Are Recent Forays into Electricity Market Restructuring a Threat to Energy Efficiency?

Ellen Zuckerman, Edward Burgess and Jeff Schlegel, Independent Consultants

ABSTRACT

Recently several states have launched investigations into possible implementation or expansion of electricity market restructuring[1] or retail competition. Competitive pressures and further increases in distributed generation may increase the push for retail electric competition. Will these explorations into retail competition present a threat to high levels of investment in utility sector energy efficiency programs? While the stated goals of retail competition and energy efficiency appear to be aligned — both seek to lower customer energy bills — we examine whether or not this apparent alignment of objectives holds true in reality. We review the performance and delivery of energy efficiency in states with retail competition versus those without retail competition. We analyze energy efficiency performance in states with and without energy savings requirements or targets, and with different administration models (e.g. administration by electric distribution companies versus non-utility administrators). The impacts of different forms, degrees, or specific provisions of retail competition are also reviewed. We also review the evolution of energy efficiency policies over time in several states with retail competition. Based on our findings, we provide energy efficiency policy recommendations for states with or considering electric retail competition.

Introduction

Several states have recently launched investigations into possible implementation or expansion of electric retail competition. For example in 2013, the Arizona Corporation Commission initiated an inquiry into the feasibility and benefits of implementing electric retail competition (Jerich 2013).[2] Similarly in Indiana the Governor's new state energy plan is expected to address retail competition, and in Michigan, House Bill 5184 would expand the state's retail market if enacted (Howland 2014). Some analysts have suggested that increasing penetration of distributed energy resources enabled by the advent of new "disruptive" technologies (e.g. automated demand response, solar photovoltaics) could renew public pressure for retail electric competition. These assessments have drawn parallels to the technological shifts that catalyzed competition in the telecom and airline industries (Kind 2013).

Does retail competition present a threat to high levels of investment in utility sector energy efficiency? On its face, the objectives of energy efficiency and retail electric competition

[1] In this paper, we use the term "restructuring" broadly to define reforms intended to introduce competition to both commodity supplies (wholesale) and retail sales. While our primary focus in this paper is on retail competition, we also address certain supply-side issues (e.g. resource planning and capacity markets) since virtually all jurisdictions with retail competition coexist within competitive wholesale markets.

[2] The Arizona Corporation Commission terminated the investigation into electric retail competition by a vote of 4-1 in September 2013 because of perceived legal obstacles (Randazzo 2013). Following this vote, the Commission opened a new investigation to consider innovations and technological developments that could impact Arizona's current energy utility model. For more information see Arizona Corporation Commission docket E-00000J-13-0375.

are seemingly aligned. For instance, energy efficiency investments are intended to lower customer energy bills, reduce total energy costs, and provide customers with more tools and options to manage and reduce their energy usage. Similarly, proponents of electric retail competition argue that competition will lower customer energy prices and offer more options for customers (Wal-mart 2013). In theory, competition might even be seen as a way to achieve even greater energy efficiency savings as retail providers compete to offer innovative products and services to their customers.

On the other hand, energy efficiency implementation faces significant market barriers and failures that are likely to persist regardless of who supplies electricity (Western Resource Advocates 2013). Examples of these barriers include: high up-front costs, incomplete and inaccurate information, high implicit discount rates, and split incentives (Western Resource Advocates 2013). Early experience with retail competition also suggests that competition and energy efficiency can be incompatible if policy support for energy efficiency erodes (e.g. suspension of integrated resource planning). Indeed, absent explicit policies that support energy efficiency, a greater reliance on markets for setting electricity prices can create strong incentives for utilities to increase electricity sales and cut energy efficiency funding in order to boost profits (Gillingham 2004). In fact, when early interest in retail competition was at its height, spending on demand side management declined 55% from a high of $3.44 billion in 1993 to a low of $1.55 billion in 1999 (Gillingham 2004). Thus, competition may not be a panacea for delivery of energy efficiency solutions. Regardless of whether competition exists, energy efficiency investments that go unrealized will likely lead to higher total energy costs since energy efficiency is a less expensive resource than new electricity resource options (Molina 2014).

