

A SOUTHEASTERN SNAPSHOT: EPA'S CLEAN POWER PLAN

Updated August 2015

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The following document provides an overview of need-to-know provisions of the U.S. Environmental Protection Agency's final Clean Power Plan, as well as compliance options that focus on end-use energy efficiency. It also highlights current themes and perspective surrounding potential implementation of the Clean Power Plan in the Southeast, and is intended to serve as a starting point for conversation.

SEEA thanks the American Council for an Energy-Efficient Economy and the Southwest Energy Efficiency Project for their contributions to this document.

Additional information and resources, updated regularly, are available on SEEA's website at <http://goo.gl/3jD2KK>.

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I. OVERVIEW

On August 3, 2015, the U.S. Environmental Protection Agency (EPA) issued a final rule regulating carbon dioxide (CO₂) emissions from the nation’s power sector under Section 111(d) of the Clean Air Act (the “Clean Power Plan,” or CPP).¹ The CPP cuts carbon pollution from the power sector by 32 percent below 2005 levels by 2030, using 2012 as a baseline for emission reduction targets. This rule was originally published in draft form in June 2014, followed by a comment period that generated more than 4 million stakeholder comments. A list of key changes from the draft rule to the final rule is available in **Appendix A** to this document.

The CPP will be implemented according to the following timeline:²

SUBMITTALS

- **September 6, 2016:** All states submit final plans, or an initial submittal with an extension request.
- **September 6, 2017:** States that have received an extension submit a progress update.
- **September 6, 2018:** Deadline to submit final state plans, for states with the maximum two-year extension.
- **July 1, 2021:** States submit a milestone (status) report.

INTERIM AND FINAL GOAL PERIODS

- **2022-2024:** Interim step one period (Reporting: July 1, 2025).
- **2025-2027:** Interim step two period (Reporting: July 1, 2028).
- **2028-2029:** Interim step three period (Reporting: July 1, 2030).
- **2030:** Start of the final goal compliance period (Reporting: July 2, 2032 and every two years beyond).

Following the publication of the final rule in the Federal Register, stakeholders will have 90 days to comment on a number of draft provisions. These include EPA’s draft EM&V guidance,³ as well as a proposed federal plan, which includes both a rate- and mass-based approach.

¹ Also on August 3, EPA released final standards for new, modified and reconstructed power plants, in addition to a proposed federal plan and model rule to assist states in implementing the Clean Power Plan.

² Some stakeholders have stated their intent to litigate the EPA rule in court; these proceedings will ramp up when the final rule is released and may impact the proposed implementation timeline. States taking legal action will do so through their Attorney General’s Office.

³ The comment period for the draft EM&V guidance is tied to the publication of the model trading rule.

II. FRAMEWORK AND REQUIRED REDUCTIONS

Regulation under Section 111(d) occurs through a two-step process: First, EPA sets a level of stringency that constitutes the “best system of emission reduction (BSER)” for a given pollutant, and then states develop compliance plans to meet EPA’s prescribed level of stringency. At its core, BSER is a best practice solution set used to set the stringency of the required reductions, taking into account key considerations like cost-effectiveness.

In the case of CO₂, EPA has broken the BSER down into three “building blocks.”

- **Building Block 1: Heat Rate Improvements** — reducing the carbon intensity of generation at affected coal steam units through heat rate improvements.
- **Building Block 2: Re-dispatching to Natural Gas Combined-Cycle (NGCC)** — substituting increased generation from lower-emitting NGCC units for reduced generation from higher-emitting affected steam generating units.
- **Building Block 3: Renewable Energy** — substituting greater use of new renewable energy generating capacity for reduced generating at affected fossil fuel-fired generating units.

EPA applied these three building blocks to two subcategories of fossil fuel-fired electric generating units (EGUs) – fossil fuel-fired steam units and natural gas combined cycle units – within the Western Interconnection, the Eastern Interconnection and the Electricity Reliability Council of Texas Interconnection, producing regional emission rates. Next, EPA selected the most readily achievable regional rate to generate national performance rates for each subcategory. To provide additional flexibility, these rates were applied to each state and its unique generation mix to arrive at individual statewide goals.

