

A silver pen with a black grip and a silver barrel is positioned diagonally across the upper left portion of the page. The pen's tip is pointing towards the bottom right. Below the pen, a document is visible, featuring a bar chart with yellow bars and a red line graph that trends upwards. The background is a light, textured surface.

Southeastern Utility Program Ramp-Up Rates

Barriers and Solutions: Strategies for
Effectively Leveraging Energy Efficiency as
an Environmental Compliance Tool

About This Resource Paper Series

Energy efficiency is widely recognized as a cost-effective, rapidly-deployable resource for air pollution reductions from the electric sector. However, with the release of the U.S. Environmental Protection Agency's (EPA) proposed Clean Power Plan (CPP) in June 2014, southeastern states and utilities have voiced concerns regarding a number of barriers and challenges to using energy efficiency as a pollution control strategy within state compliance plans, both under existing air programs and forthcoming regulations, such as the CPP, once finalized (expected in summer 2015). This SEEA Resource Paper Series identifies resources, strategies and solutions to help states and utilities address these barriers and effectively utilize energy efficiency as a compliance strategy, where appropriate and cost-effective.

Disclaimer

SEEA recognizes that the EPA is still finalizing the CPP, and that there are many unknowns until the final guidelines are released. The materials provided on the [SEEA 111\(d\) web portal](#), along with the resources and discussion contained in this Resource Paper are provided for informational purposes only, and do not constitute legal advice. Contact your attorney for advice with respect to any particular legal issue.

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I. Executive Summary

EPA's proposed Clean Power Plan (CPP), released in June 2014, suggests that states can grow energy savings from utility demand-side energy efficiency programs at a ramp-up rate of at least 0.2% of retail sales annually, and further sustain an annual average savings of 1.5% of retail electricity sales over time.¹

This paper addresses two key concerns for many southeastern states regarding utility energy efficiency programs under the proposal: whether and how states and utilities will be able to quickly “ramp up” utility energy efficiency programs, and how states and utilities can sustain their performance over time. This paper is divided into three sections that provide context and analysis to support discussion surrounding these issues: a) trends in energy efficiency investment, b) energy efficiency program growth trajectory and c) case studies of energy efficiency program ramp up in the Southeast.

A. Trends in Utility Energy Efficiency Investment

1. At national level, energy efficiency investment and savings continue to grow.

Utilities and program administrators in all 50 states and the District of Columbia currently implement energy efficiency programs. In 2013, total budgets for energy efficiency reached nearly \$6.3 billion. Established national leaders have achieved high levels of energy savings, and a handful of states are nearing or have surpassed 2% of retail sales—above the suggested CPP goal of 1.5%.

Although the Southeast is newer to utility energy efficiency programs and many states are in the early stages of program ramp up, momentum for energy efficiency is growing. Utility investment in electric energy efficiency programs in the eleven southeastern states totaled an estimated \$583 million in 2013, reflecting a 489% increase from 2006 to 2013. Within that same period, reported energy savings increased from approximately 515 to 2,974 GWh, reflecting an increase in energy savings of 577%.

2. Southeastern ramp-up rates vary significantly.

Ramp-up rates across the Southeast are typically below EPA's suggested ramp-up rate of at least 0.2% retail electricity sales annually; however, individual utilities that prioritize energy efficiency or benefit from a supportive regulatory framework have exceeded this level. In addition, although many states have not met EPA's suggested ramp-up rate consistently, the inclusion of non-utility program savings may boost these rates to higher levels.

B. Energy Efficiency Program Growth Trajectory

1. “Quick Start” programs have successfully laid the foundation for ramp up in the Southeast.

“Quick Start” programs enable utilities to utilize a basic set of easy-to-implement programs that provide savings at the onset while laying the foundation for more comprehensive portfolio growth in future years.

2. Supportive policies and savings strategies cultivate continued growth over time.

A supportive regulatory framework is critical for ensuring that utilities have the ability and support to continue sustained investment in energy efficiency by minimizing utility risk of incurring stranded costs. The generally accepted cost recovery framework, known as the “three-legged stool,” supports the reconciliation of energy efficiency with utility business interests through program cost recovery, lost revenue recovery and performance incentives.

Setting energy efficiency goals is an important element of energy efficiency program planning and can facilitate rapid rollout and deployment of programs in jurisdictions where policy makers have determined this to be of value. Goals may be voluntary or mandatory, and may vary widely in scope and administration.

Firm program budget commitments are essential not only for ramp up, but also for sustaining program savings over time, allowing for the planning and development of program administrative structures and contractor networks.

In addition, a clear cost-effectiveness testing framework is essential for sustaining consistent investment in energy efficiency. Inconsistency can lead to swings in energy efficiency investment over time and hinder long-term planning for the business community involved in delivery of energy efficiency offerings.

3. More effective and deeper savings opportunities emerge as programs mature.

Continued evaluation of program success and iterative refinement of delivery models can maximize savings and minimize costs over time. As a result, program scope and focus will necessarily evolve to more comprehensive savings approaches that generate deeper savings per program participant.

C. Case Studies of Energy Efficiency Program Ramp up in the Southeast

1. Entergy Arkansas

Arkansas is the only state in the Southeast with an Energy Efficiency Resource Standard (EERS), which sets mandatory energy-savings targets. Since 2011, electricity savings from these utility-operated energy efficiency programs have more than tripled.

- Entergy Arkansas Incorporated (Entergy) has ramped up saving to region-leading levels, reaching approximately 1% of sales in 2014.
- Entergy’s ramp up reflects an increase in investment from approximately \$7 million in 2009 to more than \$65 million in 2014. Arkansas’ supportive regulatory framework has enabled Entergy and other covered utilities to sustain this investment.

- The Entergy Trade Ally Network has grown from about 60 contractors in 2008 to more than 300 in 2014, through training, recruiting and improved incentives, supporting program growth and effectiveness.

2. Kentucky (Statewide)

Kentucky's success with voluntary energy efficiency programs demonstrates the potential for expanded savings, and illustrates that energy efficiency ramp up is viable in the absence of a mandate.

- Kentucky's 2008 Energy Plan identifies energy efficiency as the leading strategy, targeting an 18% reduction in energy demand by 2025. This goal has been effectively advanced without the development of a formal, binding savings target, but has been facilitated by a supportive energy efficiency policy environment.
- In 2008, Kentucky's statewide energy efficiency investments totaled \$2.2 million; by 2011, investments increased to more than \$48 million.