However, anecdotal evidence suggests that energy efficiency programs can be successful even in states with retail competition. We believe that a fuller understanding of the role of energy efficiency in states with retail competition would be helpful to policy-makers considering retail competition. With these considerations in mind, this paper compares the recent achievement of energy efficiency in states both with and without retail competition. Based on our review, we offer findings, best practices, and policy recommendations.

Recent Energy Efficiency Performance in States With and Without Retail Competition

Seventeen states and the District of Columbia have full, capped, or restricted electric retail competition. Along with the District of Columbia, the fourteen states with full retail competition include: Connecticut, Delaware, Illinois, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, and Texas. States with limited access include: California, Michigan, Montana, and Oregon.

Figure 1 charts the net incremental electric savings as a percent of retail sales achieved by each of the fifty states in 2011 (the most recent year of energy savings data included in the 2013 ACEEE State Energy Efficiency Scorecard) (ACEEE 2013).[3] In 2011, nearly every state with retail competition performed at or above the U.S. median, with the exception of Texas and Delaware. This does not necessarily suggest that retail competition leads to greater energy efficiency performance, however it does suggest that retail competition is not a barrier to achieving a high level of energy savings. In the case of these two under-performing states

[3] Because of incomplete or unavailable data, we excluded the District of Columbia from our review.

(relative to the median), it is important to note that Delaware does not have an Energy Efficiency Resource Standard (EERS) (Downs 2014).[4] Additionally of all states with an EERS, Texas' has the least ambitious standard in terms of annual saving requirements for 2011 and 2012 (Downs 2014). This underscores the fundamental role an EERS plays in driving energy savings under retail competition (which is discussed further below).

Of the top ten performing states in 2011 in terms of electric savings achieved as a percent of retail sales (MWh), six have a form of retail competition and four do not. And over the last six years (2006-2011), with the exception of 2008 and 2009, five or more states in the top ten in the ACEEE Scorecard have retail competition. This again suggests that both regulatory models can co-exist with policies to deliver high levels of energy efficiency savings.