EPA’s prescribed BSER building blocks directly inform the stringency of the required emission reduction targets; however, states have broad flexibility in determining the mix of strategies they use to reach the targets, and compliance strategies are not confined to those used in setting the targets. In the draft rule, energy efficiency was included in the BSER as the fourth building block, but in the final rule, EPA removed energy efficiency, likely due to legal considerations. However, energy efficiency is still available to states as a compliance strategy, and EPA has included a number of provisions within the rule that directly encourage the use of energy efficiency in compliance.

III. SOUTHEASTERN STATE GOALS

EPA has established interim and final goals in three forms:

- A rate-based state goal measured in pounds per megawatt hour (lbs/MWh);
- A mass-based state goal measured in total short tons of CO₂;
- A mass-based state goal with a “new source complement,” inclusive of new NGCC capacity, measured in total short tons of CO₂.

Specific goals for each southeastern state are provided on the pages that follow.

FIGURE 1. RATE REDUCTIONS FOR SOUTHEASTERN STATES (ADJUSTED OUTPUT-WEIGHTED-AVERAGE POUNDS OF CO₂ PER NET MWH FROM ALL AFFECTED FOSSIL FUEL-FIRED EGUS)

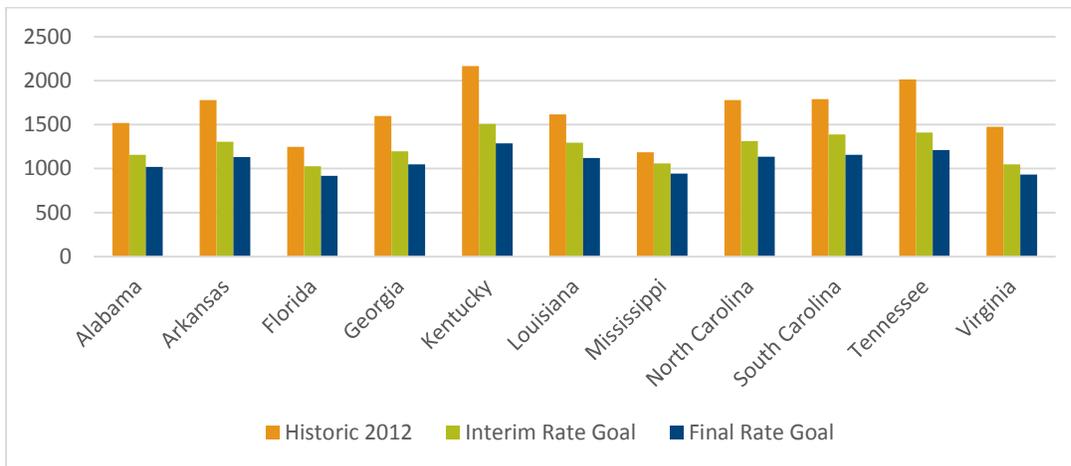
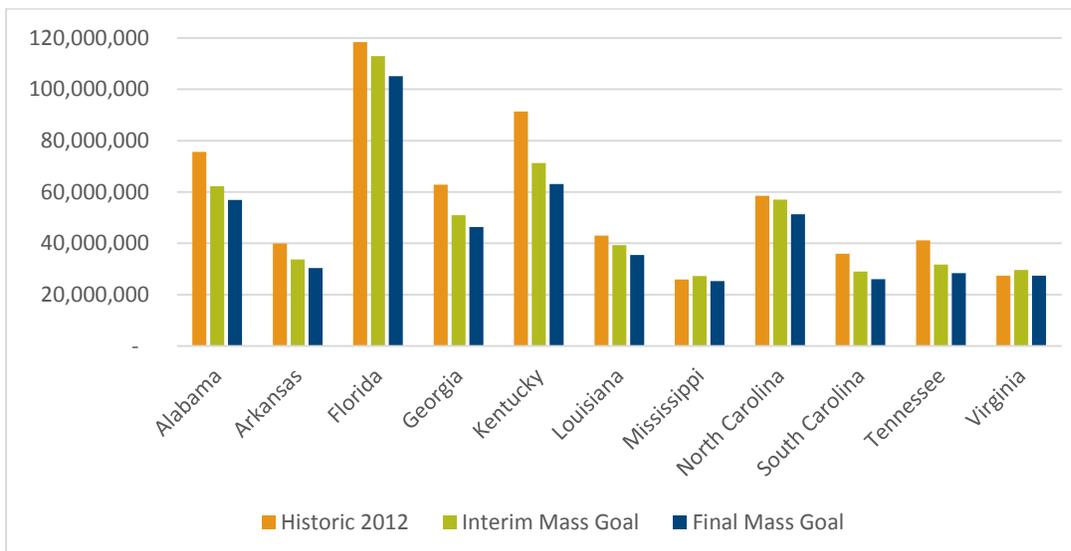
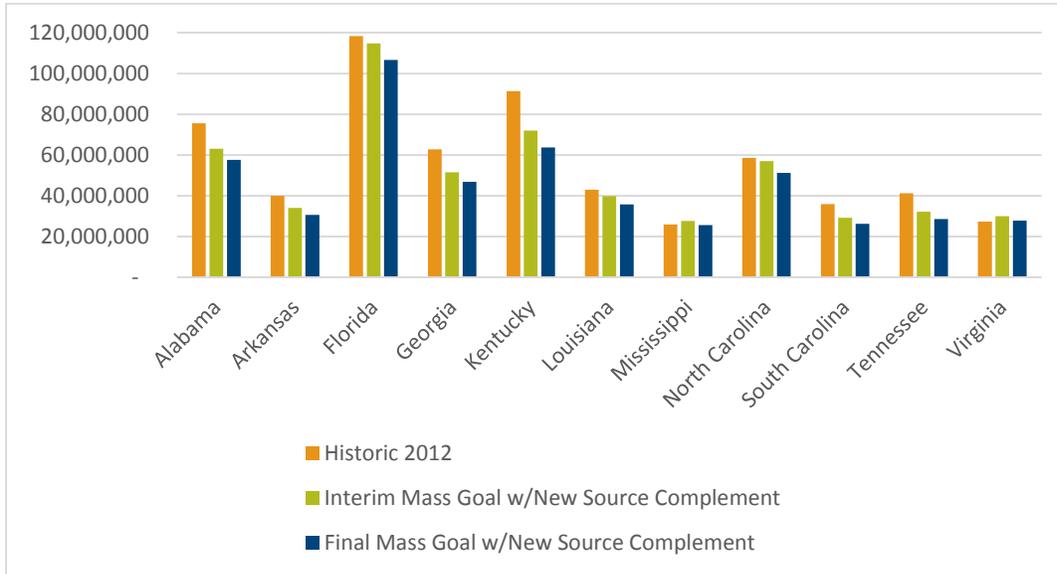


