Opportunity Knocks:
Examining Low-Ranking States in the State Energy Efficiency Scorecard[1]

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ABSTRACT

In recent years many states have embraced new energy efficiency policies and as a result, investments in energy efficiency programs have been increasing steadily. But a group of about a dozen states remains year after year at the bottom of the ACEEE *State Energy Efficiency Scorecard*. These states tend to be in the Southeast and the northern Great Plains. Most of these states are politically conservative. This paper reports on the results of a study in which many policymakers and policy influencers in these states were interviewed, to analyze why they have not embraced energy efficiency and to explore the approaches and policies in the utility sector, public sector, buildings, and industry that might allow them to get started.

Introduction

Each year, ACEEE publishes the *State Energy Efficiency Scorecard*, which ranks each U.S. state, and Washington, D.C. based on a set of criteria that measures success implementing policies and programs that advance the efficient use of energy in buildings, transportation, and industry (Sciortino et al. 2011). For five years, the report has focused on shining a light on the best practices being adopted by the top states, in order to guide states in the middle and bottom of the rankings to follow their lead. Over this period, a number of states have made important advances in energy efficiency, particularly in the Midwest and Southwest. However, many states remain far behind in the adoption of energy efficiency policy. This paper aims to elucidate ways forward for the states that are ranked lower in the *Scorecard*. By addressing barriers common to all states, and unique to some, we hope to identify a path forward for energy efficiency in states where leaders may not be convinced that what works for California or Vermont may work for them. Energy efficiency is a real utility resource that can help offset the need to build costly new generation capacity, which saves money for all customers in the long term regardless of their current energy prices. After interviewing over fifty experts in the bottom-ten states of the *Scorecard*, we believe that the steps we outline to advance efficiency are pragmatic, palatable, and necessary for the economic and environmental health of these states.

Methodology

In this paper, we focused on the bottom ten states of the *2011 Scorecard*. Each of these states, with the exception of South Carolina, has resided in the bottom quintile of states at least two out of the last four years. The states include: South Dakota; Alabama; Missouri; West Virginia; South Carolina; Oklahoma; Kansas; Mississippi; Wyoming; and North Dakota. Though

[1] This paper is an abridged version of a full ACEEE research report with the same title, available at http://www.aceee.org/research-report/e126.

the paper focuses on the states in the bottom tier of the *Scorecard* rankings, we believe the findings and recommendations are applicable to most states in the bottom two quintiles. In each of the bottom ten states, ACEEE researchers conducted interviews with regulators, governmental officials, energy efficiency advocates, private businesspeople, consumer advocates, and academic experts. In total, ACEEE interviewed fifty-five stakeholders to inform our analysis. In order to elicit frank and meaningful responses, we have kept the names of interview participants confidential. The report concentrates on the following energy efficiency topics:

- *State Government*
  - Energy efficiency in public facilities and vehicle fleets
  - Financial incentive programs for energy efficiency administered by state agencies
- *Utility Sector*
  - Investment of ratepayer funds in energy efficiency programs
  - Adjustments to the utility business model to make efficiency an attractive investment
- *Building Energy Codes*
  - Adoption of current building energy codes at state or local levels
  - Enforcement and compliance of building energy codes
- *Combined Heat and Power (CHP)*

The policies and programs discussed in this report account for 39 of the 50 total points allotted in the *2011 Scorecard* methodology. We eliminated transportation and appliance standards from the project scope, in order to effectively use the finite resources available for this project. Transportation policies and appliance standards are undoubtedly important for states to pursue and we hope their potential for application in the bottom states can be examined in future research. A detailed analysis of market barriers to CHP and state-by-state assessments of CHP potential can be found in a recent ACEEE report (Chittum and Kaufman 2011).

Obstacles to Energy Efficiency in Low-Ranking States

Our first objective is to broadly understand the perception of energy efficiency in the bottom ten states and the reasons behind the states' failure to rise in our energy efficiency rankings. In this section, we will detail what stakeholders in the lowest ranking states perceive to be the barriers to adopting energy efficiency policy and programs. In the lowest ranking states in the *Scorecard*, energy efficiency faces numerous barriers, some daunting and some overstated, some common and some unique to certain regions and states. In Sciortino et al. (2012), we counter perceived barriers with evidence in support of advancing energy efficiency programs and policy. Easily the most widespread and tenuous argument against energy efficiency is that it is prohibitively expensive. Below, we also discuss regulatory, information, and political obstacles to energy efficiency.

Concerns over Costs of Energy Efficiency in the Utility-Sector

The impact of energy efficiency programs on ratepayers is cited as a key barrier to advancing utility-sector energy efficiency programs by stakeholders in the bottom ten states.