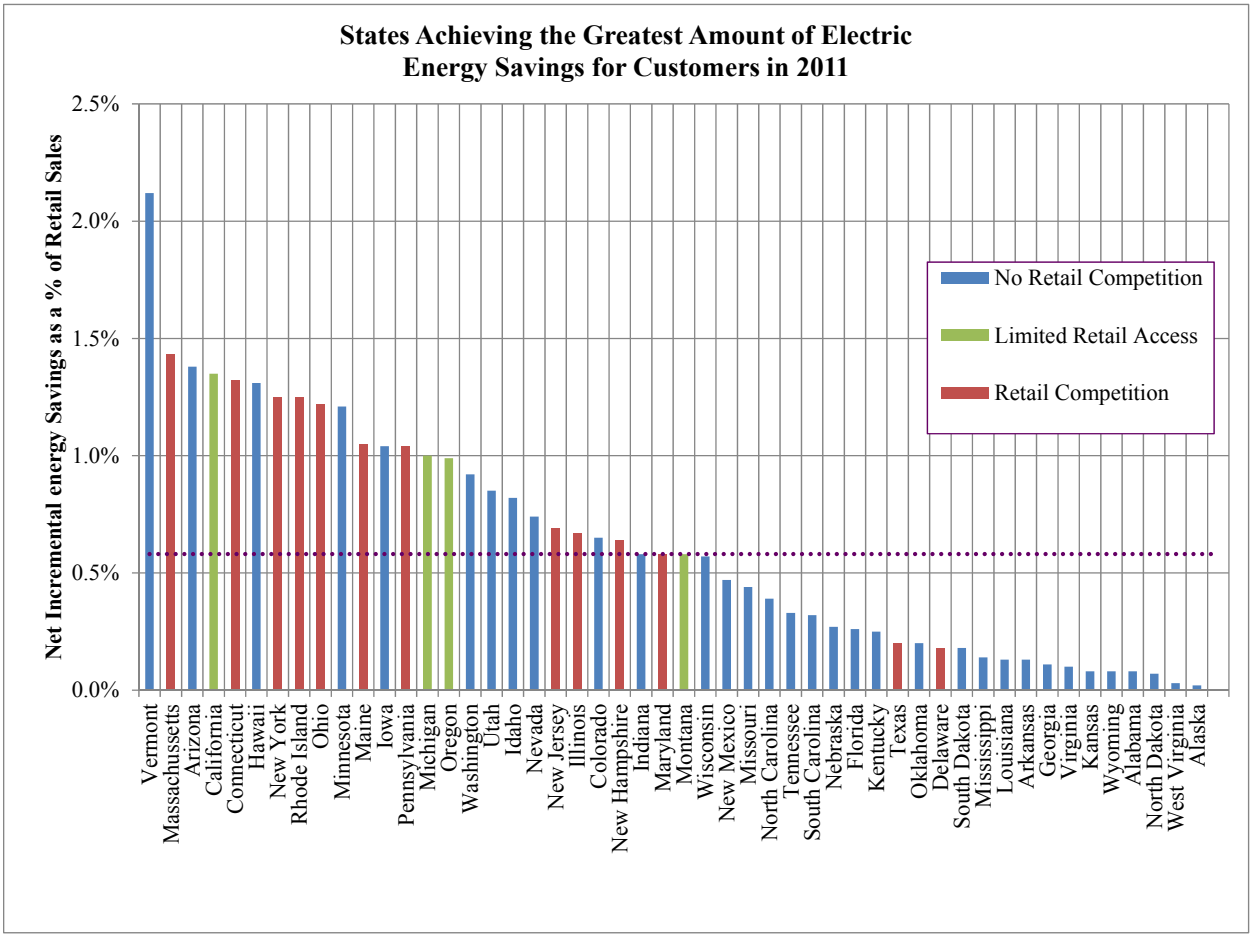

Figure 1. Net incremental electric savings as a percent of retail sales achieved by each of the fifty states in 2011. *Source*: ACEEE 2013.

[4] We use ACEEE's definition of an EERS. ACEEE defines an EERS as: 1) Setting clear long-term targets for electricity savings. 2) Making clear that targets are mandatory; and 3) Including a funding mechanism sufficient for full implementation of programs necessary to meet targets. Note: ACEEE considers states with all cost-effective requirements to have EERS policies in place once these policies lead to multi-year savings targets (Downs 2014).

The Status of Energy Efficiency Resource Standards in Retail Competition States

The vast majority of retail competition states have adopted EERSs (13 out of 17 states, or 76 percent) (Downs 2014). In contrast a minority of states with no retail competition have enacted EERSs (13 of 33 states, or 39 percent). Notably most of the EERSs adopted by states with retail competition were adopted since 2007 — following the peak interest in retail competition in the late 1990s and early 2000s. (California, Texas, Pennsylvania, and Rhode Island are the exceptions.) See Table 1.

Several retail competition states have the most aggressive annual energy savings requirements in the nation. Indeed, six of the top ten states with the most stringent annual energy savings requirements in 2011 were states with full, capped, or restricted electric retail competition. These states included: Massachusetts (2nd), New York (3rd), Oregon (5th), Rhode Island (8th), California (9th), and Maryland (10th) (Downs 2014). In 2012, five of the top ten states had retail competition: Massachusetts (1st), Rhode Island (3rd), Connecticut (7th), Maine (8th), and Oregon (9th) (Downs 2014). In fact, the average savings requirement of retail competition states with EERSs in 2011 and 2012 was slightly higher than the average savings requirement of states without retail competition in those years (1.10% and 1.17%, respectively versus 0.96% and 1.06%, respectively) (Downs 2014).

These findings suggest that states with retail competition acknowledge the need for energy efficiency standards even when competition exists. Additionally, in many cases these states are setting the bar high (and in some instances higher than states without retail competition) when it comes to the annual energy savings requirements of their EERSs. The fact that a greater percentage of states with retail competition have adopted EERSs than those without suggests that even states with competition are not relying on the market alone to minimize costs and increase choices for customers. Indeed state policymakers recognize that market barriers to energy efficiency measures, which increase choices and minimize costs, persist even after competition is introduced.