FIGURE 2. STATEWIDE MASS-BASED CO₂ EMISSION PERFORMANCE GOALS FOR SOUTHEASTERN STATES (ADJUSTED OUTPUT-WEIGHTED-AVERAGE TONS OF CO₂ FROM ALL AFFECTED FOSSIL FUEL-FIRED EGUS)



**FIGURE 3. MASS GOALS WITH NEW SOURCE COMPLEMENT FOR SOUTHEASTERN STATES
(ADJUSTED OUTPUT-WEIGHTED-AVERAGE TONS OF CO₂ FROM ALL AFFECTED FOSSIL FUEL-FIRED EGUS)**



III. IMPLEMENTATION

State plans may follow either a rate- or a mass-based approach in compliance. In addition, states may decide to implement an “**emission standards**” **state plan**, which assigns all requirements to affected EGUs, or a “**state measures**” **state plan**, which contains a mix of measures that may apply to affected EGUs and other entities, with a backstop of federally-enforceable standards on affected EGUs. States may use the final model rule as their backstop.⁴

TABLE 1. RATE-BASED COMPLIANCE APPROACHES

Approach	Type	Treatment of Energy Efficiency	EM&V
Sub-Categorized Emission Rates	Emission Standards	May be used in generating Emission Rate Credits (ERCs).	ERCs must be supported by adequate EM&V.
State Emission Rates	Emission Standards	May be used in generating ERCs.	ERCs must be supported by adequate EM&V.
Differing Emission Rates	Emission Standards	May be used in generating ERCs.	ERCs must be supported by adequate EM&V.

