

Obtaining Credit for Energy Efficiency Policies and Programs in a State Implementation Plan

At A Glance

End-use energy efficiency is often the least cost, most rapidly deployable way of reducing pollution and lowering energy costs (NAPEE 2009; Neubauer 2013; NRDC 2013; McKinsey & Company 2010). Twenty-six states have adopted some form of energy efficiency resource standard, and many others have embraced alternate energy efficiency policies (ACEEE 2014). Demand-side energy efficiency programs have shown relatively consistent growth over recent years, with budgets rising roughly \$4 billion nationwide from 2008 to 2012 (Downs et al. 2013). However, despite the growing prevalence of energy efficiency policies at the state, local, and utility level, few jurisdictions have successfully taken credit for the emissions reductions attributable to energy efficiency in plans for meeting National Ambient Air Quality Standards (NAAQS).

This document is a starting point for states that are considering energy efficiency as a means to meet air quality standards. It aims to help states credit energy efficiency in a State Implementation Plan (SIP) by summarizing and simplifying past guidance and activity into a streamlined template.¹ It models an energy efficiency policy in a SIP based on actual SIPs containing energy efficiency policies and programs that have already been approved by a regional EPA office. It includes the following elements:

- Information on provision structure, the SIP process, and SIP content requirements – p. 2
- A list of template elements that states can use to draft their own SIP provision – p. 10
- Guidance on filling in each of the elements in the template – p. 11
- A sample SIP provision drafted from the template – p. 13

Any questions about this SIP template should be directed to Garrett Herndon of ACEEE at (202) 507-4037.

¹ Users of this template are strongly encouraged to work closely with their EPA regional offices. What we offer is merely a template; the exact requirements needed for an approvable SIP may vary by region. You should modify the template as appropriate to accommodate those variations.

Previous EPA Guidance

The SIP template in this document draws from previously issued EPA guidance as well as from approved SIPs that contain energy efficiency measures. To encourage states to pursue efficiency measures as a means of improving air quality, the Environmental Protection Agency (EPA) has developed a number of documents on including energy efficiency measures in SIPs, including guidance on

- Incorporating voluntary mobile source emission reduction programs into SIPs (Wilson 1997)
- Incorporating voluntary stationary source emission reduction programs into SIPs (Seitz 2007)
- SIP credits for emission reductions from electric-sector energy efficiency and renewable energy measures (McLean 2004)

In 2012 EPA published the *Roadmap for Incorporating Energy Efficiency/Renewable Energy Policies and Programs into State and Tribal Implementation Plans (the Roadmap)* in order to “reduce the barriers for state[s]...to incorporate energy efficiency and renewable energy policies and programs in SIPs.”² The EPA *Roadmap* contains sections on a variety of topics, including

- Factors to consider when deciding to begin the process of including energy efficiency measures in a SIP
- Descriptions of four possible implementation pathways for incorporating energy efficiency policies and programs into SIPs
- 11 appendices with information on topics such as the requirements of each implementation pathway, energy efficiency and air regulation terms, and methodologies for estimating emissions reductions from energy efficiency

The SIP template included here presents one possible structure for a SIP provision that may satisfy EPA requirements as laid out in the *Roadmap*.

Focus of This SIP Template

Energy efficiency resource standards (EERS) are statewide policies that mandate electric and/or natural-gas energy savings targets. Most of these policies include demand-side energy efficiency as a way of reaching multi-year savings targets which may be expressed in absolute terms (e.g., 5,000 GWh reduction by 2015) or percentage terms (e.g., 10% reduction by 2015). This document focuses on an EERS policy because an EERS is one of the largest energy savings opportunities available to states.³ Also, most of the savings from an EERS are not included in

² The *Roadmap* is available at <http://www.epa.gov/airquality/eere/manual.html> (EPA 2012)

³ For information on developing energy efficiency resource standards, see Furrey and Black 2009.

the Energy Information Administration (EIA) forecasts that many states use for air quality monitoring.⁴

Given the potential for EERS policies to emerge in the 24 states that lack them, we focus on incorporating a new EERS into a SIP through the control strategy pathway. This pathway would also apply to the expansion of an existing EERS. The 26 states that currently have EERS policies and are not planning to change them are advised to pursue the baseline emissions projection pathway to incorporate these policies into their SIPs. Step 4 below explains the four implementation pathways outlined in the *Roadmap* and the policy characteristics that distinguish them.