While correlation does not necessarily imply causation, there could be several reasons why states with retail competition have a higher level of EERS adoption and have adopted EERSs more recently. First, many states introduced wholesale or retail competition because they wanted to decrease (or limit future increases) in consumer energy prices. However, after more than a decade of experience, many of these states still experience high retail electricity rates.[5] Hence the recent focus on implementing additional energy efficiency policies (e.g. EERSs, decoupling) may be an additional approach to lowering consumer energy prices. Second, states with retail competition tend to have very active policy environments, and may be more inclined to consider and adopt novel regulatory approaches. And third, many of these states are looking to increase energy efficiency investments for other reasons including climate change mitigation and the reduction of other environmental impacts.

[5] Based on EIA data (2012 Average Monthly Bill, EIA-861), 12 of 17 states (71%) with retail competition have residential electric rates above the national average.

Table 1. Status of Energy Efficiency Standards in Retail competition States

State	Status of Electric Retail Competition	EERS Enacted	Year EERS First Enacted	2011 EERS Target, % of Retail Sales	2012 EERS Target, % of Retail Sales
California	Limited	Yes	2004	1.30%	1.10%
Michigan	Limited	Yes	2008	0.75%	1.00%
Montana	Limited	--	--	--	--
Oregon	Limited	Yes	2010	1.39%	1.38%
Connecticut	Full access	Yes	2007	0.97%	1.40%
Delaware	Full access	--	--	--	--
Illinois	Full access	Yes	2007	0.60%	0.80%
Maine	Full access	Yes	2009	1.09%	1.39%
Maryland	Full access	Yes	2008	1.29%	1.23%
Massachusetts	Full access	Yes	2009	2.00%	2.07%
New Hampshire	Full access	--	--	--	--
New Jersey	Full access	--	--	--	--
New York	Full access	Yes	2008	1.69%	1.14%
Ohio	Full access	Yes	2008	0.70%	0.80%
Pennsylvania	Full access	Yes	2004	1.00%	1.00%
Rhode Island	Full access	Yes	2006	1.36%	1.70%
Texas	Full access	Yes	1999	0.10%	0.14%

Source: Downs 2014.

The Status of Energy Efficiency in Resource Planning for Retail Competition States

Some proponents of retail electric competition have argued that integrated resource planning (IRP) is "not appropriate" for a fully competitive retail electric market (Wal-mart 2013) or that IRP is "wholly antithetical" to competition's constructs (Arizona Investment Council 2013). On the other hand, some analysts have cited California's abandonment of integrated resource planning as a contributing factor to the 2000-2001 California Energy Crisis (Duane 2002), highlighting the need for transparent and effective resource planning even when competition exists.

Not all states with retail competition have abandoned integrated resource planning. Indeed, Connecticut, Delaware, Montana, and Oregon continue to require integrated resource planning (Wilson 2013), and three of these states require these processes to consider demand side resources (ACEEE 2014a, ACEEE 2014b, ACEEE 2014c). Moreover, energy efficiency plays a prominent role in some of these resource planning efforts. For instance, the integrated resource planning process in both Connecticut and Oregon have served as effective policy tools for demonstrating the value of increased energy efficiency investment and for laying a foundation to increase funding for energy efficiency programs.

For example, Connecticut's most recent IRP offers an explicit comparison of two energy efficiency scenarios: a "Base Case" (which continues energy efficiency program savings at

current levels) and an "Expanded Efficiency" scenario (which triples energy efficiency deployment) (Zuckerman 2012). This comparison elucidates the relative costs and benefits of these scenarios, and shows that the Expanded scenario would save customers $778 million per year by 2022 relative to the Base Case (Zuckerman 2012). Citing these benefits, the Connecticut IRP recommends implementation of the Expanded case. Recently, the Connecticut Department of Energy and Environmental Protection decided to expand funding for Connecticut's energy efficiency programs by ~$85 million (DEEP 2013). In support of its decision, the Department cited the IRP analysis (DEEP 2013).

This example illustrates how the continuation of a resource planning approach that properly incorporates energy efficiency, can ensure that the benefits of energy efficiency are delivered to customers, even under a competitive regime. Resource planning offers a transparent and comprehensive framework for evaluating and understanding future investments in energy resources. Because long-term investments in energy resources will continue to be made even under electric retail competition, resource planning remains an essential and valuable tool for helping states to consider, plan, and coordinate energy decision-making and to evaluate energy efficiency as a resource.