TABLE 2. MASS-BASED COMPLIANCE APPROACHES⁵

Approach	Type	Treatment of Energy Efficiency	EM&V for Energy Efficiency
Mass Goal for Existing Units	Emission Standards	Energy efficiency as a strategy for meeting limit at lesser cost, but complementary to the plan.	No EM&V required for state plan.
Mass Goal for Existing and New Units (Mass Complement)	Emission Standards	Energy efficiency as a strategy for meeting limit at lesser cost, but complementary to the plan.	No EM&V required for state plan.

⁴ Requirements assigned to affected EGUs are federally enforceable; other measures are enforceable at the state level.

⁵ EPA taking comment on end-use energy efficiency set-aside.

State Measures: Mass Goal for Existing Units	State Measures	Could include energy efficiency policies and programs that are enforceable under state law.	All state measures must be documented as quantifiable, verifiable, enforceable, non-duplicative and permanent.
State Measures Mass Goal for Existing and New Units (Mass Complement)	State Measures	Could include energy efficiency policies and programs that are enforceable under state law	All state measures must be documented as quantifiable, verifiable, enforceable, non-duplicative and permanent.

The final rule provides additional clarity and flexibility regarding multi-state approaches, including the explicit sanction of “trading ready” approaches, which allow states to opt in to a trading market with other states taking parallel approaches without the need for interstate agreements.

IV. ENERGY EFFICIENCY’S ROLE WITHIN THE RULE

The final Clean Power Plan prioritizes end-use energy efficiency as a strategy for meeting compliance obligations at least cost. As noted above, energy efficiency is not directly included in the goal calculation formula, but can serve a number of diverse functions within compliance frameworks.

Under a **rate-based approach**, energy efficiency measures and programs – including utility DSM programs, transmission and distribution system efficiency upgrades, combined heat and power (CHP), building codes and state appliance standards – can qualify for Emissions Rate Credits (ERCs). These bankable, tradable instruments⁶ are issued based on MWh reductions achieved and added into the denominator of an emission rate. ERCs must be supported by adequate EM&V and must be quantifiable, verifiable, non-duplicative and permanent. States and utilities, as well as private sector actors and local governments may be eligible for ERCs.

⁶ ERCs are generally bankable and tradable, subject to certain conditions. For instance, ERCs cannot be issued based on energy savings achieved in states with mass-based goals. States with rate-based goals can receive and trade ERCs as long as both states have rate-based goals, with goals based either on the emissions performance rates established by the EPA for both sub-categories of EGUs or on uniform rate-based goals established as part of a multi-state plan. In addition, states must adopt ERC registries with compatible functionality and avoid double counting of credits.

If a state chooses a **mass-based approach**, energy efficiency serves a complementary role and may not need to be explicitly included in a state plan, since energy savings directly assist states in achieving “at the stacks” reductions. An exception is plans that use the state measures approach, which allows states to incorporate energy efficiency measures that are enforceable under state law.⁷ Mass-based state plans can also include energy efficiency set-asides in order to encourage energy efficiency savings during plan implementation.

Under both approaches, states may choose to participate in the Clean Energy Incentive Program (CEIP), which encourages the deployment of renewable energy projects (wind and solar) and energy efficiency programs within low-income communities in 2020 and 2021. This program will make matching allowances or Emission Rate Credits (ERCs) from EPA available to the states up to an amount equal to the equivalent of 300 million short tons of CO₂ emissions, to encourage early reductions through clean energy investment. The CEIP provides a 2:1 match for implementing energy efficiency in low-income communities, which have generally lacked widespread access to energy efficiency programs.

EPA has not limited the types of energy efficiency programs and measures that can be included in a state plan. In other words, a state can look to a broad spectrum of compliance tools for reaching emission reduction goals. All energy efficiency measures in a state plan must be evaluated per EPA’s Evaluation, Measurement and Verification (EM&V) guidance (additional information provided in **Section V**).