3. Tennessee Valley Authority

The Tennessee Valley Authority (TVA) averaged only about \$17 million per year in energy efficiency program investments from 2005 to 2009. In 2010, the TVA Board adopted goals to achieve a cumulative 3.5% in energy efficiency savings as a percentage of sales through 2015.

- Efforts included supportive management and investments in program delivery infrastructure—including incentive programs, price structure changes and education efforts to raise awareness.
- TVA has exceeded its load management targets seven years in a row, and its [2015 IRP](#), currently in draft form, indicates continued investment in the years ahead.
- TVA recently incorporated more innovative offerings, including an upstream manufactured home buy-down program, and launched its eScore program, which provides homeowners with a more streamlined process and interface that includes expert recommendations and instant rebates.

4. Duke Energy Carolinas

Duke Energy Carolinas (Duke) began ramping up its energy efficiency programs significantly with the passage of North Carolina's state legislation establishing a Renewable Energy and Energy Efficiency Portfolio Standard (REPS). This policy allows investor-owned utilities (IOUs) to meet 25% of the standard through 2021 with energy efficiency, and 40% of the standard after 2021.

- In its 2009 IRP, Duke outlined plans to reach about 2% of cumulative annual electricity savings by 2015, relative to 2009 sales, or about 0.35% incremental savings each year.
- In its Save-a-Watt portfolio's first two years, Duke captured 178% and 152% of its 2010 and 2011 savings targets respectively, at a lower cost than originally projected.
- Duke's program portfolio is largely driven by lighting savings, which may be impacted as national lighting standards are increased and cause a shift in focus to other energy-saving technologies.

5. Gulf Power Company

From 2011 to 2014, Florida's Gulf Power ramped up from a modest level of energy savings to a robust portfolio that propelled them into the ranks of the Southeast's regional energy efficiency leaders.

- Gulf's rapid program ramp up and projected future ramp down points to the importance of a supportive energy efficiency policy framework.
- During program ramp up, both the residential and the commercial and industrial programs performed well above projected energy savings goals under Gulf's DSM Plan, in some years outperforming by nearly double the planned savings.
- In 2014, the Florida Public Service Commission approved proposals from Florida's major utilities under the Florida Energy Efficiency and Conservation Act, which is projected to significantly scale back program savings in the years ahead.

D. Conclusion and Key Takeaways

Investment in energy efficiency is increasing in southeastern states. While state-level ramp-up rates for utility programs in the region generally fall below those suggested by EPA in its proposed CPP, individual utilities that are supported by a robust policy framework have been able to ramp up quickly—in many cases, more quickly than EPA suggests. Strategic decisions made by states, utilities and their regulators will ultimately play a role in determining to what extent utility energy efficiency programs are included within state compliance plans. Together with non-utility programs, ratepayer-funded energy efficiency measures may provide a viable tool for enabling states to comply with EPA's proposed CPP at least cost.

II. Introduction

A. States Are Evaluating EPA’s Suggested Energy Efficiency Ramp-up Rates under EPA’s Proposed Clean Power Plan

EPA’s proposed Clean Power Plan (CPP) reflects the preliminary determination that states can grow energy efficiency savings from utility demand-side energy efficiency programs at a ramp-up rate of at least 0.2% of retail electricity sales annually, and could further sustain an annual average savings of 1.5% of retail electricity sales over time.² EPA based these targets on an assessment of the historic performance of selected utility energy efficiency programs.

The purpose of this paper is not to support a specific ramp-up rate or annual utility energy efficiency target. Rather, the intent of this paper is to begin to address two key concerns for many southeastern states: (1) whether and how states and utilities will be able to work together to quickly “ramp up” utility energy efficiency programs, and (2) how states and utilities can sustain their performance over time. These core issues will ultimately play a central role in determining to what extent utility-administered energy efficiency programs are included within state compliance plans.³ The ability of states to ramp up and maintain energy efficiency targets depends on an interrelated set of factors; many of these factors are dependent upon, and influenced by, strategic decisions made by states, utilities and their regulators. These factors are discussed generally within this paper, and are further illustrated through five case studies of southeastern utilities that have ramped up quickly.

As states begin to evaluate options, consideration of stakeholder concerns regarding utility energy efficiency program ramp-up rates and the sustainability of program energy savings over time is warranted. The purpose of this paper is to provide policymakers with a “first step” of discussion and insights into relevant considerations based on the historical experience of select utility energy efficiency programs within the region. In order to effectively assess the potential for utility energy efficiency programs within compliance plans, states and utilities must work together to evaluate options, build upon existing efforts across the region and learn from the historical experiences of successful programs.

B. Paper Scope and Methodology

In order to frame the discussion about how to address barriers to program ramp up, the authors of this report conducted a literature review of the existing body of research, both nationally and regionally, and performed a quantitative analysis of historical ramp rates based on publicly available data from utility commission dockets and efficiency program databases. From this analysis, five utility energy efficiency programs were selected as southeastern program portfolio examples that have demonstrated an ability to ramp up quickly. Further, program administrators, state energy officials and public utility commission officials were interviewed to identify successful program elements and characteristics, as well as key factors and considerations that may influence program performance.

III. Trends in Utility Energy Efficiency Investment

A. Nationally, Utility Energy Efficiency Programs Continue to Grow and Thrive

On a national level, energy efficiency investment and savings continue to grow. Utility-administered energy efficiency programs are not only cost-effective ways to save energy, they also lower costs to ratepayers, promote economic development, support grid reliability and energy security, reduce utility energy generation needs and lessen environmental impacts.⁴ Currently, utilities and program administrators in all 50 states and the District of Columbia implement energy efficiency programs. In 2013, total budgets for energy efficiency reached nearly \$6.3 billion, with a national median value of \$43.4 million, as seen in Figure 1 on the following page. The national median value for savings achieved in 2013 reached 0.56% of retail sales, representing a significant increase from 0.02% in 2006.⁵