Recommended Steps For Crediting Energy Efficiency in a SIP

This section describes five steps that states should follow as they begin the process of incorporating energy efficiency into their SIPs.

Step 1. Develop a Preliminary Estimate of Potential Emissions Reductions

In order to determine the value of incorporating energy efficiency into a SIP, a state may first develop a preliminary estimate of potential energy savings and emissions reductions from energy efficiency policies and programs. States may use the ACEEE Energy Efficiency and Pollution Control (EEPC) calculator to develop this estimate.⁵ The EEPC tool offers state-specific order-of-magnitude calculations of the NO_x, SO₂, mercury, and CO₂ emissions which could be reduced through several energy efficiency measures.⁶

For a more sophisticated analysis of the emissions reductions attributable to energy efficiency, states may look to EPA's recently released AVoided Emissions and geneRation Tool (AVERT). This tool is discussed in more detail below.

Step 2. Bring Together Relevant State Agencies

States should inform and involve all relevant parties at the beginning of the process. This step serves to establish relationships between agencies, avoid confusion, identify relevant policies, and otherwise coordinate the effort. Some examples of groups that state or local environmental agencies may seek to include are:

- State air regulators
- State governor's office

⁴ The EIA regressions capture some historic savings and implicitly assume these will continue in the future, but they do not capture any increases in the savings that states are targeting.

⁵ For more information on the EEPC calculator, visit <http://www.aceee.org/fact-sheet/ee-pollution-calculator>

⁶ The EEPC Calculator is intended only for formulating an order-of-magnitude estimate emissions benefits that may be attributable to energy efficiency policies and programs. A more sophisticated analysis will be needed to satisfy EPA requirements for a demonstration of attainment. EEPC can help states determine if enough emissions reductions exist to merit a more sophisticated analysis.

- State energy office
- Public utility regulators
- Utilities
- Regional EPA representatives
- Regional transportation organizations and independent system operators

To facilitate interagency dialogue, each stakeholder should become familiar with the following information early in the process:

- Features of the electric system
- Data sources used for generation and demand forecasts in air quality modeling
- The state's methodology for estimating energy savings
- Roles and responsibilities of key state energy-related organizations
- State, tribal, and local energy efficiency/renewable energy (EE/RE) policies and programs in the jurisdiction
- Ways of estimating potential emission reductions
- EPA EE/RE SIP guidance
- Common environmental and energy terminology

Stakeholder agencies may want to consider the following preliminary questions before proceeding. Having this information easily accessible may prove useful throughout the entire process:

- What energy efficiency policies and programs has the jurisdiction already adopted?
- What are the details of those policies and programs in terms of implementation dates, stringency, financial commitments, historic investments in energy efficiency, and enforcement features?
- Is there any information on the energy impacts (projected and/or historical) of those energy efficiency policies in terms of energy saved and air emission impacts?
- Which organization or agency monitors and evaluates the energy impacts of those energy efficiency policies?
- Are program/policy impacts regularly and consistently reported to the state? How consistent and rigorous are these estimates?
- What funding sources do the EE policies and programs depend on?
- What compliance and enforcement does the state use for EE policies?⁷

Step 3. Consider Potential Policies and Programs

When considering potential energy efficiency policies or programs to pursue for incorporation into a SIP, states may look to policies that have already been in place for some time, new policies, or policies that are emerging or being developed. States can take credit for emissions reductions they are already getting from current programs, or use the SIP process to create new

⁷ A table of "Common 'Getting Started' Questions and Answers" is available in the *Roadmap*, page 24, Table 1: <http://www.epa.gov/airquality/eere/pdfs/EEREmanual.pdf> (EPA 2012)

efficiency efforts. Here are a few examples of policies and programs states may look to include in their SIPs:

- Energy Efficiency Resource Standards (EERS)
- Building efficiency programs
- State appliance standards
- Commercial, residential, and industrial tax incentives offered by the state for energy efficiency improvements
- State and local government lead-by-example initiatives
- Utility demand-side management programs

States can claim credit for emissions reductions from energy efficiency at the measure, program, policy, or portfolio level. However particular attention should be paid to how various policies and programs overlap or interact to avoid misrepresenting or double counting achieved emissions reductions. For example, states should generally not be claiming savings achieved as a result of federal tax incentives or equipment efficiency standards. These savings are included in EIA forecasts.