Usually citing the Ratepayer Impact Measure (RIM) test, regulators and utilities argue that energy efficiency programs put upward pressure on rates, which negatively impact consumers. Because rates are so low, the argument continues, energy is cheap and efficiency measures are not needed. In addition, poorer customers will be most vulnerable to potential rate increases.

In our interviews with utility representatives as well as outside experts, the argument was often made that energy efficiency programs do not align with the utility business model and cost too much to operate. Without the proper regulatory mechanisms in place for the timely recovery of program costs and lost revenues as a result of the energy saved from efficiency measures, utilities will never wholeheartedly support energy efficiency.

Concerns about Costs in Buildings and State Government

Often, opponents of energy efficiency policy (building energy codes in particular) argue that energy-efficient construction is prohibitively costly. One of the major barriers to the adoption of building energy codes is the concern that the cost of upgrading to the latest model energy code would be prohibitive. Some but not all of the states we examined are reluctant to implement state-led energy efficiency programs due to concerns regarding their cost to the taxpayer. State-led programs include: "Lead by Example" programs aiming to improve the energy efficiency of state, local, and institutional buildings; financial and tax incentives for energy efficiency projects in buildings, transportation, and industrial sectors; and building code adoption and implementation initiatives.

Uncertainty over Participation Rates

Many interviewees in the bottom ten states believe that low customer demand constitutes the greatest challenge to running cost-effective energy efficiency programs. Most customers are not aware of ways to make their homes and businesses more energy efficient, nor do they understand the value of such improvements. Furthermore, low-income customers do not have the resources to afford energy efficiency improvements that might require an upfront payment and energy is so cheap that customers will not participate in programs. Many of our interviewees mentioned the practical limitations of implementing statewide programs in rural states where vendors and energy efficiency professionals are so geographically dispersed. Finally, energy is simply not enough of an economic concern for potential customers to build participation in the bottom ten states.

Energy Efficiency in Politically Conservative, Energy-Producing States

The prospect for meaningful energy efficiency policy and program implementation was often discounted in our interviews because of conservative political environments where energy efficiency does not win attention or support. Except for West Virginia, every state in the bottom ten of the *Scorecard* report has Republican legislatures and governors, governing with popular mandates to eliminate intrusive regulation and wasteful spending. Energy efficiency policies and programs are often dismissed as burdensome and unnecessary options when compared to allowing the free market to determine if consumers want energy-efficient technologies. However, many fiscally conservative states that are generally averse to government mandates have supported energy efficiency policies in a bi-partisan way. Indiana, Arkansas, and Arizona,

for example, have long-term energy savings requirements in place for utilities, known as Energy Efficiency Resource Standards (EERS).

In most of the states we interviewed, policymakers prioritize energy production over energy efficiency. Energy production is a major source of jobs and economic growth in many of these states. North Dakota, for instance, has witnessed an unprecedented boom in oil exploration and production over the past four years that has created jobs and economic prosperity in the state. In general, energy policy discussions revolve around how to increase production and, in some states, how to boost energy production from renewable resources like wind energy and hydropower.

Lack of Champions for Energy Efficiency

Many interviewees noted that the states we examined generally do not have a strong base of advocates for energy efficiency. In state legislatures and utility commissions, it is critical to have champions for energy efficiency to educate peers and lead policymaking efforts. The presence of outside influencers in support of energy efficiency is equally important, and in many of the states we examine, there is not a critical mass of advocates consistently voicing support for a new approach to energy efficiency. States such as in Georgia, North Carolina, and Tennessee, where energy efficiency has gained momentum, all possess strong advocacy groups complementing and supporting each other.

Barriers to Combined Heat and Power (CHP)

Combined heat and power, also known as cogeneration, is a method of simultaneously generating thermal energy (heat) and electricity in a single, integrated system, often from a shared source of fuel. States at the bottom of our rankings have had limited success advancing CHP applications for reasons similar to most other states: project economics can be unfavorable and regulation does not adequately create a market for excess power created by such systems. The technologies for CHP projects are generally available to manufacturers so technical barriers are uncommon. A more detailed analysis of market barriers to CHP can be found in a recent ACEEE report (Chittum and Kaufman 2011).

Recommendations on How to Advance Energy Efficiency in the Bottom-Ten States

Below, we lay out a set of recommendations on how to advance energy efficiency policy and programs specifically tailored to the group of states at the bottom of our Scorecard. Our recommendations build on ideas from our interviewees and existing initiatives in the states. Acknowledging that there is diversity even within the ten states we focus on in this paper, the following recommendations are grounded, flexible, and achievable in most settings according to our past work and the input from our interviewees.