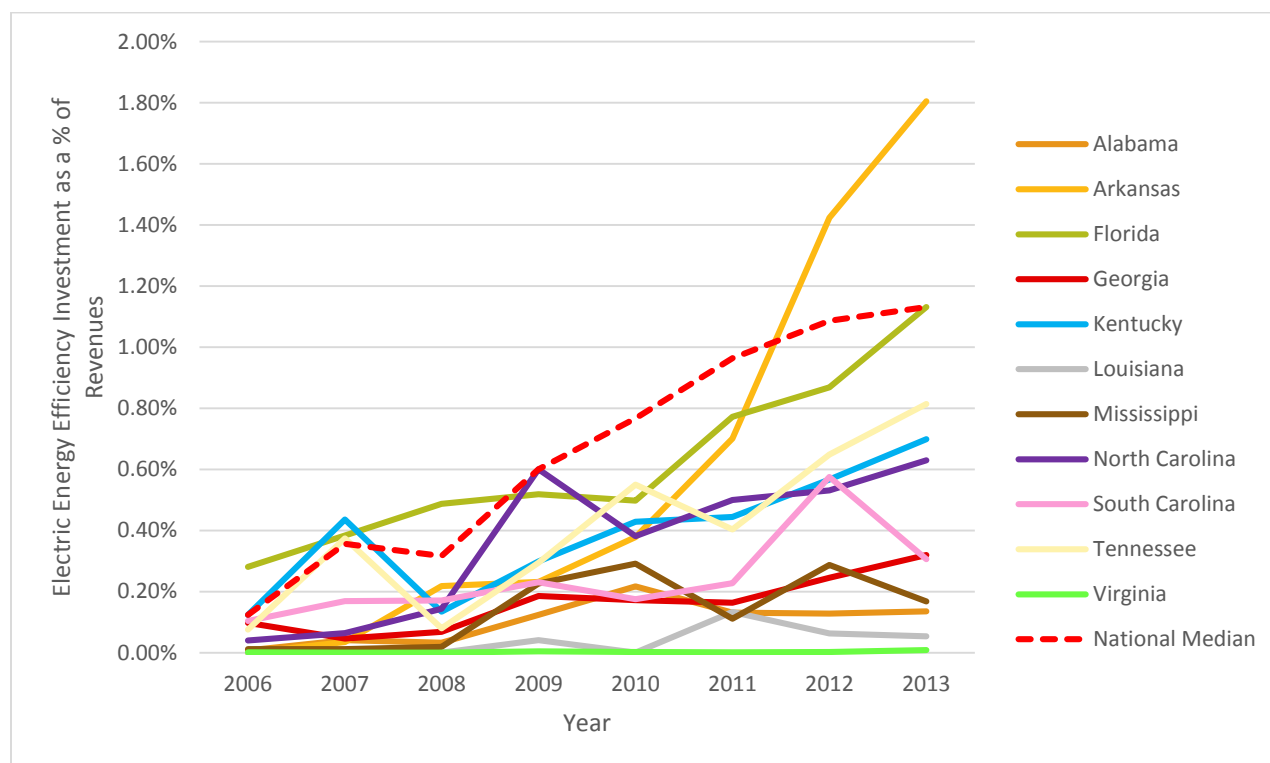
Established national leaders have achieved high levels of energy savings, and currently, a handful of states are nearing or have surpassed 2% of retail sales. In addition, a number of states that are newer to energy efficiency, including a number of Midwestern states and Arizona, have begun to approach these thresholds. In both categories, there are examples of states that have demonstrated performance in excess of EPA's suggested 1.5% energy efficiency target – in some cases, double or triple this rate.⁶

While national experience provides useful perspective and context, the Southeast is newer to energy efficiency, and in many cases, states are in the early stages of program ramp up. While the region has not yet reached the enhanced energy savings levels seen in other areas of the country, momentum and enthusiasm for energy efficiency is growing, and programs are quickly expanding. This ramp up is described in the section that follows.

B. Southeastern Utility Investment in Energy Efficiency Is Growing

Southeastern utilities have historically demonstrated varying levels of investment in energy efficiency programs. This is reflective of the patchwork of state policies and utility commitments to energy efficiency programs across the region. Low energy prices and limited supportive policy have, in some cases, served as a barrier to utility energy efficiency investments.⁷ However, utility energy efficiency programs have become an area of increasing focus in many southeastern states over the last decade. According to the American Council for an Energy-Efficient Economy (ACEEE), utility investments in electric energy efficiency programs in the eleven southeastern states totaled an estimated \$583 million in 2013, reflecting a 489% increase over the 2006-2013 timeframe.⁸ Within that same period, energy savings have increased from approximately 515 to 2,974 GWh, which is roughly equivalent to the annual electricity consumption of 270,000 typical American households, reflecting an even greater increase in energy savings of 577%.⁹ Furthermore, utility energy efficiency investments in the region over the coming years, even in the absence of carbon or other federal regulations, are projected to grow.¹⁰ It appears that the proposed CPP, once finalized, has the potential to spur additional energy efficiency investments in the region, as well as increase the pace and magnitude of program energy savings.

Figure 1. Electric Energy Efficiency Investment in Southeastern States



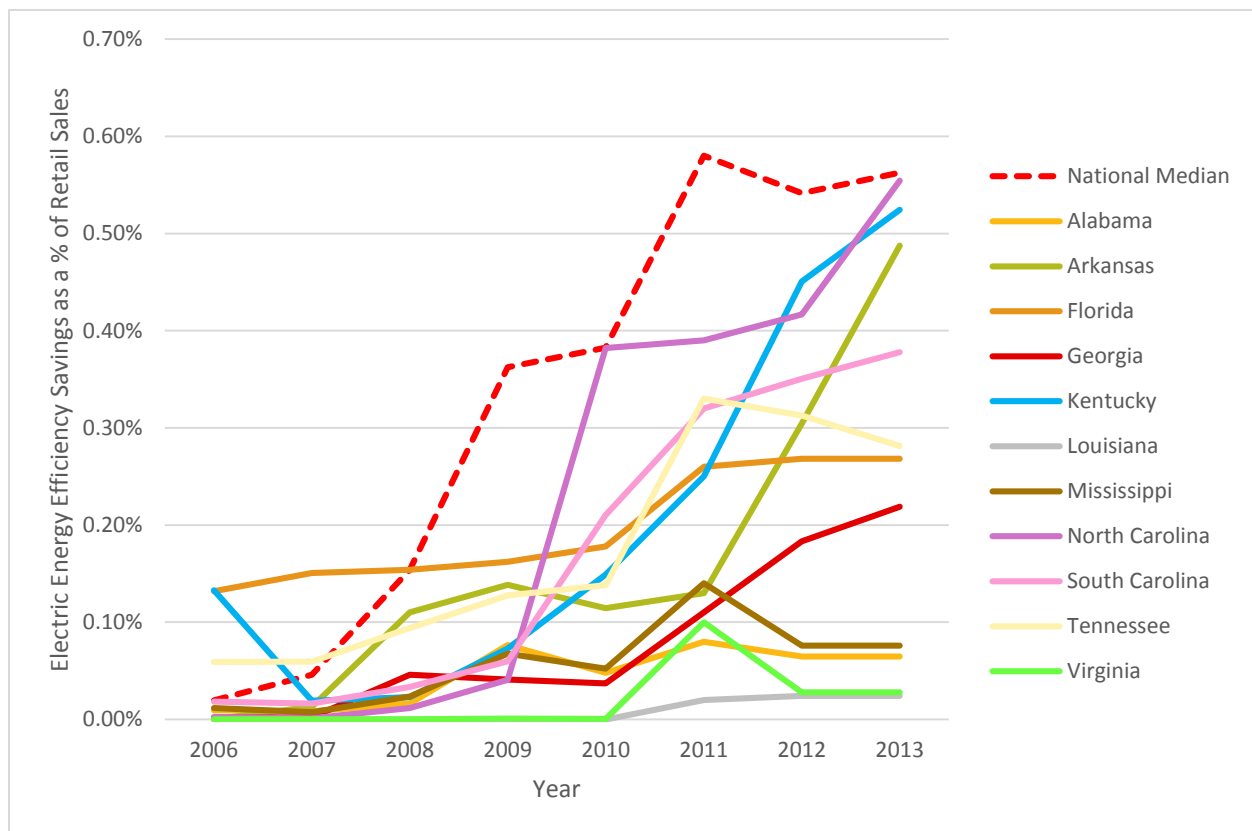
Source: ACEEE Data, 2006-2013.