Step 4. Pick an Implementation Pathway

Once a particular policy or program has been deemed appropriate to be included in SIP planning, states may then choose one of the four implementation pathways laid out in the *Roadmap*. Pathways should be chosen based on the specifics of the measure in question. Each pathway maintains its own documentation requirements and analytical provisions as described in the following paragraphs.⁸

Baseline emissions projection pathway. This approach is best for policies that have already been adopted. The air quality benefits of those policies can be estimated and included in a baseline air quality forecast against which the emission reductions from the SIP are compared in order to determine if the state is likely to attain air quality goals. This approach does not require the policy to be federally enforceable. Emissions impacts can be estimated using energy models that reflect impacts on the power plant system as a whole.⁹

Control strategy pathway. This approach is best for new policies which will be adopted before the SIP is submitted, but which were not factored into baseline emissions forecasts. This pathway has more stringent requirements. Policies must be federally enforceable, and documentation must show that the policy is permanent, quantifiable, enforceable, and surplus. Though

⁸ The four pathways for implementing energy efficiency policies into SIPs are first discussed on page 14 of the *Roadmap* (EPA 2012).

⁹ When calculating emissions reductions from energy efficiency policies over a baseline emissions forecast, it is important to consider which policies are already accounted for in baseline projections in order to avoid double counting and ensure real reductions are being claimed. Some baseline emissions forecasts may already take into account, or make assumptions about, a variety of energy efficiency policies, such as the effects of building codes, appliance standards, or federal funding on energy efficiency. For more information on the baseline emissions projection pathway, see Appendix E of the *Roadmap* at <http://www.epa.gov/airquality/eere/pdfs/appendixE.pdf> (EPA 2012).

documentation requirements are more stringent, there is no limit to the amount of emission reduction credit that may be earned.¹⁰

Emerging/voluntary measures pathway. Voluntary policies or emerging policies with effects that may be difficult to quantify fit best under this pathway. This approach does not require federal enforceability, and policies may be bundled into a single submission and considered as a whole. Voluntary/emerging measures can generally be credited for up to 6% of the emissions reduction required to reach attainment.¹¹

Weight of evidence (WOE) pathway. This approach is best suited to policies that are not predicted to reach attainment levels based on air quality modeling. It could be used to tip the scale in favor of the state's plan. States may use the WOE pathway when it would be too resource intensive or otherwise unfeasible to model the impacts. A WOE demonstration is intended to show that had the policy or program been included in air quality modeling, the state might have achieved the required NAAQS.¹²

The suitability of each pathway is determined primarily by the nature of the policy selected for incorporation into the SIP. For example, if the state is considering the adoption and incorporation of a new EERS, the control strategy pathway may be most suitable. If a binding statewide EERS has already been adopted and the state is looking to claim emissions reduction credit for the policy after the fact, the state may wish to use the baseline emissions projection pathway in order to incorporate the policy into a revised emissions forecast.

Step 5. Satisfy Pathway Requirements

This section describes the four requirements necessary for an energy efficiency policy or program to be included in a SIP through the control strategy pathway.¹³ We focus on this pathway because in many cases it will be the most appropriate route for states adopting and incorporating a new EERS or some other form of statewide energy efficiency goal into a SIP.

When adopting the control strategy pathway, you must present evidence that the state has met or will meet these four requirements. You often may need to consult with the relevant EPA regional office while gathering information to fulfill these requirements in order to ensure that you are providing acceptable documentation. To qualify for SIP credit, EE/RE measures must be

¹⁰ For more information on the control strategy pathway, see Appendix F of the *Roadmap* at <http://www.epa.gov/airquality/eere/pdfs/appendixF.pdf> (EPA 2012).

¹¹ For more information on the emerging/voluntary measures pathway, see Appendix G of the *Roadmap* at <http://www.epa.gov/airquality/eere/pdfs/appendixG.pdf> (EPA 2012).

¹² For more information on the weight of evidence determination pathway, see Appendix H of the *Roadmap* at <http://www.epa.gov/airquality/eere/pdfs/appendixH.pdf> (EPA 2012).

¹³ These four requirements (permanent, surplus, enforceable, and quantifiable) also apply to policies and programs for which SIP credit is claimed through the emerging/voluntary measures pathway.