Figure 1. Recommendations to the Lower-Ranking States in the *State Energy Efficiency Scorecard*

1. Use a collaborative and transparent process to develop a state energy plan that emphasizes the importance of energy efficiency
2. Advance energy efficiency in state and municipal-owned facilities and fleets
3. Move forward on cost-effective utility-sector energy efficiency programs
4. Remove regulatory barriers and provide financial incentives for combined heat and power
5. Adopt and enforce building energy codes

Develop a State Energy Plan in Place that Emphasizes the Importance of Energy Efficiency

State energy plans lay out the vision and commitment necessary for public and private sector stakeholders to confidently pursue energy efficiency investments. A good state energy plan comprehensively outlines a set of goals as well as policies and initiatives to achieve those goals. A key barrier to energy efficiency policy and programs identified by many of our interviewees was that without a plan in place, energy policy and programs is made ad hoc and without consideration for long-term priorities or objectives. State energy plans are often connected to economic development agencies, which tout the energy sector's ability to create jobs and widespread economic benefits. When state energy plans include a serious role for energy efficiency, it allows readers to make the connection between energy efficiency and economic development.

Table 1. State Energy Plans in the Bottom-Ten States

State	Energy Plan Status	Energy Efficiency Component of Plan	Lead Agency
Alabama	None		
Kansas	Kansas Energy Report (2009 – not operational)	Energy efficiency savings goal; energy efficiency in new and renovated state buildings; energy-efficient transportation in public sector; energy efficiency in the agricultural sector (from the 2009 report)	Kansas Energy Council
Mississippi	Roadmap for Mississippi's Energy Future (2010 – operational)	Recommendations for building code adoption; state government building efficiency	Mississippi Energy Policy Institute
Missouri	None		
North Dakota	Empower North Dakota: Comprehensive State Energy Policy 2010-2025 (2010 – operational)	Building energy codes; energy efficiency in state government buildings and schools; public transportation; financial incentives for energy-efficient products; energy efficiency education; utility-sector energy efficiency	North Dakota Department of Commerce
Oklahoma	Oklahoma First Energy Plan (2011 – operational)	Energy efficiency in residential, commercial, and public buildings; support for utility-sector energy efficiency; encouragement of industrial energy efficiency; support of policies that encourage energy efficiency; energy efficiency as an environmental protection strategy	Office of the Governor
South Carolina	South Carolina Energy Advisory Council (2010 – operational)	Council has conducted planning sessions related to energy efficiency in utility sector and building codes.	South Carolina Legislature
South Dakota	None		

State	Energy Plan Status	Energy Efficiency Component of Plan	Lead Agency
West Virginia	West Virginia Energy Opportunities: A Blueprint for the Future (2007; update expected in 2012)	Building codes; K-12 Building Energy Program; ENERGY STAR buildings; industrial energy efficiency	West Virginia Department of Commerce
Wyoming	None		

In the private sector, a state energy plan signals commitment to the plan's objectives, providing the reassurance necessary to make investments and create businesses in energy efficiency services. While the plan is essential in broadening the awareness of energy efficiency and setting objectives for its advancement, it is critical to develop other avenues to promote energy efficiency education and the implementation of energy efficiency policies and programs.

Advance Energy Efficiency in State- and Municipally-Owned Facilities and Fleets

State- and municipally-owned facilities and fleets present states with a wide range of energy savings opportunities. Every state pursues energy efficiency in state-owned facilities to some degree. The State Energy Program, as well as other federally-funded programs mostly administered by state energy offices, has been instrumental in state "Lead by Example" efforts, or initiatives to create energy-efficient public facilities that set the right example for the general public. The American Recovery and Reinvestment Act (ARRA) spurred new energy efficiency projects in the Municipal, University, School, and Hospital (MUSH) buildings, and most state energy offices learned a great deal from the process, starting new financing programs and creating the staff expertise for such initiatives. Moving forward, state energy offices and other state and local policymakers face the challenge of maintaining the momentum created by ARRA and pursuing a comprehensive energy efficiency strategy for state- and municipally-owned facilities and fleets. Such a strategy should pair policy with programs aimed at achieving energy savings in a range of facility types such as schools and wastewater facilities as well as vehicle fleets. A comprehensive Lead by Example program not only benefits the taxpayer, but also state and local governments, which enjoy lower energy costs, better working environments, and a positive and useful message to communicate to consumers.