Comparing the state-aggregated performance of selected southeastern utility energy efficiency programs over time reveals a trend of high variability year-to-year of energy savings performance, which reflects changes in state regulatory policy, shifting utility investment in energy efficiency programs, utility program administrator “learning curves,” energy efficiency market development and technology advancements, among other factors. Figure 2 on the following page contains a snapshot of reported savings as a percentage of retail sales for select states across the Southeast. Despite this variability year-to-year, the overall trend reveals a significant growth in both investment and energy savings from utility energy efficiency programs, and represents a foundation for future growth.

Appendix A provides a state-by-state breakdown of ramp-up rates in the Southeast. At a state level, ramp-up rates across the Southeast have typically fallen below EPA’s suggested ramp-up rate of at least 0.2% retail electricity sales annually; however the inclusion of non-utility program savings may boost these rates to higher levels. In addition, individual utilities with a specific focus on energy efficiency have, in many cases, exceeded this level. For example, Arkansas’ Energy Efficiency Resource Standard (EERS) only covers the state’s investor-owned utilities (IOUs), which excludes approximately 50% of the state’s load served by municipal and cooperative utilities. At a state level, Arkansas’ incremental electric energy efficiency savings are ramping up at less than the level suggested by EPA; however, the state’s IOUs have been ramping up at 0.25% annually under the EERS.

Section IV of this paper, beginning on page 10, provides additional detail on the factors that have resulted in this high level of achievement and growth over time.

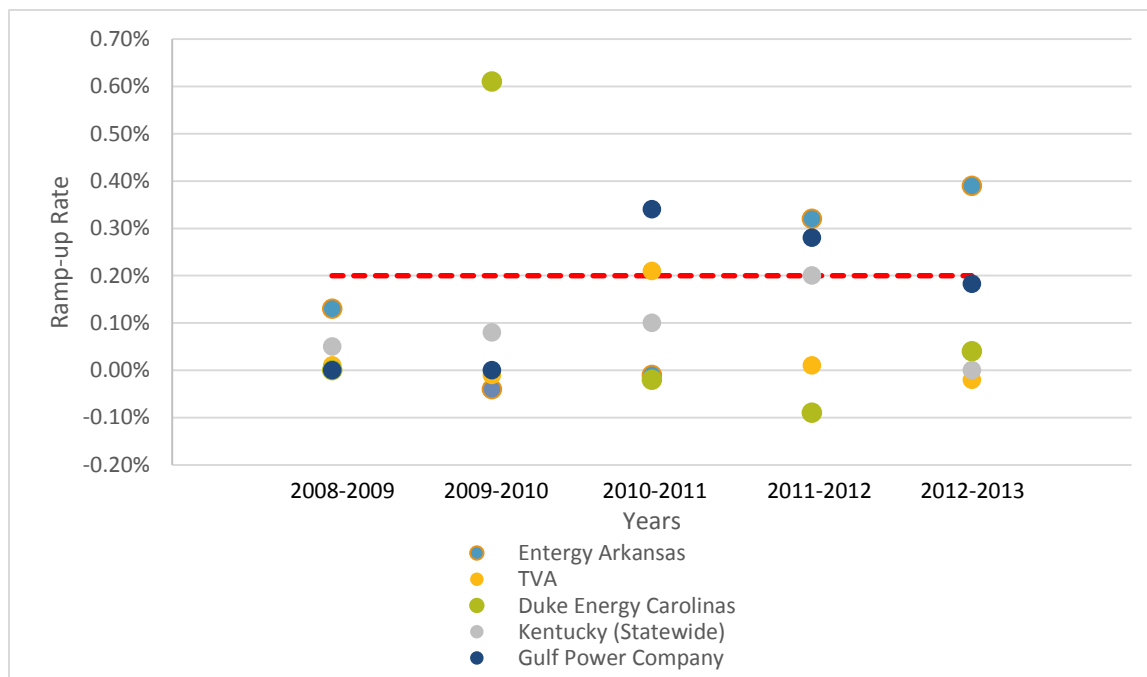
Figure 2. Southeastern Electric Energy Efficiency Savings as a Percent of Retail Sales



Source: ACEEE Data, 2006-2013.

The following chart illustrates the ramp-up rates of southeastern utility energy efficiency programs selected for inclusion in this analysis, which are further detailed in **Section IV**. Inconsistent levels of investment appear to largely drive the observed variability in ramp-up rates from year to year. It is important to note that non-utility energy efficiency program savings are not included in these data points. Notably, although some utilities exceeded EPA's suggested ramp-up rate in certain years, in years where the rate was not met, the inclusion of non-utility programs savings might boost ramp-up rates to higher levels.

Figure 3: Ramp-up Rates for Select Southeastern Utilities That Have Exceeded a 0.2% Ramp Rate for at Least One Year



Sources: Entergy Arkansas Annual Reports, 2008-2014; cost recovery filings under North Carolina PSC Docket No. E7; FEECA annual reports; EIA Form 861 data; communications and interviews with program staff; Form 10-K data; data provided by the Southern Alliance for Clean Energy.