- Permanent
- Surplus
- Enforceable
- Quantifiable

Permanent. States are obligated to show that the emissions impacts expected from the measure will continue through the future attainment date. If a measure will not be fully implemented by then, the state needs to demonstrate that an equivalent amount of emission reductions will be achieved by a replacement measure, or that the emission reductions are no longer necessary to achieve attainment, maintenance, or “reasonable further progress (RFP)/rate of progress (ROP)” requirements. States should look to secure extended implementation commitments for their energy efficiency policies before incorporating them into a SIP.

Surplus. Control strategy measures and emerging/voluntary measures must be additional to measures included in the baseline emissions projection in order to receive credit. There can be no double counting. Under the control strategies pathway, a state should provide a statement that the appropriate agency has reviewed the control strategy and confirms that it is not being used to claim emission reduction credits in any of the other pathways. Also, a statement describing the potential areas of overlap between the control strategy and other pathways, if any, will be necessary. The state should provide information on specific steps it will take to ensure that there is no double counting.

Enforceable. State responsibility for measure enforcement includes a commitment to evaluate the effectiveness of each measure and, if the measure does not achieve the projected emission reductions, to remedy any SIP shortfall. This remedy may involve deriving emission reductions from other sources, or showing that the emission reductions are not needed to achieve attainment, maintenance, or RFP/ROP requirements. Under the control strategy pathway, a state must show evidence that the measure is mandatory and given legal authority by legislation/regulations by the appropriate governing body. In order to be included as a control strategy, measures must be federally enforceable in the case of a shortfall, meaning that they must involve (a) independent verifiability, (b) defined violations with identifiable liability, (c) practicable enforceability, and (d) authority for the state to apply penalties and secure corrective action.

Quantifiable. In order for a policy or program to be considered quantifiable, it must have a measureable effect on emissions, and the measurements must be replicable. Many states are wary of implementing energy efficiency into their SIPs due to the perceived difficulty of quantifying emissions benefits. In actuality, a wealth of resources and technical support exists for the quantification of energy efficiency policies. Drawing from EPA guidance and the experiences of other states and regions, states can formulate a quantification approach that best suits the characteristics of their specific policy or program.¹⁴

¹⁴ A comprehensive examination of techniques for quantifying the emission reductions attributable to energy efficiency measures can be found in Appendix I of the *Roadmap* at <http://www.epa.gov/airquality/eere/pdfs/appendixl.pdf> (EPA 2012).

Additional Information on Measure Quantification

States should consider the following when formulating a quantification approach for the emission reductions attributable to energy efficiency policies/programs:

- *The energy data available*
- *Necessary staff time and budgetary resources.* Any quantification effort should be supported by adequate resources. States may wish to bring in consultants or analysts in order to estimate emissions reductions. However this will add to the budget.
- *Working relationships among air regulators, utilities, state energy offices, and the public utilities commission.* States can ease the burden of quantification by collaborating with organizations that may already be estimating emission reductions or emissions more generally.
- *Collaboration across state lines and jurisdictions.* Drawing on the experience of regional cap-and-trade organizations like the Regional Greenhouse Gas Initiative and the Western Climate Initiative, states may wish to consider similar strategies to mitigate hazardous air pollutants. Interstate cooperation will change the scope of quantification efforts, but in turn it will provide increased resources for program evaluation.

States should plan to evaluate control strategies over time and monitor the programs to ensure that emission reduction targets are met and the established rate of progress is kept. States will need to document program quantification schedules and practices and convey in their SIP that the program will be reasonably monitored and emissions reductions will be adequately calculated. Some states may already have evaluation, measurement, and verification mechanisms in place through their utility commissions.