Develop foundational policy support. Many states guide comprehensive "Lead by Example" initiatives with energy savings targets for state-owned facilities and fleets. In Missouri, for example, an Executive Order calls for a 2% reduction in energy use each year. Energy savings targets commit states to pursuing energy efficiency retrofits for existing buildings, which can be supported by complementary policies, such as a policy that encourages the use of Energy Savings Performance Contracts (ESPCs), which allows an energy services company (ESCO) to perform an energy efficiency upgrade and be paid through the savings the project generates over time. To encourage the purchase of fuel-efficient vehicles, many states have adopted efficient fleet policies that require vehicles purchased or the entire fleet to meet a fuel-economy standard.

A critical step to ensuring a sound Lead by Example strategy is to measure and benchmark energy use in public facilities. Benchmarking energy use through tailored or widely available tools such as the EPA ENERGY STAR Portfolio Manager ensures a comprehensive set of energy use data that drives cost-effective energy efficiency investments. Among the states focused on in this report, South Dakota, West Virginia, Mississippi, South Carolina, and

Alabama all require or strongly encourage the measurement of energy use in state-owned facilities. States can also require new public buildings to follow design guidelines that promote energy-efficient construction beyond established energy codes such as ENERGY STAR, LEED, or Green Globes. South Carolina, South Dakota, Missouri, and Oklahoma all require energy-efficient construction of new public facilities. States may also require school districts to build new schools in accordance to energy-efficient standards such as the protocol established by the Collaborative for High Performance Schools (CHPS). New Hampshire, for instance, encourages school districts to comply with the Northeast-CHPS protocol by providing up to an additional three percent in state construction aid.

Improve program design and implementation. Aside from implementing energy efficiency targets or broad policy, states can offer technical and financial assistance programs to encourage energy efficiency improvements in facilities owned by both state and municipal governments. Lead by Example programs often employ a principal lead agency, which is supported by other executive agencies and leverages existing state, federal, utility, and non-governmental organization resources (EPA 2009). Financed in a variety of ways, Lead by Example programs can unlock energy efficiency opportunities in a range of facility types that can offer states a positive message to communicate to the broader public.

Table 2. State "Lead by Example" Initiatives

State	Initiatives	Technical or Financial Assistance Programs
Alabama	Benchmarking Requirements for Public Buildings; Efficient Fleets; ESPC Policy and Programs	Local Government Energy Loan Program
Kansas	Efficient Fleets; ESPC Policy and Programs	Facilities Conservation Improvement Program
Mississippi	Benchmarking Requirements for Public Buildings; Efficient Fleets; ESPC Policy and Programs	Energy efficiency lease program
Missouri	New and Existing State Building Requirements; Efficient Fleets; ESPC Policy and Programs	Energy Revolving Loan Funds for schools, local governments, and institutional buildings
North Dakota	None	None
Oklahoma	New and Existing State Building Requirements	Community Energy Education Management Program; Energy Loan Fund for Schools
South Carolina	Benchmarking Requirements for Public Buildings; New and Existing State Building Requirements; ESPC Policy and Programs	ConserFund Loan Program, Local Energy Planning Guide
South Dakota	Benchmarking Requirements for Public Buildings; New and Existing State Building Requirements	Energy Efficiency Revolving Loan Fund
West Virginia	Benchmarking Requirements for Public Buildings	Center for Building Energy Use (energy efficiency in public schools)
Wyoming	ESPC Policy and Programs	Wyoming Conservation and Improvement Program

Note: See the ACEEE State Policy Database for full descriptions and links: http://www.aceee.org/sector/state-policy

Comprehensive public building energy efficiency programs often guide facility managers through the process of financing energy efficiency upgrades. The Facilities Conservation Improvement Program (FCIP) in Kansas, for example, provides facility managers with a simple, streamlined program to assist in project design, finance, and implementation. The program focuses on guiding facility managers through the energy savings performance contracting process. As Kansas has shown, state governments can play a leading role advancing the ESPC model by providing a pre-approved list of ESCOs, model contract language, and other technical assistance. Other public sector financing models such as revolving loan funds also provide the upfront capital necessary to upgrade facilities.

As the table above shows, most states have pursued Lead by Example policies and programs to some degree. The challenge moving forward will be for states to take a comprehensive approach to energy efficiency in the public sector and implement the full range of policy and program options detailed above.

Implement Cost-Effective Utility-Sector Energy Efficiency Programs

To advance energy efficiency to its full potential, lower ranking states in the *Scorecard* would benefit from following the path of leading states by implementing cost-effective programs in the utility sector. States should formally recognize, through regulation, statute, or utility planning process, that energy efficiency is a least-cost utility resource that provides an array of shareholder, ratepayer, and system benefits. In addition, state regulators must align the utility business model with the objective of saving energy, which can be done through established regulatory fixes discussed below. Finally, program portfolios should seek a broad and diverse customer base and be evaluated with a range of fair cost-effectiveness tests.