IV. Energy Efficiency Program Growth Trajectory

A. “Quick Start” Programs Have Successfully Laid the Foundation for Ramp up in the Southeast

In the Southeast, “Quick Start” programs have enabled utilities to utilize a basic set of easy-to-implement programs that provide savings at the onset while laying the foundation for more comprehensive portfolio growth in future years. Because they are focused on providing a starting point for future ramp-up, Quick Start programs are not generally associated with savings targets; these are put in place during the subsequent Comprehensive Portfolio phase, which typically run in three-year cycles.¹¹

As a starting point, policymakers interested in “fast-tracking” utility energy efficiency programs and ramp-up rates via Quick Start programs should take into consideration the factors that most commonly influence ramp-up rates. A well-designed program that can ramp up quickly and result in sustainable energy efficiency improvements should contain specific, verifiable measurements that contribute to establishing short-term benchmarks, as well as long-term priorities.

Quick Start energy efficiency programs are designed to pave the way for future, often-expanded programs. A simple, streamlined and accessible program that develops a baseline will identify opportunities and needs for further program progress.¹²

In order to effectively ramp up, utilities require time to establish and promote their programs, along with the infrastructure to support the programs.¹³ SEEA’s analysis revealed the following trajectory for Quick Start programs in the Southeast:

In the beginning, budgets for Quick Start programs typically constitute a fraction of a percent of total revenues, but should be expected to ramp up significantly as time progresses to ensure goals are achieved. An investment of 1% of revenues represents a reasonable goal for programs to reach by the end of the first, three-year Comprehensive Portfolio phase. Investments in the neighborhood of 2.0 to 2.5% of revenues are typically comprehensive, on par with leading national programs.

A model for a reasonable ramp-up period that several southeastern utilities have followed is represented in Table 1 below. Values represented in the table are approximate, but are suggestive of relative scale.¹⁴

Table 1. Illustrative Energy Efficiency Program Ramp-up Metrics

Year 1	Investing a little less than 0.2% of revenues yielded savings of about 0.1% of sales.
Year 2	0.3% of revenues yielded savings of about 0.2% of sales.
Year 3	0.4% of revenues yielded savings of about 0.35% of sales.

As demonstrated, a greater investment in energy efficiency yields higher levels of savings. This table is provided as perspective on scalability, and what level of investment may be expected to achieve a desired level of savings.

B. Supportive Policies and Savings Strategies Cultivate Continued Growth as Programs Mature

The development of a portfolio of Quick Start programs provides a unique opportunity to develop a strategic approach that will both meet short-term objectives and set the stage for long-term growth and success. The following elements are key factors to the success of the utility programs selected as case studies for this paper.

1. Supportive Regulatory Framework

A supportive regulatory environment is critical for ensuring that utilities have the ability and support to continue sustained investment in energy efficiency by minimizing utility risk of incurring stranded costs. The generally accepted cost recovery framework is typically referred to as the “three-legged stool,” and supports the reconciliation of energy efficiency with utility business interests, as follows:

- a) **Program Cost Recovery:** reimburses utilities for spending on program essentials. In most states, these costs are treated as “expenses” in rate cases—in other words, the costs are added into the revenue formula and recovered through customer rates.
- b) **Lost Revenue Recovery:** enables utilities to recover revenues that would have been accrued in the absence of energy savings from approved customer energy efficiency programs. Variations include full decoupling, which allows the utility to recover its investment and operating costs independent of the volume of actual electricity sales, and Lost Revenue Adjustment Mechanisms (LRAM) or Lost Contributions to Fixed Costs (LCFC), which allow utilities to recover revenues that are “lost” through approved energy efficiency programs.
- c) **Performance Incentives:** allow a financial return on energy efficiency investments, placing them on par with supply-side investments in traditional generation. These performance incentives are paired with meeting or exceeding stated voluntary or mandatory goals.¹⁵

A recent review of the three-legged stool in the Southeast concluded that the LRAM is the most commonly used way of decoupling utility profits from electricity sales, expensing energy efficiency program costs is the most common approach to program cost recovery, and shared savings based on net benefits from the Program Administrator Cost test is the most frequently used way of incentivizing performance.¹⁶

In addition, a clear cost-effectiveness testing framework is essential for sustaining consistent investment in energy efficiency. Inconsistency can lead to swings in energy efficiency investment over time and hinder long-term planning the business community involved in delivery of energy efficiency offerings.

2. Energy Efficiency Goals

Setting energy efficiency goals is an important element of energy efficiency program planning. Having clear-cut goals or goal-setting mechanisms in place can help to chart a path forward and provides a helpful degree of specificity and direction, allowing states and utilities to maximize the benefits of energy efficiency. In addition, having goals to work toward can facilitate rapid rollout and deployment of programs in jurisdictions where policy makers have determined this to be of value. Goals may be voluntary

or mandatory, and may vary widely in scope and administration. Whether voluntary, like those in place for Georgia Power, or mandatory, like Arkansas' EERS and North Carolina's REPS, setting targets has been proven as an effective strategy to secure a desired level of energy-savings ramp up. An Integrated Resource Plan (IRP) also provides a framework for developing long-term energy efficiency goals; 38 states have IRP processes in place that include energy efficiency.¹⁷ IRP has become increasingly popular in the Southeast in recent years, although IRP policies and requirements vary from state to state.

3. Program Budget Commitments

Utility program budget commitments are essential not only for ramp up, but also for sustaining program savings over time. A firm budgetary commitment allows for the planning necessary to develop program administrative structure and contractor networks. Energy efficiency programs, and the businesses that implement them, cannot effectively support programs and plan for the future without certainty of consistent funding levels.

C. More Effective and Deeper Savings Opportunities Emerge As Programs Mature

Continued evaluation of program success and iterative refinement of delivery models can maximize savings and minimize costs over time. In effect, utilities can leverage the "learning curve" effect. As programs mature over time, their scope and focus will necessarily evolve from "widget-based approaches" to more comprehensive savings approaches, which generate deeper savings per program participant. Programs may also expand into evolving areas, such as building energy code compliance or behavioral change programs, to capture an expanded breadth of savings opportunities.