Delivering Energy Efficiency in States with Retail Competition

When interest in electric retail competition peaked in the 1990s and early 2000s, the issue of "who" should deliver energy efficiency services in a deregulated environment was considered the "most important and contentious issue to be addressed" (Fitch 2000). It was posited that third-party administrators would be "more likely to achieve market transformation objectives" because of their independence (Fitch 2000). On the other hand, some analysts believed that distribution utilities were in a better position to deliver services because of their customer relationships (Fitch 2000).

Figure 2 shows "who" delivered energy efficiency savings in the top twelve performing states in 2011 (in terms of electric savings delivered as a percent of retail sales). The different colors in each bar represent the fraction of energy efficiency savings (annual MWh) that correspond to different delivery methods. Delivery methods shown include utilities (e.g. municipal, co-op, and investor owned utilities) and non-utility program administrators (e.g. NYSERDA and Energy Trust of Oregon).

As the chart illustrates, the delivery of energy efficiency programs in states with retail competition varies. For instance, some states such as Massachusetts, Rhode Island, and Connecticut rely primarily on transmission and distribution utilities to deliver energy savings, while other states with full retail competition including Maine and New York rely primarily on third-party administrators (Efficiency Maine and NYSERDA, respectively).

The results show that the vast majority of savings come from either investor owned utilities or non-utility administrators. No savings were reported from retail power marketers in any of these states.[6] Significant savings from both investor owned utilities and non-utility administrators were exhibited in states with and without retail competition. Thus, we conclude that the achievement of savings is not dependent on either the status of retail competition or the specific energy efficiency delivery method. Indeed, certain delivery methods may be more

[6] Third-party retailers could be an option for expanding delivery of EE services. For example they could bundle DR and EE with electricity service as a means to differentiate themselves in the market.

appropriate depending on a state's unique demographics and characteristics. It is also noteworthy that each of the top performing states has adopted an EERS, and that top performers have not varied significantly over the last five years. This finding reiterates the importance of EERSs in driving energy savings in both competitive and non-competitive environments.

While the data show that the different delivery models can be successful, the different models also have distinct advantages and disadvantages. For example, distribution utilities may have disincentives to work with customers and/or no built-in incentive mechanisms to deliver savings (Fitch 2000). Policies like decoupling and energy efficiency performance incentives can help to alleviate these issues.