Design a transparent and inclusive process. Altering the utility business model in such a fundamental way arouses great debate. Many of our respondents noted that in any push to adopt such regulations and portfolios, the process would have to be transparent, inclusive, and informed by impartial and accurate analysis in order to succeed. In many of the states that have recently adopted energy efficiency program portfolios, such as Arkansas and Illinois, open rulemakings and collaborative processes created forums for utility regulatory staff, utility representatives, energy efficiency advocates and experts, state government officials, and consumer advocates to build trust amongst each other and gain greater understanding of energy efficiency regulations. While such collaborative processes do not guarantee success, they are very useful for laying the groundwork for adoption and successful implementation of energy efficiency programs.

Treat efficiency as a resource. State policymakers should define energy efficiency as a resource capable of yielding energy and demand savings that can displace electricity generation from coal, natural gas, nuclear power, and other supply-side resources. Defining efficiency as a resource and integrating it into utility decision-making is especially critical because of the clear resource cost advantage of energy efficiency (Friedrich et al. 2009). Energy savings from customer energy efficiency programs are typically achieved at one-third the cost of new generation resources. Efficiency programs can also improve system reliability and reduce the need to install, upgrade, or replace transmission and distribution equipment.

Among the states we focus on in this report, Kansas, South Carolina, Missouri, Oklahoma, and South Dakota have either defined energy efficiency as a resource or treat efficiency as a resource in utility planning processes. In many states, utilities conduct Integrated Resource Plans (IRP) to identify the mix of resources that will minimize future system costs while ensuring safe and reliable operation of the system. If states require or encourage energy efficiency to be considered as a true resource, IRPs can be a powerful device for promoting energy efficiency in the utility sector (SEE Action 2011) and have been a driving factor in the recent embrace of energy efficiency by utilities such as Pacificorp and the Tennessee Valley Authority (TVA 2011).

Align energy efficiency with the utility business model. In a handful of the states, respondents asserted that regulatory change would be necessary for utilities to wholeheartedly embrace energy efficiency program implementation. The traditional utility business model is ill-suited to support and reward utilities for investing in energy efficiency. Stakeholders in a number of states we interviewed, particularly in states further along in the energy efficiency program implementation process like Missouri, asserted that concerns over the timely recovery of lost revenues was the primary barrier to fully tapping the energy efficiency resource.

Changes in regulation can create a new business model that changes the fundamental financial motivations for utilities (York and Kushler 2011). Three regulatory fixes are critical to addressing the barriers to utility-led energy efficiency: allowing cost recovery for programs; removing the "throughput incentive" (explained below); and providing an opportunity for utilities and their shareholders to earn from energy efficiency. While timely recovery of program costs is allowed in every state, the latter two fixes are essential, yet sometimes contentious policies that require a thoughtful and thorough approach.

As long as utility revenues are a direct function of energy sales, there will be an incentive for the utilities to increase "throughput" by selling more electricity or natural gas. Decoupling is a rate adjustment mechanism that allows the utility to recover its investment and operating costs independent of the volume of actual electricity sales. Generally, this is done through a symmetrical "true-up" that adjusts rates up or down to compensate for any difference between allowed and actual revenues. Another approach, the Lost Revenue Adjustment Mechanism (LRAM), allows utilities to recover the fixed-cost portion of revenues that are "lost" due to energy savings from approved customer energy efficiency programs. Decoupling is viewed among industry experts, including ACEEE, as the preferred approach to addressing the "throughput incentive" for a number of reasons, most importantly because decoupling is a more straightforward and thorough way to remove the throughput incentive (York and Kushler 2011).

Although decoupling can neutralize the disincentive to support energy efficiency programs, it doesn't create a financial incentive to save energy through investing in energy efficiency that is comparable to the financial incentives that exist for utilities to invest in capital assets such as new power plants and facilities. Consequently, states that wish to establish energy efficiency as a comparable alternative to supply-side investments also need to establish a performance reward mechanism that allows utilities to earn a positive return on their energy efficiency investments. Such incentives can come in the form of shared benefits of successful programs, incentives for meeting savings targets set for programs, and allowing utilities to earn a rate of return based on efficiency spending or savings.

Numerous resources exist as guidance for states seeking to implement regulations addressing the throughput incentive, or the incentive utilities have to raise revenue by selling as

much electricity as possible (RAP 2011). The same is true for states looking to provide incentives for utilities implementing energy efficiency programs (Hayes et al. 2011).