⁷ Under a state measures approach, state plans must include “backstop” enforceable emissions standards on EGUs in case implementation of the state measures is not adequate to meet the mass-based goals.

V. STATE PLANS

According to the requirements set forth in the Clean Power Plan, state compliance plans must include the following elements:

- Description of the plan approach and geographic scope;
- Applicability of state plans to affected EGUs;
- Demonstration that the plan submittal is projected to achieve the state's CO₂ emission performance rates or state CO₂ goal;
- Monitoring, reporting and recordkeeping requirements for affected EGUs;
- State recordkeeping and reporting requirements;
- Public participation and certification of hearing on state plan;
- Supporting documentation;
- Documentation demonstrating consideration of electric system reliability;
- Demonstration of meaningfully engaging all stakeholders, including workers and low-income communities, communities of color and indigenous populations living near power plants and otherwise potentially affected by the state's plan; and
- Description of engagement with stakeholders, including vulnerable communities.

State plan submittals using the **emission standards approach** must also include:

- Identification of each affected EGU; identification of federally enforceable emission standards for the affected EGUs; and monitoring, recordkeeping and reporting requirements.
- Demonstrations that each emission standard will result in reductions that are quantifiable, non-duplicative, permanent, verifiable and enforceable.

State plan submittals using the **state measures approach** must also include:

- Identification of each affected EGU; identification of federally enforceable emission standards for affected EGUs (if applicable); identification of backstop of federally enforceable emission standards; and monitoring, recordkeeping and reporting requirements.
- Identification of each state measure and demonstration that each state measure will result in reductions that are quantifiable, non-duplicative, permanent, verifiable and enforceable.

VI. EVALUATION, MEASUREMENT AND VERIFICATION (EM&V)

With the release of the final rule, EPA has also released draft guidance on EM&V, which is open for comment for 90 days following the publication of the CPP's model trading rule in the Federal Register. Additional perspective on EM&V requirements is available in EPA's draft federal plan. This section covers key takeaways from both documents.

EM&V is not required for state plans that do not include energy efficiency as a measure, unless the state intends to generate energy efficiency-driven ERCs or access early action ERCs or allowances under the CEIP. EPA also proposes to periodically provide updates to reflect changing industry standards and best practices.

EM&V must be done on an ex-post basis, or after programs and measures are implemented. Both EM&V plans and periodic reports to EPA are required. Energy savings are measured as incremental to a "common practice baseline," representing what would have happened if the measure had not been installed. EM&V must include normalization where appropriate for variations in weather, building occupation and other factors, and should provide estimates of measure lifetime.

EPA's draft EM&V guidance provides a high-level discussion and guidance regarding 12 key EM&V topics, in addition to supplemental guidance on specific program categories, as follows:

- EM&V methods;
- Electricity savings metrics and baselines;
- Reporting timeframes and considerations;
- Deemed savings;
- Independent factors affecting energy consumption and savings;
- Accuracy and reliability of quantified savings;
- Avoiding double counting;
- Effective useful life and persistence of savings;
- Savings quantification and verification cycles;
- Transmission and distribution (T&D) savings adders;
- Interactive effects; and
- Use of energy efficiency EM&V protocols and guidelines

As noted above, supplemental guidance on specific categories of programs is provided for the following program categories:

- Utility- and publicly-administered energy efficiency programs;
- Project-based energy efficiency (evaluated site-by-site);
- State and local government building energy code and compliance programs; and
- State and local government incremental product energy standards.

