co-benefits**,” only \$4-6 million in hazardous pollutant benefits

*“EPA does not believe that it is **appropriate** to consider costs when determining whether to regulate [electric utilities].”*



Mercury and Air Toxics Standards

D.C. CIRCUIT DECISION:

- **Majority:**
 - “On its face, § 112(n)(1)(A) neither requires EPA to consider costs nor prohibits EPA from doing so.”
 - “Congress left it to the expertise and judgment of EPA whether or not to regulate.”
 - “EPA did all that Congress required of it.”

Mercury and Air Toxics Standards

D.C. CIRCUIT DECISION:

- **Dissent (Kavanaugh):**
 - Suppose you were the EPA ... You have to decide whether an air quality regulation is “appropriate.”
 - You would certainly want to understand the **benefits** from the regulations. And you would surely ask how much the regulations would **cost**. That’s just common sense and sound government practice.





Mercury and Air Toxics Standards

UNITED STATES SUPREME COURT

- **Oral Argument—Justice Breyer:**
 - “There is a way to take into account costs. ... [T]he answers seems to me to be in that word ‘similar source,’ and the classes and the subclasses. ...”
 - “Now, you know where that argument came from? From discussion and thought in my chambers.”



Mercury and Air Toxics Standards

UNITED STATES SUPREME COURT

- **Justice Scalia, for the Majority:**
 - Costs are 1,600-2,400X the quantifiable benefits
 - The CAA treats power plants differently
 - “Appropriate” is “capacious”
 - Not even “rational,” “never mind appropriate” to impose billions in economic costs for a few dollars in health benefits
 - Unanswered: cost/benefit analysis? co-benefits?

What's next?

- **Vacatur?**

1. Does the failure to consider costs taint the entire rule?
2. What is the benefit of vacatur if costs are spent?

- **Remand?**

1. At a minimum, EPA will need to address costs
2. Will EPA continue to rely on co-benefits?
3. If not, can EPA show the rule is “appropriate”?



Greenhouse Gas Performance Standards



Clean Air Act Section 111

- **§111(b) New Source Performance Standards (NSPS)**

- “Performance Standards” set by **EPA**
- “New sources” include “modifications” of existing sources
- Must be established before §111(d)



- **§111(d) Emission Guidelines (EG or ESPS)**

- **STATES** set the “Performance Standards;” EPA sets “procedure” and issues “emission guidelines”
- States may take into account remaining useful life



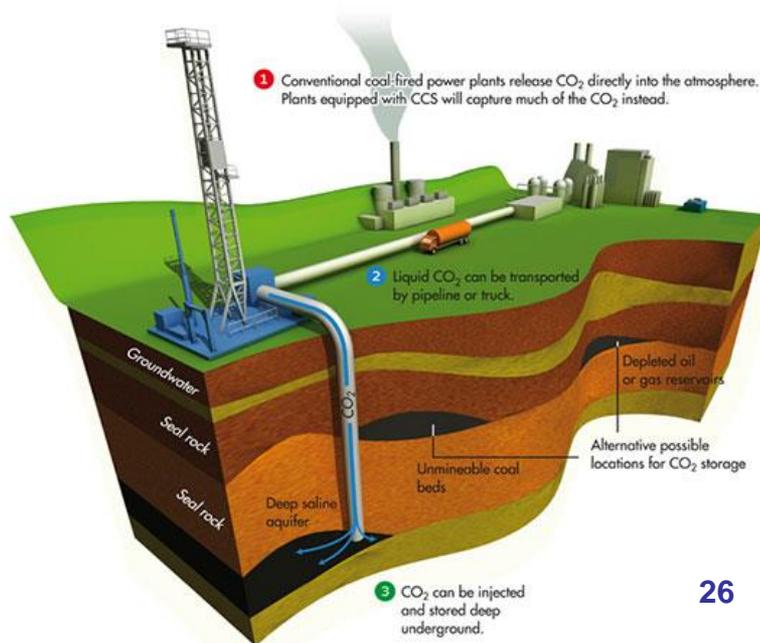
§111(b) NSPS



Coal-Fired Units

September 2013 (published January 2014) requiring partial carbon capture & sequestration for all new coal units

- Is CCS “demonstrated” and “achievable”?