EPA guidance suggests four basic steps states may take to quantify control strategy measures:

1. Estimate the energy savings that an EE measure will produce.
2. Convert energy savings into an estimated emissions reduction.
3. Determine the impact from the estimated emission reduction on air quality in the nonattainment area.
4. Provide a mechanism to validate or evaluate the effectiveness of the project or initiative.¹⁵

Resources for Measure Quantification

The Regulatory Assistance Project released a paper in August 2013 entitled *Quantifying the Air Quality Impacts of Energy Efficiency Policies and Programs*. This paper outlines various methodologies available to states for quantifying emission reductions, and it addresses many of the issues that may come up. It is available at www.raponline.org/document/download/id/6680

The AVoided Emissions and geneRation Tool (AVERT) was created by EPA to offer states a relatively simple mechanism to calculate the emissions reductions attributable to energy

¹⁵ *Roadmap* Appendix F, F-6 (EPA 2012).

efficiency and renewable energy. States can use AVERT to determine the effectiveness of state and regional efficiency efforts to reduce NO_x, SO₂, and CO₂ from electric power plants. AVERT can present county-level data of avoided emissions based on temporal energy savings and hourly generation profiles. With the concurrence of the relevant EPA regional office, AVERT results may be acceptable for SIP air quality modeling. AVERT is available without charge at <http://epa.gov/avert/>.

The Regulatory Assistance Project released a series of webinars in 2012 discussing measurement of the air quality benefits of energy efficiency. They are available at <http://www.raonline.org/event/measuring-the-air-quality-impacts-of-energy>

In 2011 EPA released a resource for states entitled *Assessing the Multiple Benefits of Clean Energy*. Chapter 4 of this document provides good information on assessing the air quality benefits of energy efficiency and other clean energy initiatives. The document can be found at http://www.epa.gov/statelocalclimate/documents/pdf/epa_assessing_benefits.pdf

Elements of Incorporating an EERS Into a SIP

Here are the template elements that a state must address to incorporate an EERS into its SIP using the control strategy pathway.¹⁶ In the following sections we provide (1) guidance on filling in the template elements and (2) model language based on a hypothetical SIP scenario. To request a copy of the template elements in Word, please contact Garrett Herndon at ACEEE: gherdon@aceee.org.

Energy Efficiency Resource Standard

- Brief overview of the EERS

Source Type Affected

- Criteria pollutant(s) targeted by policy/program
- Source(s) of targeted criteria pollutant(s)
- Jurisdiction of the policy/program

Control Strategy

- Process state went through to develop policy/program
- Energy savings goals of the policy/program
- Utility involvement
- Other public/private entities involved
- Anticipated effects on emissions

Implementation

- Federal, state, and local agencies involved in implementation
- State and local legislation and/or agency rules relevant to implementation
- Utility involvement in implementation
- Necessary interagency cooperation
- Steps that have already occurred
- Implementation process going forward

Monitoring and Enforcement

- Agencies responsible for monitoring and enforcement
- Process of agency reporting
- Consequences of compliance/non-compliance

Projected Reductions and Emissions Benefit Calculations

- Approach for measuring energy savings
- Calculation of emissions reductions from energy savings
- Emissions reduction credits being claimed

¹⁶ This work product is not intended to provide an exhaustive representation of what EPA or EPA regional offices require for the inclusion of energy efficiency measures in a SIP. Rather, it offers a conceptual framework on which to build. The elements of the template are based on a successful application by the DC/VA/MD metropolitan area for SIP credit for a renewable portfolio standard, the May 23, 2007 *Plan to Improve Air Quality in the Washington, DC-MD-VA Region: State Implementation Plan (SIP) ("Moderate Area SIP") for 8-Hour Ozone Standard*. It is available at <http://www.mwcog.org/uploads/pub-documents/9FhcXg20070525084306.pdf>.

Guidance For Filling In the SIP Template

Policy/Program

Include a brief description of the EERS being used to claim emissions reduction credits, including an overview of the structure of the measure, its purpose, and how emissions benefits will be achieved.

Questions to consider for this section:

- What is the intended purpose of this policy/program?
- What commitment have state or local governments made under the policy/program?
- What type of emissions reductions will this measure produce?

Source Type Affected

This section describes the agencies, industries, sectors, and so on to which the policy/program is applicable. Describe the source of the targeted emissions, the range of application of the measure, and the entities that are obligated to help reduce emissions. In the case of an EERS, the source type would most likely be electric or natural gas utilities.

Questions to consider for this section:

- Who will be immediately affected by this policy or program?
- What entities will be called to action by this EERS?
- What is the scope of the utilities whose emissions this measure intends to reduce?
- Who is required to reduce energy consumption under this EERS?

Control Strategy

Delineate the EERS provisions more specifically to convey the nuts and bolts of the measure and information about its development. Include reduction targets and their timelines. For example, a typical EERS target may be stated as a 1.5% statewide reduction in overall electricity consumption annually, or a cumulative reduction of 20% by 2025. Explain the means by which pollutants will be reduced.