V. Case Studies of Effective Energy Efficiency Program Ramp up in the Southeast

A. Introduction

As mentioned previously, while energy efficiency investment in the Southeast has historically lagged behind other regions, a number of major southeastern utilities have significantly expanded their efforts over the past decade. In many cases starting from scratch, these utilities have cultivated and developed program delivery and market infrastructure in short order, demonstrating that strategic investments in energy efficiency can produce results even very early on in the program life cycle. The following case studies provide snapshots of southeastern utilities that have ramped up energy efficiency programs quickly, describing in more detail the approaches and key ingredients enumerated in **Section IV** that supported their success. While these case studies may not be uniformly replicable across the region, they each offer insights to spur a creative, determined approach toward energy efficiency, and also illustrate the trajectory of historic investments in energy efficiency.

B. Entergy Arkansas

Arkansas is the only state in the Southeast with an Energy Efficiency Resource Standard (EERS). Arkansas' EERS policy has driven savings from utilities covered by the EERS over time, in accordance with mandatory energy efficiency targets outlined within the policy. Ramp up began in 2007, when the Arkansas Public Service Commission (PSC) adopted rules governing utility-run energy efficiency programs, and approved initial utility administration of energy efficiency programs funded by utility customers through charges included in electricity rates. Notably, Arkansas has all three elements of the “three-legged stool” for encouraging utility investment in energy efficiency in place – program cost recovery, a lost revenue adjustment mechanism and a strong performance incentive. Since 2011, electricity savings from these statewide, utility-operated energy efficiency programs have more than tripled.¹⁸

Entergy Arkansas Incorporated (EAI or Entergy) has led covered utilities in the level of savings it has been able to attain, reaching approximately 1% of sales in 2014 – among the highest known values for a southeastern utility. While EAI's savings were modest during the Quick Start phase as program infrastructure developed, they expanded significantly with the adoption of the EERS in 2010, as seen on the following page.

A number of factors motivated Entergy's ramp up, reflecting an increase in investment from approximately \$7 million in 2009 to more than \$65 million in 2014. Concurrent with this increase in investment, the Entergy Trade Ally Network has grown from about 60 contractors in 2008 to more than 300 in 2014, through training, recruiting and improved incentives. In the coming years, EAI will continue to pursue opportunities to coordinate and streamline program delivery statewide, with a priority of maintaining cost-effectiveness in an environment of low avoided costs.

Table 2: Historic Savings for Entergy Arkansas

Year	Savings (GWh)	Sales (GWh)	Savings As a Percent of Sales	Ramp-up Rate
2008	23	21037.902	0.11%	—
2009	48.042	19926.173	0.24%	0.13%
2010	44.251	22004	0.20%	-0.04%
2011	41.958	21584	0.19%	-0.01%
2012	107.627	21086.871	0.51%	0.32%
2013	188.468	20859.1616	0.90%	0.39%
2014	205.507	21,001	0.98%	0.08%

Source: Entergy Arkansas Annual Reports, 2008-2014.

C. Kentucky (Statewide)

Kentucky provides a useful contrast to Arkansas, where voluntary programs have ramped up quickly to region-leading levels. Kentucky’s success demonstrates the potential for expanded savings, and illustrates that energy efficiency ramp up is viable in the absence of a mandate.

Some Kentucky utilities have funded demand-side management programs for decades, providing a solid investment to build upon when ramping up programs. In general, investment has trended upward since 2001.¹⁹ Kentucky utilities redoubled their energy efficiency investments with the release of Governor Beshear’s 2008 Energy Plan, “Intelligent Energy Choices for Kentucky’s Future: Kentucky’s 7-Point Strategy for Energy Independence,” which identifies energy efficiency as the leading strategy, and targets an 18% reduction of Kentucky’s energy demand by 2025.

In part, a three-year collaborative process that began in 2011 supported Kentucky’s ramp up and advancement. This effort, funded by the U.S. Department of Energy (DOE) and facilitated by the Midwest Energy Efficiency Alliance (MEEA), focused on designing a strategy for a 1% energy efficiency goal. Based on in-state stakeholder input, Kentucky pursued a voluntary goal without a mandated portfolio standard. Increased investment also supported this ramp up. In 2008, Kentucky’s statewide energy efficiency investments were only \$2.2 million, but by 2011, investments increased to more than \$48 million.²⁰ In 2013, Duke Energy Kentucky’s savings reached 1% of retail sales, and Louisville Gas and Electric (LG&E) and Kentucky Utilities Company (KU) topped 0.7%.²¹ In large part due to these successes, ACEEE’s 2014

State Energy Efficiency Scorecard named Kentucky one of its most improved states.²² Importantly, Kentucky’s major utilities have all three elements of the “three-legged stool” in place, supporting a policy framework that encourages investment in energy efficiency.

Table 3: Historic Savings for Kentucky Utilities

Year	Savings As a Percent of Sales	Ramp-up Rate
2009	0.07%	0.05%
2010	0.15%	0.08%
2011	0.25%	0.10%
2012	0.45%	0.20%
2013	0.52%	0.07%

Source: Southern Alliance for Clean Energy

D. Tennessee Valley Authority

The Tennessee Valley Authority (TVA) began offering energy efficiency and demand-side management programs in the late 1970s, although these programs historically prioritized peak demand reduction. Due to the focus on peak demand reduction as opposed to a portfolio of energy efficiency programs, TVA had very little infrastructure to build upon when it began ramping up in 2010. During the period from 2005 through 2009, TVA averaged only about \$17 million per year in spending on energy efficiency programs.²³

[TVA's 2007 Strategic Plan](#) first began prioritizing energy efficiency as a key focus within a shifting business landscape, as TVA’s energy efficiency activities transitioned into a period of rapid growth. In August 2010, the TVA Board adopted goals to effectively lead the Southeast in energy efficiency, setting out to achieve a cumulative 3.5% of sales in energy efficiency savings through 2015, relative to 2015 energy sales.

A supportive management and investments in program delivery infrastructure—including incentive programs, price structure changes and education efforts to raise awareness—catalyzed the effective implementation of this ambitious goal. As seen below, this comprehensive approach led to significant gains in the early years of program ramp up. Declines in recent years are a result of the need to cut operations and maintenance costs overall,²⁴ following the economic downturn, demand reduction, utility downsizing; and an increase in capital expenditures associated with building several new natural gas combined cycle (NGCC) plants:

Table 4: Historic Savings for TVA

Year	Savings (GWh)	Sales (GWh)	Savings As a Percent of Sales	Ramp-up Rate
2008	208	176,304	0.12%	—
2009	210	163,804	0.13%	0.01%
2010	211	173,662	0.12%	-0.01%
2011	559	167,730	0.33%	0.21%
2012	560	165,255	0.34%	0.01%
2013	521	161,925	0.32%	-0.02%
2014	553	158,057	0.35%	0.03%

Sources: Personal communication with program staff, TVA Form 10-K data

Today, TVA’s program portfolio includes residential, commercial and industrial offerings. In addition to more standard programs, TVA has recently incorporated more innovative offerings, including an upstream manufactured home buy-down program and its eScore program, which provides homeowners with a more streamlined process and interface that includes expert recommendations and instant rebates. TVA has exceeded its load management targets seven years in a row, and its [2015 IRP](#), currently in draft form, indicates continued investment through 2034.