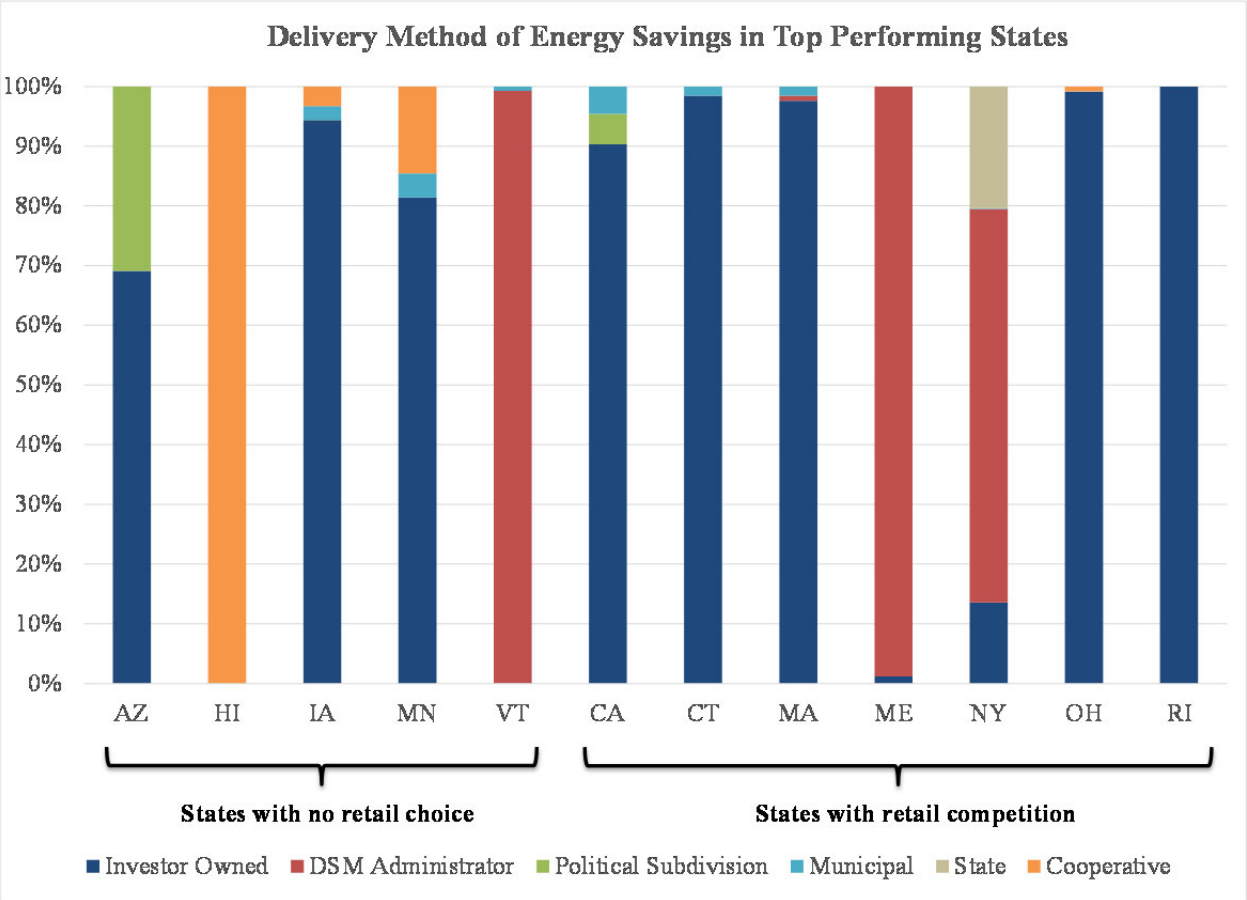

Figure 2. Comparison of the fraction of statewide energy efficiency savings derived from each delivery method in twelve selected states. These twelve states represent the top performing states in terms of savings as a percent of retail sales in 2011. *Source:* EIA Form 861 (2012).

The Role of Wholesale Markets in Planning and Delivering Energy Efficiency for States with Retail Competition

In each state with a fully competitive retail market, distribution utilities also participate in competitive wholesale markets. Moreover, even after the initial push for retail competition subsided, wholesale competition has been steadily promoted both by certain state Public Utility Commissions (PUCs) and the Federal Energy Regulatory Commission (FERC), motivated by reliability concerns, potential cost savings, and the need to integrate renewable energy. This

trend may lead to newly established, or expanded, wholesale markets (e.g. Regional Transmission Organizations or RTOs and Independent System Operators or ISOs) and perhaps ultimately to additional states that adopt retail competition.

While the expanded role of markets may not necessarily lead to more delivery or better delivery of energy savings, regulators are increasingly looking for ways to leverage wholesale markets to plan for and deliver demand side resources, including energy efficiency. Furthermore it's important to consider how program administrators, in both competitive and non-competitive retail environments, use markets as a means to support their energy efficiency efforts. We will explore these issues by examining the case of the New England ISO (ISO-NE).[7]

In ISO-NE, energy efficiency can participate as a resource in its Forward Capacity Market (FCM). This provides revenue to program administrators – or third party providers – who are able to reliably deliver energy efficiency measures to specific locations on the grid where capacity will be needed in 3 years. Thus the program administrators are appropriately compensated for the capacity value that energy efficiency provides in place of a traditional supply-side resource. As an example, in the ISO's capacity auction for delivery years 2015/2016 (held in 2012), over 1500 MW (approximately 10% of forecasted load) of energy efficiency resources successfully won bids (ISO-NE 2012a). This obligates the successful bidders to deliver promised energy savings while entitling them to compensation at the auction clearing price.