VII. ADDITIONAL INFORMATION

EPA has issued a number of guidance and technical support documents (TSDs) surrounding energy efficiency's role in the rules. These include:

- Evaluation Measurement and Verification (EM&V) Guidance for Demand-Side Energy Efficiency (draft for input): <http://goo.gl/NZCBAq>
- TSD, GHG Mitigation Measures: <http://goo.gl/OA2niC>
- TSD, Incorporating RE and Demand-Side Energy Efficiency Impacts into State Plan Demonstrations: <http://goo.gl/1v4aUx>
- TSD, Demand-Side Energy Efficiency: <http://goo.gl/QPRh3n>
 - Data File, Demand-Side Energy Efficiency Appendix, Illustrative 3% Scenario: <http://goo.gl/oTDqRv>
 - Data File, Demand-Side Energy Efficiency Appendix, Illustrative 7% Scenario: <http://goo.gl/isrs5c>
 - Data File, Demand-Side Energy Efficiency Appendix, Potential Studies: <http://goo.gl/dWIU5C>

In addition, as noted above, the proposed federal implementation plan⁸ contains extensive information on “presumptively approvable” EM&V approaches.

SEEA is providing information and resources to promote energy efficiency as a pathway to compliance, where appropriate and suited to local needs, while helping states to reap the benefits of energy efficiency. In addition, SEEA has produced a number of targeted materials, including regional CPP-related news, resources and information portals, and a breakdown of CPP-related activity by state, available on the website at <http://goo.gl/4vchHd>. For more information on the draft rules, please contact Abby Fox, Policy Manager, at afox@seealliance.org.

⁸ Available at <http://goo.gl/llNou2>.

APPENDIX A: KEY CHANGES IN THE FINAL CLEAN POWER PLAN

EXCLUSION OF ENERGY EFFICIENCY FROM THE BSER

In the draft rule, energy efficiency was one of the four “building blocks” that EPA used to set the stringency of state targets, and was referenced as an acceptable compliance strategy – even beyond the levels and scope included in the BSER. In the final rule, EPA has removed energy efficiency as a component of the goal-setting equation. However, EPA places increased emphasis on energy efficiency as a compliance pathway and provides additional tools such as the Clean Energy Incentive Program (CEIP) for ensuring that energy efficiency is accessible as a means to shield low-income communities and offset potential upward pressure on utility bills.

APPLICATION OF BUILDING BLOCKS AT A REGIONAL LEVEL

Comments on the draft rule noted that application of the BSER building blocks at the state level did not adequately reflect the interconnected nature of the grid, and resulted in widely ranging state goals, raising fairness concerns and potentially complicating multi-state compliance options.

In the final rule, EPA has set nationally uniform goals by applying the BSER to average emission rates in the Eastern Interconnection, Western Interconnection and Electric Reliability Council of Texas; selecting the most readily achievable goals from the results; and only then applying these national rates to states based on the weighting of their electric generating sector. This regionally-driven approach has resulted in a tighter band of state goals.

ADJUSTMENTS TO COMPLIANCE TIMELINE

Stakeholder comments cited the fast-moving compliance timeline as a concern, and in response, EPA has relaxed it in the final rule. State plans must be submitted by September 2016, with the potential for an extension of up to two years upon request and approval. The interim compliance period will begin in 2022, rather than 2020, and reductions will be phased in on a gradual “glide path” to 2030 via stepped interim goals. See **Section I** of this document for a full timeline of compliance obligations.

TREATMENT OF UNDER-CONSTRUCTION NUCLEAR

Under the draft rule, the stringency of targets for three southeastern states – Georgia, South Carolina and Tennessee – were largely driven by the inclusion of under-construction nuclear capacity within the BSER. In the final rule, nuclear is not included in determining the stringency of state goals, but is available as a compliance strategy.

ADDITION OF CLEAN ENERGY INCENTIVE PROGRAM AND TREATMENT OF EARLY ACTION

States will also be able to leverage a Clean Energy Incentive Program, which will encourage the deployment of end-use energy efficiency and renewable energy (wind and solar) before 2022. This program will allow states to credit electricity generated by renewable sources in 2020 and 2021 to projects that begin construction after states submit final implementation plans. In addition, the program encourages the deployment of energy efficiency in low-income communities in 2021 and 2021 by doubling the number of credits that they receive.

RELEASE OF FEDERAL PLAN

The draft plan referenced a federal plan, which would serve as a backstop for states unable to comply with their emissions reductions obligations under the Clean Power Plan, but was not provided to states for comment. The final rule includes a proposed federal plan (rate- and mass-based), which may also serve as a useful reference for states as they develop their own plans.