Use fair cost-effectiveness tests when considering energy efficiency programs. In many of the states we focus on in this paper, the cost-effectiveness of potential utility-sector energy efficiency programs is evaluated using restrictive and limited sets of testing methodologies. As a result, beneficial programs may be rejected. Energy efficiency cost-effectiveness tests measure whether a program's benefits exceed its costs, but there are key differences between the five types of tests, including the stakeholder perspective of the test, the elements included in the costs and the benefits, and the baseline against which the costs and benefits are measured (NAPEE 2008). The five tests include:

- Participant Cost Test (PCT)
- Program Administrator Cost Test (PACT)
- Ratepayer Impact Measure Test (RIM)
- Total Resource Cost Test (TRC)
- Societal Cost Test (SCT)

Each cost-effectiveness test has strengths and weaknesses, which are outlined in detail in the California Standard Practices Manual as well as in resources provided by the National Action Plan on Energy Efficiency (CPUC 2001; NAPEE 2008). The most commonly used test, the TRC, considers utility and consumer costs and utility benefits, but has been criticized for ignoring most or all customer benefits while accounting for all program costs (Neme and Kushler 2010; LeBaron 2011). In addition, the TRC regularly rejects CHP projects and programs that supporters argue produce far more benefits than the TRC test would indicate (Chittum and Kaufman 2011). The UCT compares just utility costs and benefits, leaving out consumer costs but also consumer benefits under the supposition that consumers will not invest in an efficiency measure unless they decide that the benefits justify the cost. Whatever tests a state decides to use, regulators should fairly weigh the costs of programs with the energy and non-energy benefits of energy efficiency programs. It is well-established that the RIM test is a highly flawed test, which explains why most states have abandoned its use (Kushler et al. 2012). Yet a number of states we focus on in this report still use the RIM test to discern the rate impacts of energy efficiency. While we recommend the RIM test be avoided altogether, if it is used, we recommend states not use it to screen out or reject programs. States should require a range of tests for energy efficiency programs that fairly compares the bill and rate impacts of energy efficiency with all other resources.

Adopt cost-effective energy efficiency program portfolios. Once the proper incentives and evaluation methods are in place, utilities must move forward on energy efficiency program implementation. Half the states in the United States have in place mandatory energy savings targets for utilities, known as Energy Efficiency Resource Standards that spur the implementation of efficiency programs. Of the states we interviewed, only Missouri and South Carolina has seriously considered such a policy. It is within the realm of possibility, however, for conservative, energy-producing states to adopt EERS policies. Arkansas, Colorado, Arizona, North Carolina, New Mexico, Ohio, Pennsylvania, and Nevada all have requirements for utilities

to pursue energy efficiency. Almost every state that has adopted an EERS policy is on track to meeting the goals cost-effectively (Sciortino 2011).

Many of our interviewees strongly doubted an EERS would find support among policymakers and regulators, however, and thus suggested a voluntary approach to program implementation may be more appropriate. While experience shows that a mandatory savings goal results in more effective and comprehensive program portfolios, there is certainly merit to pursuing such a voluntary approach. A number of utilities in the states we interviewed run effective energy efficiency programs, such as Midwest Energy in Kansas, Rocky Mountain

Table 3. Summary of Utility Policies in Low-Ranking States in Energy Efficiency

State	Treat Efficiency as a Resource?	Align EE with Utility Business Model			Benefit-Cost Testing
		Cost Recovery	Decoupling/LRAM	Performance Incentives	
Alabama	No	Yes	LRAM (electric and gas)	Yes (electric and gas)	No mandatory evaluation methodology
Kansas	Efficiency considered a resource, but no IRP requirements	Yes	LRAM for electric, decoupling authorized for gas	Authorized (electric and gas)	Utilities should submit five tests, with emphasis on TRC and RIM tests.
Mississippi	No	Pending	No	No	No mandatory evaluation methodology
Missouri	Yes, in statute and code; EE integrated into IRP process.	Yes	Straight-fixed variable pricing for gas, LRAM rules approved for electric	Authorized for gas and electric	TRC required, utilities may also use other tests
North Dakota	IRP required for Montana-Dakota Utilities Company. All utilities must consider full range of options and select most practicable least-cost option.	Yes	No	No	No mandatory evaluation methodology; utilities use variety of tests, giving most weight to RIM
Oklahoma	EE considered equivalent to supply side resources in IRP process required for regulated utilities	Yes	LRAM (electric)	Yes (electric)	Utilities should submit five tests, with emphasis on TRC test.
South Dakota	Yes, in code. No active IRP process.	Yes	LRAM (electric and gas)	Yes (electric and gas)	No specific test required – primary test is TRC.
South Carolina	Yes, in statute and code. IRPs required for regulated utilities, but energy efficiency included minimally.	Yes	LRAM (electric)	Yes (electric)	Utilities required to submit four tests, with emphasis on TRC and UCT tests.
West Virginia	No	Yes	No	No	No mandatory evaluation methodology
Wyoming	Utilities filing IRPs in other states must file in Wyoming.	Yes	LRAM for electric, decoupling for gas	No	No specific test required – TRC is primary test.