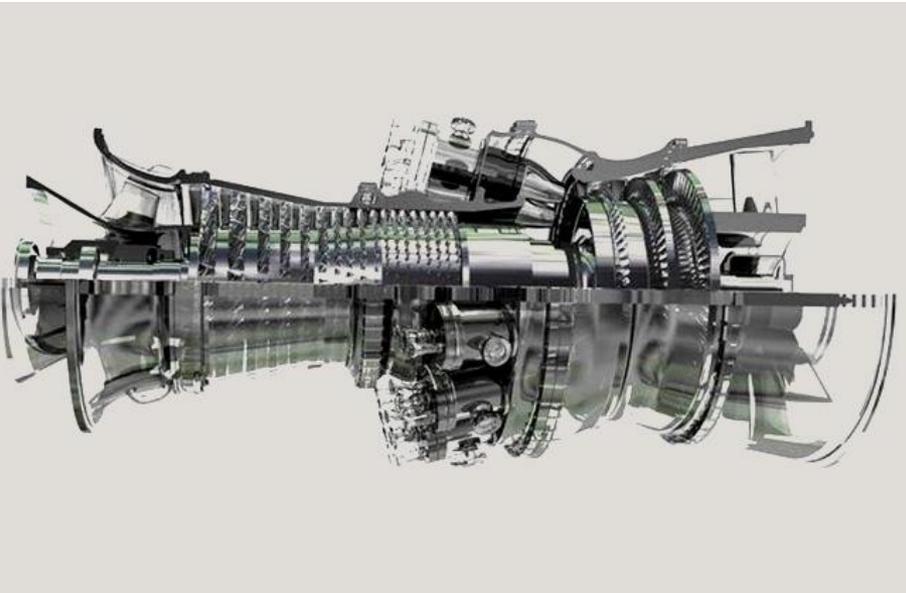


§111(b) NSPS



Natural Gas-Fired Units

- 1,000 lb CO₂/MWh for large units; 1,100 for small units
- No additional controls required for combined cycle (CC) units
- Should not apply to simple-cycle turbines (CTs), although not automatic – depends on capacity factor (33% threshold)



§111(b) NSPS



Modifications & Reconstructions

- **COAL:** 2% efficiency improvement compared to best efficiency within the last decade, with a 1,900 or 2,100 lb/MWh floor
- **NATURAL GAS:** combined cycle technology to meet 1,000 lb/MWh (same standard as for newly constructed units)

“EPA expects few units would trigger either the modification or the reconstruction provisions that we are proposing today”



§111(d) Clean Power Plan



State-by-State Goals

Each state must meet a mandatory “carbon-intensity” goal (lb/MWh) set through four “building block” assumptions:

1. Improve **efficiency** at coal plants by 6%
2. **Re-dispatch** natural gas to 70%, displacing coal
3. Increase **renewables** and maintain **nuclear** capacity
4. Increase demand-side **energy efficiency** to 1.5%



§111(d) Clean Power Plan



Building Block #1: Heat Rate Improvements of 6%

- Assumes 4% improvement based on eliminating variability in heat rate
 - Based on reducing variability to match best 10% of units
- Assumes 2% improvement based on capital projects
 - Based on assumption that only half have already been done

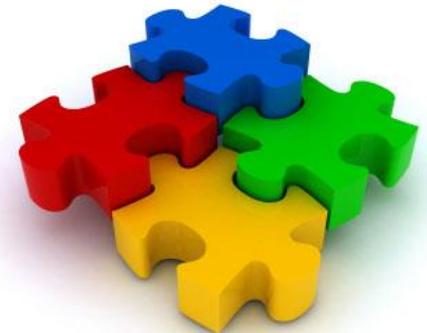


§111(d) Clean Power Plan



Building Block #2: Re-dispatch of Natural Gas to 70%

- Existing natural gas combined cycle units must increase to 70% capacity factor (from an average of 35%)
- EPA assumes 70% is possible because 10% of the units in the country already operate at that level
- Under-construction natural gas included, but not new natural gas



§111(d) Clean Power Plan



Building Block #3: Zero-Emitting (Renewable / Nuclear)

Renewable

- Existing renewable counts; hydro does not count
- Regional targets set (10% for the southeast) and growth factor needed to reach targets applied to each state
- Alternative approach suggests Southeast has enough RE already

Nuclear

- Existing nuclear does not count, except 5.8% “at risk” for retirement
- NEW nuclear counts 100% (5 units)