Questions to consider for this section:

- What is the background of the development of the EERS?
- What does this policy/program specifically mandate/require?
- What are the goals/benchmarks of this EERS?
- How will this measure satisfy EPA requirements for the SIP?

Implementation

The purpose of this section is to explain the process necessary for proper program administration. List the federal, state, and local government agencies involved in the operation of the EERS and its associated programs. Describe the level of responsibility for EERS implementation assigned to each group (e.g., utilities, agencies, private actors). Detail applicable legislation/agency rules which authorize the measure. Include steps toward EERS implementation that have already occurred.

Questions to consider for this section:

- Which government agencies must be involved to implement this policy/program?
- What relationship structure must exist among agencies/utilities to implement this measure?
- What are the responsibilities of the parties involved?
- What steps toward program implementation have already occurred?

Monitoring and Enforcement

This section provides specifics on the procedures and evidence that federal, state, and local agencies will require to verify that progress toward attainment is properly monitored and maintained. The state must ensure that program standards are enforced and explicit deadlines are set for utility reporting on program progress. Explain the procedure for regularly evaluating utility programs and the process for confirming that reduction targets are met.

Questions to consider for this section:

- What agencies will be charged with the task of monitoring program/policy progress?
- Through what channels will reporting on progress take place?
- What agency relationships are necessary to ensure accurate and efficient monitoring and enforcement?
- How will the relevant government agencies verify that the targets set by the EERS are met?

Projected Reductions and Emissions Benefit Calculations

This section describes any emissions benefits anticipated from the measure's implementation and the calculations used to arrive at them. First calculate the amount of energy reduction achieved through the EERS. From this amount, quantify projected emissions reductions. You may wish to base your calculations on methodologies used in previously approved SIPs and EPA guidance.¹⁷ In some cases, a simple calculation will suffice; in other cases, the complexity of calculations may require an appendix.¹⁸

The form and content of this section largely depend on which pathway is being used and the specifics of the EERS. If the measure is using the baseline emissions projection pathway, inform the reader that all emissions reduction credits being claimed are contained in the baseline projection and have already been counted.

Questions to consider for this section:

- What method of emissions benefit calculation will be most cost effective for this measure?
- Which state agencies have access to the data needed to perform an estimate? What does the EPA require for performing these calculations?
- Is any reduction credit being claimed?

¹⁷ EPA's guidance *Background and Draft Methodology for Estimating Energy Impacts of EE/RE Policies (December 2011)* is available at <http://www.epa.gov/statelocalclimate/documents/pdf/background-and-draft-methodology.pdf>.

¹⁸ For additional guidance on projecting emissions reductions and benefits, see Appendix I of the *Roadmap* at <http://www.epa.gov/airquality/eere/pdfs/appendixI.pdf> (EPA 2012).

Sample SIP EERS Submission

For the purpose of demonstration, we have developed the following hypothetical scenario using a real EERS as a reference. In this scenario, the State of Franklin has been found to be at nonattainment levels for 8-hour ozone in the four counties surrounding the state capital, Franktown. Franklin already submitted an original SIP, but is now approaching the six-year deadline for showing reasonable further progress (RFP). Franklin may not meet the required reduction and so is looking to implement new control strategies in its RFP SIP, which must be submitted to the regional EPA office by January 1, 2014.¹⁹

In April, 2013 the Franklin General Assembly passed the Reenergize Franklin Act. Franklin now wishes to incorporate some of the provisions of the Act into the upcoming RFP SIP through the control strategies pathway. The EERS included in the Reenergize Franklin Act will be added to the SIP as a control strategy and therefore must be shown to be quantifiable, surplus, enforceable, and permanent. The following is an example of the information Franklin would need to provide in order to claim credit for its EERS.²⁰

Energy Efficiency Resource Standard

Brief overview

Under this measure NO_x emissions will be reduced through a decrease in energy consumption. Power plants operating in Franklin will be required to provide energy efficiency services and programs to their customers in order to achieve a 10% reduction in electricity consumption by 2020, relative to a 2012 baseline.²¹ The Franklin Department of Energy (FDE) will be responsible for an additional 5% reduction in electricity consumption by 2020, relative to a 2012 baseline. This reduction in energy consumption will reduce fossil-fuel consumption at power plants and will in turn lead to a reduction in NO_x emissions.