The predominate source of energy efficiency resources that typically clear the FCM auctions are the state policy-driven programs delivered by distribution utilities (e.g. Connecticut Light and Power) and non-utility program administrators (e.g. Efficiency Maine Trust) rather than third party retail providers (ISO-NE 2012b). Furthermore, the presence of retail competition does not appear to play a major role in the delivery of energy savings that can participate in the FCM. Vermont is the only state in the ISO without retail competition, yet its program administrator still participates in the FCM. This once again underscores the important role of state-level policies (such as EERS) for motivating energy savings in different competitive environments.

It's important to note the supporting role the FCM now plays as a revenue source to support existing energy efficiency programs. In recent years, approximately 20% of the funding for energy efficiency programs delivered by utility and non-utility program administrators in New England has been derived from a combination of revenue from the FCM and the Regional Greenhouse Gas Initiative (RGGI), with the remaining portion coming from system-benefits charges (ISO-NE 2013). While the FCM revenue is ultimately derived from ratepayers, it is embedded in the ISO transmission charges rather than a charge that can be attributed directly to the distribution company — an arrangement that is likely to suit the distribution companies looking to avoid the perception of higher bills.

The multiple funding streams for energy efficiency programs in ISO-NE raises also questions about how many different ways customers should pay for these programs. On the one hand, a single energy efficiency benefits charge may appear simpler. However multiple payment streams may be more appropriate[8] if energy efficiency provides distinct values to customers

[7] In addition to ISO-NE, several RTO/ISOs (e.g. PJM and NYISO) have established capacity markets as a means to ensure there are adequate resources on the bulk electric system to maintain reliability. Others are considering similar developments to address resource capacity shortfalls (e.g. MISO, ERCOT).

[8] We recognize that the ISO-NE's approach represents only one possible method for funding the delivery of EE services and that there may be other models to from which to choose.

across multiple, unbundled rate components. This approach would be similar to the treatment of supply side resources where investments are often recovered through various rate components (e.g. generation, fuel, transmission, environmental surcharges, etc).

Since the state-policies appear to be the fundamental driver of energy efficiency in the ISO, it is not apparent that wholesale markets today are necessarily driving additional energy savings. However, recently, the ISO experienced extraordinarily high FCM auction prices for certain capacity constrained regions (ISO-NE 2014). This has triggered a discussion of how the FCM might be used to deliver incremental energy efficiency resources that are geo-targeted as a way to alleviate high capacity costs.

In addition to participating in the FCM to provide near term capacity for reliability, energy efficiency plays a fundamental role in the ISO's longer term planning efforts for reliability. Energy efficiency is increasingly impacting how planners view future needs through their forecasts. However, lack of confidence in future savings levels can undermine the role of energy efficiency in these planning processes. In ISO-NE, long-term forecasts of energy savings are developed based upon anticipated state EE program budgets for future years. This once again emphasizes the predominate role that state-driven savings targets – and associated budgets — are anticipated to play in driving future energy savings.

Conclusion

States with retail competition appear more likely to perform well in terms of energy savings as a percent of retail sales. However, the higher savings levels achieved are more likely due to recent policies targeted at energy efficiency – particularly Energy Efficiency Resource Standards – and not retail competition per se. These states more often have decided to do more in the way of energy efficiency by setting more ambitious targets and subsequently enacting supporting policies such as decoupling, integrated resource planning requirements, and adequate levels of program funding. The ambitious goals set by these states are likely in part due to desire to reduce energy costs and reduce greenhouse gas emissions.

References

ACEEE (American Council for an Energy Efficiency Economy). 2013. *The 2013 State Energy Efficiency Scorecard*. http://www.aceee.org/sites/default/files/publications/researchreports/e13k.pdf

ACEEE (American Council for an Energy Efficiency Economy). 2014a. *Connecticut Utility Policies*. http://aceee.org/energy-efficiency-sector/state-policy/connecticut

ACEEE (American Council for an Energy Efficiency Economy). 2014b. *Delaware Utility Policies*. http://aceee.org/energy-efficiency-sector/state-policy/delaware

ACEEE (American Council for an Energy Efficiency Economy). 2014c. *Oregon Utility Policies*. http://aceee.org/energy-efficiency-sector/state-policy/oregon