Notes: Information gathered from ACEEE State Policy Database (www.aceee.org/sector/state-policy) and RAP State Policy Information (http://www.raponline.org/featured-work/rap-offers-state-by-state-analysis-of-energy-efficiency)

Power in Wyoming, Appalachian Power in West Virginia, Otter Tail Power Company and Black Hills Power in South Dakota, and numerous co-operative utilities in South Carolina. These programs not only produce value for participants, but they will also introduce utilities and their regulators to the opportunities and challenges posed by energy efficiency program implementation.

Policymakers and regulators can support a flexible approach to energy efficiency program implementation by requiring utilities to file energy efficiency program portfolios, but leaving out any hard savings or spending target. This approach was seen in Iowa throughout the last decade, until 2008 when the state required investor-owned utilities to file long-term savings targets. In Iowa, regulatory code required utilities to run cost-effective programs and as a result, utilities embraced energy efficiency as a core part of their business. Mississippi is currently deliberating a rule that would follow this less prescriptive path. Rule 29 would require utilities to adopt comprehensive energy efficiency program portfolios. It should be emphasized, however, that without a hard savings target, it is difficult for regulators to ensure that utilities will consistently pursue all cost-effective energy efficiency.

Encouragement to voluntarily run programs, however, provides no certainty that utilities will move ahead with robust portfolios of energy efficiency programs. In states such as Missouri, where legislation and regulatory orders proclaim energy efficiency a cost-effective resource deserving full deployment, utilities are still slow to get on board. A number of states have the types of regulations in place such as lost revenue recovery and performance incentives that can make energy efficiency an attractive investment. Nonetheless, utilities stick to their traditional business of selling power, doing very little to advance energy efficiency. The states in the bottom of the *Scorecard* clearly prefer to govern with "carrots" rather than "sticks," but in order to compel utilities to maximize the benefits of energy efficiency, a mandatory approach is more effective.

Promote CHP as an Energy Efficiency Opportunity

CHP applications face a number of economic and regulatory barriers in the states we focus on, but there are some ways for states to advance these efficient, cost-saving systems through the adoption of financial incentives and the removal of regulatory barriers to CHP.

State financial incentives are an effective way to lower the upfront cost of CHP and improve the economic case for a CHP installation. There are several different kinds of incentives, detailed in Chittum and Kaufman (2011) including tax credits, feed-in-tariffs, loans and loan guarantees, net metering, and grants. However, financing has become less of an issue for institutions such as hospitals and universities where a number of projects are financed with low-cost bonds or internal capital. In Oklahoma, the University of Oklahoma is developing a new 15 MW CHP project and the university is committed to fully funding the $70 million project with internal funds.

To be effective, financial incentives need to be coupled with other efforts to remove market barriers, particularly the inability of CHP systems to sell back electricity at retail prices. Some states have created policies and programs that stipulate that CHP can count towards a portfolio standard or earn a healthy return for selling back excess power (net-metering). CHP developers wish to be treated more as small independent distributed generators, able to sell power to whomever at a market-based rate, rather than restricted to selling to the grid or nearby facilities. Currently the utility regulatory business model protects utilities by preventing CHP facilities from selling power at a retail rate. Adjusting electricity markets would allow CHP

developers to compete with larger centralized generators. For example, in Texas where most of the electricity market has been deregulated, CHP developers can sell power to different end-users at market prices. The state now boasts the highest MW amount of CHP in the country (Cooney et al. 2008).

States can also assist the deployment of CHP (particularity smaller CHP projects) by developing interconnection standards that delineate how to interconnect at least some CHP systems of varying sizes. Interconnection is the process of connecting a CHP system to the local distribution or transmission grid. Interconnection standard provides CHP developers an official avenue to apply for interconnection with the local utility. It also gives an official platform for developers to address grievances against a utility to the state's regulatory commission in an instance where the utility fails to adhere to the state's regulations. Though interconnection standards do not eliminate all issues between CHP developers and utilities, it does provide a path for recourse to challenge the utilities and is an area of steady progress for CHP across the country.