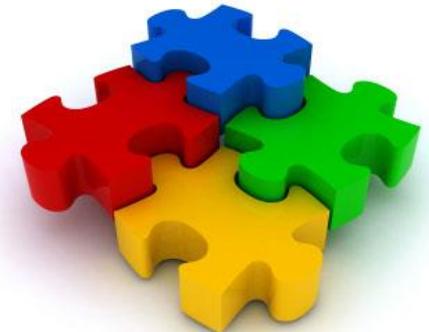


§111(d) Clean Power Plan



Building Block #4: Demand-Side Energy Efficiency

- EPA assumes 1.5% annual reduction in demand is possible based on a few states' achievement
- Each state must improve 0.2% each year until 1.5%, and maintain that year-over-year indefinitely
- Total improvement by 2030 is ~10%



§111(d) Clean Power Plan



Costs & Benefits

EPA claims:

- Benefit: 30% reduction in CO₂ by 2030; \$34-\$66 billion in climate and health benefits (particulate matter)
- Cost: \$7.1-\$8.8 billion ANNUAL compliance costs

but ...



§111(d) Clean Power Plan



Costs & Benefits

“Even if the U.S. were to reduce its greenhouse gas emissions to zero, that step would be far from enough to avoid substantial climate change.”

—Social Cost of Carbon TSD



§111(d) EG



Potential Legal Flaws

- EPA appears to set a mandatory “performance standard” for states, rather than issuing a “procedure” or “emission guidelines”
- EPA is attempting to regulate non-emitting facilities and entities (wind, solar, nuclear) under the Clean AIR Act
- EPA is not allowing the flexibility it claims (e.g., hydro)
- EPA may be precluded from regulating utilities under both CAA Section 112 (MATS) and Section 111(d)
- EPA appears to be using three sentences in the CAA to restructure the entire U.S. electricity system

§111(d) EG



What is likely to change in the final rule?

- Interim compliance deadlines—from 2020 to 2025 or state-specific?
- Building block 3—credit for “at risk” and “new” nuclear?
- Building block 3—RPS renewable approach, or resource-based?
- Building block 3—credit for “in-state” and “out of state” renewables?
- Mass-based targets?
- SIP submittal timelines?
- **FEDERAL IMPLEMENTATION PLAN**

What's next?

- **LITIGATION!**

1. Will the D.C. Circuit stay the rule?
2. How will the D.C. Circuit divide up the issues?
3. What will the schedule be?

- **SIP Revisions** (stay is quite possible)

1. States will have one year to submit partial plans.
2. Multi-state plans get extra time.
3. Compliance dates?



Recent Supreme Court Decisions

UARG v. EPA, 134 S. Ct. 2427 (2014)

- “[I]t would be patently unreasonable—not to say outrageous—for EPA to insist on seizing expansive power that it admits the statute is not designed to grant.”
- When an agency claims to discover in a long-extant statute an unheralded power to regulate “a significant portion of the American economy,” ... we typically greet its announcement with a measure of skepticism. We expect Congress to speak clearly if it wishes to assign to an agency decisions of vast “economic and political significance.”

Recent Supreme Court Decisions

King v. Burwell, 2015 U.S. Lexis 4248

- “When analyzing an agency’s interpretation of a statute, ... we ask whether the statute is ambiguous and, if so, whether the agency’s interpretation is reasonable. ... In extraordinary cases, however, there may be **reason to hesitate before concluding that Congress has intended such an implicit delegation.**”
- “The tax credits are among the Act’s key reforms, involving billions of dollars in spending each year and affecting the price of health insurance for millions of people. ... It is **especially unlikely that Congress would have delegated this decision** to the IRS, which has no expertise in crafting health insurance policy of this sort.”