E. Duke Energy Carolinas

Duke Energy Carolinas (DEC or Duke) offers another good example of ramp up “from zero to sixty” in a limited amount of time. DEC’s ramp up began in earnest with the enacting of state legislation establishing a Renewable Energy and Energy Efficiency Portfolio Standard (REPS), which allows IOUs to meet 25% of the standard through 2021 with energy efficiency, and 40% after 2021. Because of the relative low cost of energy efficiency, this component has generally been utilized up to this cap. Unlike Arkansas’ EERS, municipal and cooperative utilities are also covered by the standard, but do not have a limitation of energy efficiency contributions to their savings targets.

In its 2009 IRP, Duke outlined plans to reach about 2% of cumulative annual electricity savings by 2015, relative to 2009 sales, or about 0.35% incremental savings each year. With the establishment of the Save-A-Watt portfolio, Duke kicked into gear, and in the portfolio’s first two years Duke captured 178% and 152% of its 2010 and 2011 savings targets respectively, at a lower cost than originally projected.²⁵

Table 5: Historic Savings for Duke Energy Carolinas

Year	Savings (GWh)	Sales (GWh)	Savings As a Percent of Prior Year Sales	Ramp-up Rate
2009	52	73,741	0.07%	—
2010	499	78,922	0.68%	0.61%
2011	521	76,985	0.66%	-0.02%
2012	436	75,022	0.57%	-0.09%
2013	452	78,035	0.60%	0.04%

Sources: Personal communication with program staff, various cost recovery filings under North Carolina Public Service Commission Docket No. E7, EIA Form 861 data (prior year sales used due to data lag).

Duke’s portfolio, while largely driven by lighting savings, is demonstrative of a utility’s ability to effectively leverage a promising technology. Because of the national lighting standards that were recently adopted, assumptions regarding lighting baselines will sharply reduce the savings that are available through this technology. However, as new technologies emerge on the scene, and as existing technologies drop in price, utilities have the opportunity to find new and significant sources of savings.

F. Gulf Power Company

From 2011 to 2014, Florida’s Gulf Power ramped up from a modest level of energy savings to a robust portfolio that propelled them into the ranks of the Southeast’s regional energy efficiency leaders. Gulf’s 2010 Demand Side Management Plan, which Gulf developed to achieve goals set out in proceedings under the Florida Energy Efficiency and Conservation Act, included comprehensive energy efficiency measures in the residential, commercial and industrial sectors.

Among the primary drivers of the savings Gulf achieved during this time were its HVAC commissioning and behavioral programs. During program ramp up, both the residential and the commercial and industrial programs performed well above projected energy savings goals under Gulf’s DSM Plan, in some years outperforming by nearly double the planned savings.

Table 6: Historic Savings for Gulf Power Company

Year	Savings (GWh)	Sales (GWh)	Savings As a Percent of Prior Year Sales	Ramp-up Rate
2010	0	11,359	0.00%	0.00%
2011	39	11,040	0.34%	0.36%
2012	69	10,663	0.63%	0.28%
2013	86	10,620	0.80%	0.18%

⁴Sources: FEECA annual reports, EIA Form 861 data (prior year sales used due to data lag).

Notably, the “three-legged stool” framework is not fully in place in Florida. While Gulf was able to recover the costs of approved programs as a part of that plan, Florida is not considered to have a lost revenue adjustment mechanism in place, and Gulf has not yet sought an incentive for their performance to date. In addition, cost effectiveness testing criteria have not been applied consistently from year to year, as described below.

In 2014, the Florida Public Service Commission approved proposals from Florida’s major utilities under the Florida Energy Efficiency and Conservation Act to significantly scale back program goals, based partly on a determination to screen programs using the more restrictive Ratepayer Impact Measure cost-effectiveness test. Gulf Power’s 2015-2024 portfolio has since been filed, and includes a more limited set of programs.²⁶ Gulf’s rapid program ramp up and projected future ramp down points to the importance of a consistent, supportive energy efficiency policy framework.

VI. Conclusion

Investment in energy efficiency is increasing in southeastern states. While state-level ramp-up rates for utility programs in the region generally fall below those suggested by EPA in its proposed CPP, individual utilities that are supported by a robust policy framework have been able to ramp up quickly – in many cases, more quickly than EPA suggests. Whether and how states and utilities quickly “ramp up” utility energy efficiency programs (at any level) and sustain program performance over time in order to meet mandatory air emission reduction goals under the final CPP will depend on an interrelated set of factors, many of which are dependent upon, and influenced by, strategic decisions made by states, utilities and their regulators. As states begin to evaluate options, consideration of how to best approach these issues is warranted. In order to effectively assess the potential for utility energy efficiency programs within compliance plans, states and utilities must continue to work together to build upon existing efforts across the region and learn from the historical experiences of successful programs. Fortunately, in many states a foundation upon which programs may be built and expanded exists. Together with non-utility programs, ratepayer-funded energy efficiency measures may provide a viable tool for enabling states to comply with EPA’s proposed CPP at least cost.