¹⁹ Franklin's EERS is modelled on Maryland's EERS which was adopted by the EmPower Maryland Act in April 2008. In order to demonstrate drafting a SIP provision from currently available EPA guidance, we have added five years to the timeline of Maryland's EERS. The stated goal of that EERS is a 15% per-capita electricity consumption reduction by 2015, relative to a 2007 baseline. We have altered these dates and removed the per-capita requirement so that Franklin's goal is a 15% electricity consumption reduction by 2020, relative to a 2012 baseline. All other timeframes are purely hypothetical.

²⁰ This hypothetical case is not intended to reflect a real-world timeline, only to illustrate the constraints of an EPA ruling of nonattainment.

²¹ Throughout this section we refer to obligations of utilities. In some states utilities are integrated and own power plants, transmission, and distribution. In these states, emissions will generally be reduced at power plants owned by the utility. In other states, utilities have sold their power plants and only operate the distribution system. In these states, the emissions reductions will be at power plants not owned by the utility, but from which the utility buys power under contract. In both cases, the reduction in energy use will reduce the amount of power that needs to be generated and hence the emissions from power plants.

Source Type Affected

Criteria pollutant(s) targeted by policy/program

Franklin is implementing this measure to reduce consumption of electric power by consumers. The decrease in consumption will have a corresponding impact on the burning of fossil fuels at electric generating facilities, thereby reducing NO_x emissions from these sources.

Source(s) of targeted criteria pollutant(s) addressed under this policy/program

The state's five largest electric generating power plants, the FDE, and other private and public stakeholders

Jurisdiction of the policy/program

This measure applies to state government agencies, electric generating power plants operating within Franklin, and electric generating plants in other states from which Franklin utilities purchase power.

Control Strategy

Process state went through to develop policy/program

In April, 2013 the Franklin General Assembly passed the Reenergize Franklin Energy Efficiency Act. The EERS portion of the Act is given legislative authority by §5-411 of the Public Utilities Article, *Annotated Code of Franklin*, which directs the Franklin Public Utilities Commission (PUC) to work with Franklin's major utilities to develop programs and resources for consumers to help meet the newly established goals for reducing energy consumption.

Energy savings goals of the policy/program

Savings targets for utilities mandated by PUA § 5-411 are set at a 10% reduction in electricity consumption by 2020, relative to the 2012 baseline, with a 4% benchmark set for 2016. The FDE will be responsible for an additional 5% reduction in electricity consumption by 2020.

Utility involvement in policy/program

Franklin's two major utilities are required to submit plans to the Franklin PUC every three years. The first set of plans is due September 1, 2013. These plans will detail energy efficiency and conservation programs aimed at working with consumers to achieve the utilities' mandated portion of the goal reduction.

Other public/private entities involved

The FDE, working with other private and public stakeholders, has set a goal of a 5% reduction in energy consumption by 2020, relative to a 2012 baseline. Additionally, the FDE will work with the PUC on power-plan development. The PUC retains the authority to approve, deny, or alter power plans.

Anticipated effects of the policy/program

By decreasing energy consumption, Franklin will also decrease the amount of fossil fuels burned in the state and will achieve more limited reductions in adjoining states from which Franklin purchases electricity. NO_x emissions will decline with the reduction in fossil-fuel consumption.

Implementation

Federal, state, and local agencies involved in implementation

The PUC is the entity charged with program oversight and implementation, in consultation with the FDE.

State/local legislation and/or agency rules relevant to implementation

Authority comes from §5-411 of the Public Utilities Article, *Annotated Code of Franklin* (April 2013).

Utility involvement in implementation

On or before July 1, 2013 and every three years thereafter, utilities will consult with the PUC on program design and implementation. Additionally, on or before September 1, 2013 and every three years thereafter, utilities must submit plans for meeting energy consumption reduction goals, as described in Public Utilities Article §5-411.

Interagency cooperation necessary for implementation

The PUC will solicit comments from the FDE to help utilities develop plans. The PUC will report to the Franklin General Assembly annually on program progress.

Steps toward implementation which have already occurred

Utilities were required to submit plans for energy efficiency programs to the PUC by September 1, 2013. For the first three-year compliance period (2014-2016), both utilities had plans approved and will begin implementation in 2014.