Arizona Investment Council. 2013. *Notice of Filing Electric Competition Comments of Arizona Investment Council in the Matter of the Commission's Inquiry into Electric Retail Competition*. http://images.edocket.azcc.gov/docketpdf/0000146833.pdf

Department of Energy and Environmental Protection. 2013. *Final Decision 2013-2015 Electric and Natural Gas Conservation and Load Management Plan*. http://www.dpuc.state.ct.us/DEEPEnergy.nsf/c6c6d525f7cdd1168525797d0047c5bf/52229022e5b2c05e85257c15006ee1ce/$FILE/2013-2015%20Conservation%20and%20Load%20Management%20Plan%20(Final%20Decision).pdf

Downs, A., and C. Cui. 2014. *Energy Efficiency Resource Standards: A New Progress Report on State Experience*. http://aceee.org/sites/default/files/publications/researchreports/u1403.pdf

Duane, T. 2002. "Regulation's Rationale: Learning From the California Energy Crisis," *Yale Journal on Regulation* 19 (471).

Fitch, J. Energy Efficiency and Deregulation: Linking the Big Questions In *Proceedings of the ACEEE 2000 Summer Study on Energy Efficiency in Buildings*. Asilomar, CA: ACEEE.

Gillingham, K, N. Richard, and K. Palmer. 2004. *Retrospective Examination of Demand-Side Energy Efficiency Policies*. http://www.rff.org/Documents/RFF-DP-04-19rev.pdf

Howland, E. 2014. *Michigan, Indiana eye expanding retail competition*. http://www.utilitydive.com/news/michigan-indiana-eye-expanding-retail-competition/222091

ISO-NE, 2012a. *Forward Capacity Auction 2015-2016 Obligations*. http://www.iso-ne.com/markets/othrmkts_data/fcm/cal_results/ccp16/fca16/index.html

ISO-NE, 2012b. *ISO on Background: Energy Efficiency Forecast.* http://www.iso-ne.com/nwsiss/pr/2012/ee_forecast_slides_final_12122012.pdf

ISO-NE, 2013. *Final 2013 Energy Efficiency Forecast 2016-2022*. http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/pac/mtrls/2013/mar212013/a2_energy_efficiency_forecast.pdf

ISO-NE, 2014. *Forward Capacity Auction 2017-2018 Results*. http://www.iso-ne.com/markets/othrmkts_data/fcm/cal_results/ccp18/fca18/fca_8_result_report.pdf

Jerich, J. 2013. *Re: Generic Docket No.: E-00000W-13-0135/ In the Matter of the Commission's Inquiry into Retail Electric Competition*. http://images.edocket.azcc.gov/docketpdf/0000145109.pdf

Kind, P. 2013. *Disruptive Challenges: Financial Implications and Strategic Responses to a Changing Retail Electric Business.* http://www.eei.org/ourissues/finance/Documents/disruptivechallenges.pdf

Molina, M. 2014. *The Best Value for America's Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs*. http://www.aceee.org/sites/default/files/publications/researchreports/u1402.pdf

Randazzo, R. 2013. *Arizona regulators vote to stop exploring deregulation*. http://www.azcentral.com/business/consumer/articles/20130911arizona-regulators-vote-to-stop-exploring-deregulation.html

Wal-mart Stores Inc., 2013. *Wal-mart Stores Inc.'s Initial Comments in the Matter of the Commission's Inquiry into Electric Retail Competition.* http://images.edocket.azcc.gov/docketpdf/0000146855.pdf

Western Resource Advocates 2013. *Comments of Western Resource Advocates in the Matter of the Commission's Inquiry into Electric Retail Competition*. http://images.edocket.azcc.gov/docketpdf/0000146878.pdf

Wilson, R. and B. Biewald. 2013. *Best Practices in Electric Utility Integrated Resource Planning Examples of State Regulations and Recent Utility Plans*. http://www.raponline.org/document/download/id/6608

Zuckerman, E. and J. Schlegel 2012. No Longer Background Noise: Resource Planning When Energy Efficiency Really Matters In *Proceedings of the ACEEE 2012 Summer Study on Energy Efficiency in Buildings*. Asilomar, CA: ACEEE.