Appendix A: Southeastern Electric Energy Efficiency Savings as a Percent of Sales and Associated Ramp Rates

State		2006	2007	2008	2009	2010	2011	2012	2013
Alabama	Savings	0.01%	0.01%	0.02%	0.08%	0.05%	0.08%	0.06%	0.06%
	Ramp Rate	-	0.00%	0.01%	0.06%	-0.03%	0.03%	-0.02%	0.00%
Arkansas	Savings	0.00%	0.01%	0.11%	0.14%	0.11%	0.13%	0.30%	0.49%
	Ramp Rate	-	0.01%	0.10%	0.03%	-0.02%	0.02%	0.17%	0.18%
Florida	Savings	0.13%	0.15%	0.15%	0.16%	0.18%	0.26%	0.27%	0.27%
	Ramp Rate	-	0.02%	0.00%	0.01%	0.02%	0.08%	0.01%	0.00%
Georgia	Savings	0.00%	0.00%	0.05%	0.04%	0.04%	0.11%	0.18%	0.22%
	Ramp Rate	-	0.00%	0.04%	0.00%	0.00%	0.07%	0.07%	0.04%
Kentucky	Savings	0.13%	0.02%	0.02%	0.07%	0.15%	0.25%	0.45%	0.52%
	Ramp Rate	-	-0.11%	0.00%	0.05%	0.08%	0.10%	0.20%	0.07%
Louisiana	Savings	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.02%	0.02%
	Ramp Rate	-	0.00%	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%
Mississippi	Savings	0.01%	0.01%	0.02%	0.07%	0.05%	0.14%	0.08%	0.08%
	Ramp Rate	-	0.00%	0.02%	0.04%	-0.02%	0.09%	-0.06%	0.00%
North Carolina	Savings	0.00%	0.00%	0.01%	0.04%	0.38%	0.39%	0.42%	0.55%
	Ramp Rate	-	0.00%	0.01%	0.03%	0.34%	0.01%	0.03%	0.14%
South Carolina	Savings	0.02%	0.02%	0.03%	0.06%	0.21%	0.32%	0.35%	0.38%
	Ramp Rate	-	0.00%	0.02%	0.03%	0.15%	0.11%	0.03%	0.03%
Tennessee	Savings	0.06%	0.06%	0.09%	0.13%	0.14%	0.33%	0.31%	0.28%
	Ramp Rate	-	0.00%	0.03%	0.03%	0.01%	0.19%	-0.02%	-0.03%
Virginia	Savings	0.00%	0.00%	0.00%	0.00%	0.00%	0.10%	0.03%	0.03%
	Ramp Rate	-	0%	0%	0%	0%	0%	0%	0%

Source: ACEEE Data, 2006-2014

End Notes

¹ Measured as incremental energy efficiency savings as a percentage of total retail sales annually.

² Beginning in 2017.

³ This is based on SEEA's survey of southeastern state comments submitted to EPA, available at <http://www.seealliance.org/wp-content/uploads/Key-Takeaways-from-Southeastern-Clean-Power-Plan-Comments-3-18-14-Final.pdf>. Because less data is currently available on non-utility and private sector energy efficiency ramp-up rates, they are not included in this analysis. Non-utility programs will be discussed in the forthcoming SEEA Resource Paper Series, Paper 6 (to be released summer 2015).

⁴ Southeast Energy Efficiency Alliance. "Energy Efficiency Quick Start Programs: A Guide to Best Practices" (April 2014).

⁵ American Council for an Energy-Efficient Economy. "The 2014 State Energy Efficiency Scorecard" (October 2014) available at <http://aceee.org/research-report/u1408>.

⁶ Analysis Group. "Assessment of EPA's Clean Power Plan: Evaluation of Energy Efficiency Program Ramp Rates and Savings Levels" (Dec. 2014) available at http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/Assessment_of_EPA_Clean_Power_Plan.pdf.

⁷ Ibid.

⁸ SEEA refers to the following states when discussing the Southeast: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Virginia.

⁹ In 2013, the average annual electricity consumption for a U.S. residential utility customer was 10,908 kilowatthours (kWh), an average of 909 kWh per month. Source: US DOE.

¹⁰ Edison Electric Institute. "Summary of Electric Utility Customer-Funded Energy Efficiency Savings, Expenditures, and Budgets" (March 2014).

¹¹ U.S. EPA. "National Action Plan for Energy Efficiency: Vision for 2025" (November 2008) available at <http://www.epa.gov/cleanenergy/documents/suca/vision.pdf>.

¹² Ibid.

¹³ American Council for an Energy-Efficient Economy. "2013 State Energy Efficiency Scorecard" (November 2013) available at <http://aceee.org/research-report/e13k>.

¹⁴ Southeast Energy Efficiency Alliance. "Energy Efficiency Quick Start Programs: A Guide to Best Practices" (April 2014).

¹⁵ American Council for an Energy-Efficient Economy. "The Old Model Isn't Working: Creating the Energy Utility for the 21st Century" (September 2011) available at http://aceee.org/files/pdf/white-paper/The_Old_Model_Isnt_Working.pdf.

¹⁶ Marilyn Brown et al. “Alternative Business Models for Energy Efficiency: Emerging Trends in the Southeast” (October 2014) available at http://www.spp.gatech.edu/sites/default/files/publication/download/201410/BusinessCase_10-28-2014%20WP84%20%281%29.pdf.

¹⁷ American Council for an Energy-Efficient Economy. “IRP vs. EERS: There’s One Clear Winner” (December 2014) available at <http://aceee.org/blog/2014/12/irp-vs-eers-there%E2%80%99s-one-clear-winner->.

¹⁸ American Council for an Energy-Efficient Economy. “The 2014 State Energy Efficiency Scorecard” (October 2014) available at <http://aceee.org/research-report/u1408>.

¹⁹ U.S. Department of Energy Technical Assistance Program. “An Assessment of Utility Program Portfolios in the Commonwealth of Kentucky” (June 2012) http://energy.ky.gov/Programs/SEE%20KY/July%202012%20Meeting/KY%20Utility%20Program%20Analysis-FINAL_7-2-12.pdf.

²⁰ Midwest Energy Efficiency Alliance, “Achieving Voluntary Efficiency Goals: The Kentucky Approach” (August 2013) available at <http://mwalliance.org/webinars/meea-policy-webinar-achieving-voluntary-efficiency-goals-kentucky-approach>.

²¹ Kentucky Energy and Environment Cabinet, “Demand-Side Management in Kentucky: Current Performance, Costs and Potential.”

²² American Council for an Energy-Efficient Economy. “The 2014 State Energy Efficiency Scorecard” (October 2014) available at <http://aceee.org/research-report/u1408>.

²³ U.S. Government Accountability Office. “Tennessee Valley Authority: Full Consideration of Energy Efficiency and Better Capital Expenditures Planning Are Needed” (October 2011), available at <http://www.gao.gov/assets/590/586006.pdf>.

²⁴ Energy efficiency is a part of TVA’s O&M budget.

²⁵ Analysis Group. “Assessment of EPA’s Clean Power Plan: Evaluation of Energy Efficiency Program Ramp Rates and Savings Levels” (Dec. 2014) available at http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/Assessment_of_EPA_Clean_Power_Plan.pdf.

²⁶ See Florida PSC Docket No. 150086, Petition for approval of demand-side management plan of Gulf Power Company.