National Ambient Air Quality Standards (NAAQS)

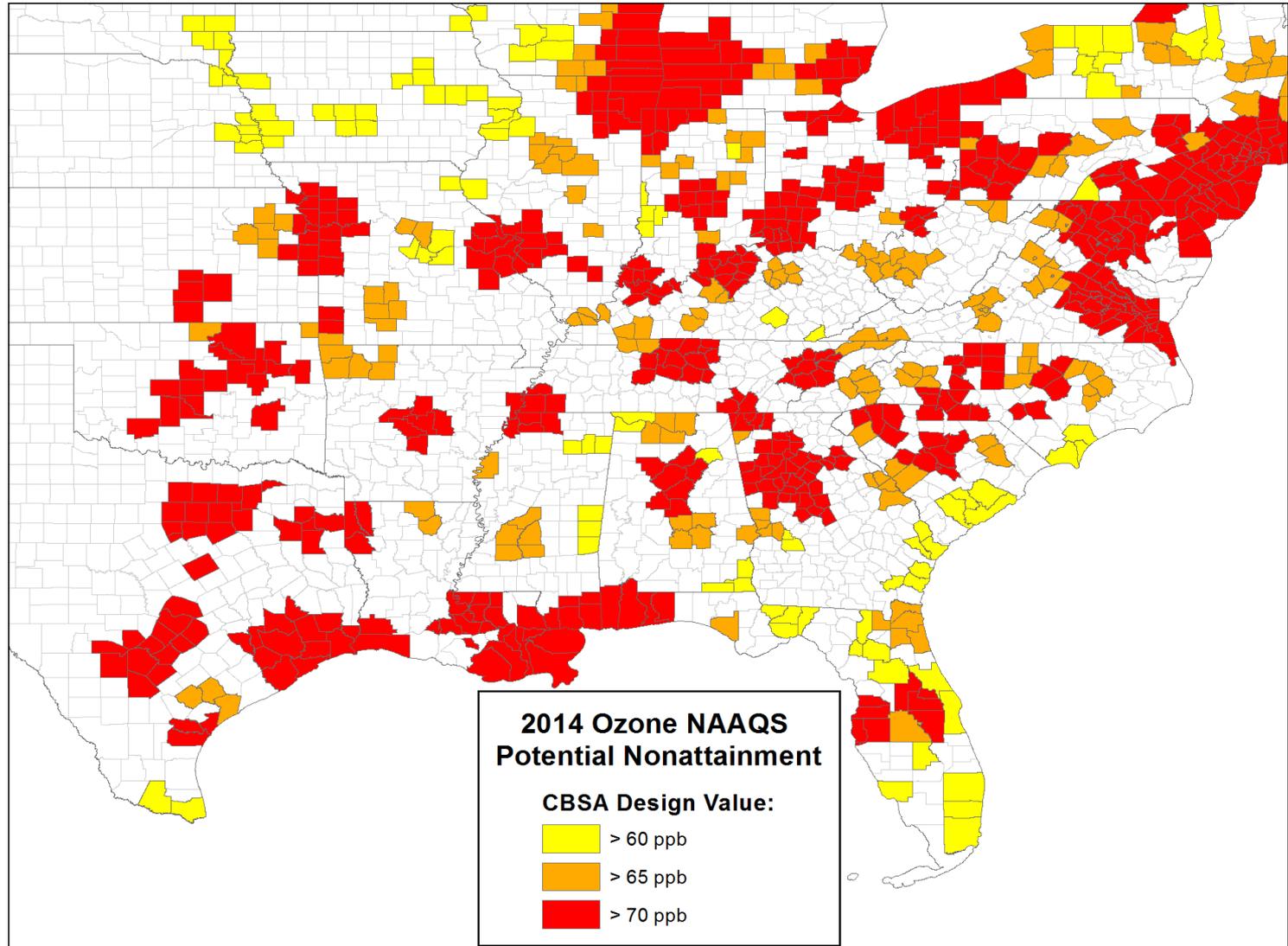
Ground Level Ozone

- Many areas now attaining 1997 standard: 84 ppb
- Current 2008 standard: 75 ppb
- More stringent standard proposed between 60-70 ppb
 - withdrawn by the Obama Administration in 2011
 - re-proposed December 2014 to focus on 65-70 ppb
 - final standard due **October 1, 2015** by court order
- Would substantially increase nonattainment



AIR QUALITY INDEX

Air Quality Index (AQI) Values	Levels of Health Concern
0 to 50	Good
51-100	Moderate
101-150	Unhealthy for Sensitive Groups
151-200	Unhealthy
201-300	Very Unhealthy
301 to 500	Hazardous



What's next?

- **LITIGATION!**

1. Does the science support EPA's decision?

- **Implementation**

1. States recommend designations
2. EPA makes final designations
3. States prepare attainment plans and demonstrations

BUT PERMITTING ISSUES BEGIN **IMMEDIATELY!**



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time to shift gears ...

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