INCLUSION OF RELIABILITY “SAFETY VALVE”

In response to a common concern articulated by commenters and industry stakeholders, EPA has included a “safety valve” provision, through which states can request revisions to their plans if system reliability is found to be compromised. In addition, the rule includes a requirement that each state demonstrate in its final plan that it has considered reliability issues in developing its plan.

ADDITIONAL CLARITY ON MARKET-BASED APPROACHES

The final rule provides more flexibility in how state plans can be designed and implemented, including: streamlined opportunities for states to include proven strategies like trading and demand-side energy efficiency in their plans, and allows states to develop “trading ready” plans that will allow them to “opt in” to an emission credit trading market with other states taking parallel approaches without the need for upfront interstate agreements.

**APPENDIX B:
SOUTHEASTERN STATE EMISSION RATE REDUCTION GOALS**

State	Historic 2012 Emission Rate	Interim Rate Goal	Interim Goal % Reduction	Final Rate Goal	Final Goal % Reduction
Alabama	1,518	1,157	24%	1,018	33%
Arkansas	1,779	1,304	27%	1,130	36%
Florida	1,247	1,026	18%	919	26%
Georgia	1,600	1,198	25%	1,049	34%
Kentucky	2,166	1,509	30%	1,286	41%
Louisiana	1,618	1,293	20%	1,121	31%
Mississippi	1,185	1,061	10%	945	20%
North Carolina	1,780	1,311	26%	1,136	36%
South Carolina	1,791	1,388	23%	1,156	35%
Tennessee	2,015	1,411	30%	1,211	40%
Virginia	1,477	1,047	29%	934	37%

APPENDIX C:

SOUTHEASTERN STATE EMISSION MASS REDUCTION GOALS

State	Historic 2012 Emissions	Interim Mass Goal	Interim Goal % Reduction	Final Mass Goal	Final Goal % Reduction
Alabama	75,571,781	62,210,228	18%	56,880,474	25%
Arkansas	39,935,335	33,683,258	16%	30,322,632	24%
Florida	118,395,844	112,984,729	5%	105,094,704	11%
Georgia	62,851,752	50,926,084	19%	46,346,846	26%
Kentucky	91,372,076	71,312,802	22%	63,126,121	31%
Louisiana	43,028,425	39,310,314	9%	35,427,023	18%
Mississippi	25,903,886	27,338,313	-6% ⁹	25,304,337	2%
North Carolina	58,566,353	56,986,025	3%	51,266,234	12%
South Carolina	35,893,265	28,969,623	19%	25,998,968	28%
Tennessee	41,222,026	31,784,860	23%	28,348,396	31%
Virginia	27,365,439	29,580,072	-8%	27,433,111	-0.25%

⁹ This represents an increase in absolute terms. Similarly, Virginia’s interim and final mass reductions represent an absolute increase.

**APPENDIX D:
SOUTHEASTERN STATE MASS REDUCTION GOALS (WITH NEW SOURCE
COMPLEMENT)**

State	Historic 2012 Emissions	Interim Mass Goal w/New Source Complement	Interim Goal % Reduction	Final Mass Goal w/New Source Complement	Final Goal % Reduction
Alabama	75,571,781	63,066,812	20%	57,636,174	24%
Arkansas	39,935,335	34,094,572	17%	30,685,529	23%
Florida	118,395,844	114,738,005	3%	106,641,595	10%
Georgia	62,851,752	51,603,368	22%	46,944,404	25%
Kentucky	91,372,076	72,065,256	27%	63,790,001	30%
Louisiana	43,028,425	39,794,622	8%	35,854,321	17%
Mississippi	25,903,886	27,748,753	-7% ¹⁰	25,666,463	1%
North Carolina	58,566,353	56,986,025	3%	51,266,234	12%
South Carolina	35,893,265	29,314,508	22%	26,303,255	27%
Tennessee	41,222,026	32,143,698	28%	28,664,994	30%
Virginia	27,365,549	30,030,110	-10%	27,830,174	-2%

¹⁰ This represents an increase in absolute terms. Similarly, Virginia’s interim and final mass reductions represent an absolute increase.