Process of policy/program implementation going forward

As the process of implementation progresses on the utility level, the PUC will work with utilities and the FDE to meet the 15% goal reduction by 2020.

Monitoring and Enforcement

Agencies responsible for monitoring and enforcement

The PUC is the primary agency charged with monitoring program progress and overseeing enforcement.

Process of agency reporting

The PUC has adopted a third-party independent evaluator model for the assessment of program metrics. Each utility will direct its own primary program evaluation and verification through an independent contractor. Based on the findings of this independent analysis, the commission may require the utility to alter its program in order to better implement strategies for target attainment. Utilities will be required to file formal reports on program metrics on a quarterly basis with an annual summary report filed in January of the following year. In consultation with the FDE, the PUC will communicate to the Franklin General Assembly on or before March 1 of each year the status of the program's progress, a recommendation for the funding level for the programs and services, and the electricity consumption for the previous year.

Consequences for compliance/non-compliance

A utility plan that fails to meet benchmarks for goal attainment, or that fails to satisfy any other portion of PUC rulemaking, is subject to revision by the Franklin PUC. After the plan is reevaluated and PUC comments are submitted, the utility will alter the plan structure accordingly and reapply for approval.

Projected Reductions and Emissions Benefit Calculations

Approach for measuring electricity consumption reductions

In order to calculate the emissions reductions attributable to Franklin's EERS, the electricity consumption reductions which will be met by 2020 must first be calculated.²² The 2012 baseline consumption is assumed to be 70,000 GWh. The electricity consumption goal of a 15% reduction by 2020 is calculated as follows:

$$2012 \text{ baseline consumption} \times 15\% = 10,500 \text{ GWh by 2020.}$$

Table 1 shows the approximate annual savings achieved through the 10% obligation of power plants.

Table 1. Anticipated energy savings by year relative to 2012 consumption

	2014	2015	2016*	2017	2018	2019	2020*
Approximate incremental savings	1%	1.25%	1.50%	1.50%	1.50%	1.50%	1.75%
Cumulative annual savings	1%	2.25%	3.75%	5.25%	6.75%	8.25%	10%
Energy savings (GWh)	700	1,575	2,625	3,675	4,725	5,775	7,000

*Goal benchmarks

Calculation of emissions reductions from reductions in electricity consumption

Franklin has elected to use the EPA AVoided Emission and geneRation Tool (AVERT) to analyze the emissions reductions attributable to the state's EERS policy. Table 2 presents the results and expected emissions reductions from this analysis.²³

²² Because Maryland's EERS requires an energy consumption reduction in terms of per-capita electricity consumption, we referenced the general formulas provided by EPA in December 2011 guidance but did not use them. EPA's guidance *Background and Draft Methodology for Estimating Energy Impacts of EE/RE Policies* (December 2011) is available at <http://www.epa.gov/statelocalclimate/documents/pdf/background-and-draft-methodology.pdf>.

²³ To analyze the emissions reductions attributable to Franklin's EERS, we assumed made that Franklin would be geographically in AVERT's Great Lakes/Mid-Atlantic region, a region which, in actuality, contains most of the state of Maryland. Additionally this region contains Pennsylvania, Ohio, Indiana, New Jersey, Delaware, West Virginia, both the Chicago and Milwaukee metropolitan areas, Green Bay, and parts of western Virginia and Kentucky. Emissions reductions from Franklin's EERS policy are dispersed throughout this region.

Table 2. Emissions reductions attributable to the State of Franklin's EERS policy

	2014	2015	2016*	2017	2018	2019	2020*
Energy savings (GWh)	700	1,575	2,625	3,675	4,725	5,775	7,000
SO ₂ (tons)	1,283	2,888	4,814	6,743	8,665	10,583	12,835
NO _x (tons)	477	1,074	1,790	2,507	3,222	3,934	4,767
CO ₂ (thousand tons)	537	1,209	2,016	2,824	3,633	4,442	5,386

*Goal benchmarks

Emissions reduction credits being claimed

For the purposes of demonstrating reasonable further progress toward attainment of National Ambient Air Quality Standards for 8-hour ozone, Franklin will be claiming the following emissions reductions of NO_x attributable to reductions in electricity consumption from a statewide EERS policy:

1,790 tons of NO_x reduction by 2016; 4,767 tons of NO_x reduction by 2020.

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