Adopt and Enforce Building Energy Codes

Building energy codes are an essential tool for state policymakers to ensure that new buildings lock in energy savings from the start, providing occupants with lower energy bills and more comfort throughout the building's lifetime. Most residential building energy codes are based on the International Energy Conservation Code (IECC), which is updated every three years, while commercial building energy codes are typically based on ASHRAE 90.1, jointly developed by the American Society of Heating, Refrigerating, and Air Conditioning (ASHRAE) and the Illuminating Engineering Society (IES).

The appropriation of stimulus funding through DOE's State Energy Program spurred several dozen states to begin legislative or administrative processes leading to the statewide adoption of the 2009 IECC and ANSI/ASHRAE/IESNA Standard 90.1-2007 (hereafter referred to as the "ARRA codes"). In this year's *Scorecard*, 29 states either adopted or are on a clear path towards the adoption of the ARRA codes for both residential and commercial buildings, while another 6 have adopted the ARRA codes for either residential or commercial buildings. Statewide building energy codes have recently been adopted in Alabama and Oklahoma, for instance. However, a number of our interviewees noted that in "home-rule" states, or those without a mandatory statewide code, there was little appetite among policymakers to adopt one.

Often the building industry (e.g., architects, engineers, builders and other contractors) prefer a statewide code to a patchwork of local codes since most building industry practitioners operate in multiple local jurisdictions. Also, opponents to statewide building energy codes will have to reconcile their stance with the fact that as a condition for accepting funds, ARRA called for states to achieve 90% compliance with the ARRA minimum standard building energy code (2009 IECC for residential, ASHRAE 90.1-2007 for commercial) by 2017. If possible, statewide adoption would be the most effective way to reach this outcome, and numerous resources are available to assist states in the code adoption process (BCAP 2012).

As an alternative to statewide code adoption, however, a number of states are instead focusing efforts on adopting and enforcing codes at the local level in population centers. In our interviews with state energy offices, many officials noted that building code education, training, and enforcement at the local level represented a high priority. State energy offices can play a key coordinating role by attaining financial and technical support for local energy code initiatives. Often, energy offices will set up collaborative meetings where experts, building code officials,

utility representatives, and the building industry can discuss ways to ensure that new construction is built according to code.

Funding building energy code implementation efforts is a prerequisite for successful code implementation and can be pursued affordably in a number of ways. Raising permit fees and instituting re-inspection fees are two straightforward ways to raise funds for compliance efforts. Charging a nominal fee for energy code training can also help fund efforts to train code officials. Funding for compliance efforts can also come from utilities or state appropriations (BCAP 2012).

Table 4. Summary of State Building Code Stringency

State	Summary of State Building Code Stringency
Alabama	Non-mandatory commercial and public buildings code based on 2006 IECC effective in 2008
Kansas	Non-mandatory commercial buildings code based on 2006 IECC effective in 2007
Mississippi	Outdated, mandatory residential and public buildings code predates 1998 IECC
Missouri	Mandatory statewide public buildings code based on 2006 IECC, effective in 2009
N. Dakota	No statewide mandatory energy codes
Oklahoma	Mandatory statewide residential and commercial building code based on 2009 IECC effective 2011
S. Carolina	Mandatory statewide residential and commercial buildings code based on 2009 IECC effective 2011
South Dakota	Non-mandatory residential building code based on 2006 IECC, effective 2009
West Virginia	Non-mandatory residential and commercial building code based on 2003 IECC, effective in 2009
Wyoming	Outdated, non-mandatory residential and public buildings code predates 1998 IECC

Note: See the ACEEE State Policy Database for full descriptions and links: http://www.aceee.org/sector/state-policy.

Conclusions

Each year ACEEE publishes the *State Energy Efficiency Scorecard*, the gap widens between states pushing ahead with aggressive, but pragmatic policies and programs in support of energy efficiency and those other states with scant investment or commitment to energy efficiency. Often, states at the bottom of the *Scorecard* are making efforts to advance energy efficiency, but none have the comprehensive suite of policies and programs necessary to capture its full potential. Negative perceptions of energy efficiency – mainly surrounding its potential costs – often impede any progress and while it is certainly true that each state has unique sets of barriers, none of them are insurmountable. Moving forward, the states discussed in this paper will likely advance incrementally, eschewing mandatory approaches for voluntary ones and remaining conservative in their investments in energy efficiency. If these states wish to achieve more of the available cost-effective energy efficiency available, however, they will need to take bolder, all-encompassing approaches to energy efficiency, recognizing its tremendous value as a cost-effective energy resource.

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