Ameren MISSOURI

FOCUSED ENERGY. For life.

2013-2015 ENERGY EFFICIENCY PLAN

WHEN IT COMES TO ENERGY, YOUR ACTIONS MATTER.

Prologue

Although the parties to this case may disagree on various issues, there is one truth which is universally accepted. That is, every party in this case will agree improving the energy efficiency of our homes, businesses, schools, governments and industries can be one of the most cost effective ways to address the energy supply challenges in our state. Increased levels of energy efficiency can provide customers with greater control over their energy usage, lower energy bills, reduce the use of fossil fuels and related emissions and enhance system reliability. Because of the potential for these significant benefits, it is in the interest of customers, utilities, and the state of Missouri as a whole to aggressively pursue properly designed and implemented energy efficiency programs.

As described in greater detail in this *Report*, Ameren Missouri is requesting approval of a regulatory mechanism to implement a three year plan to aggressively pursue a portfolio of cost-effective residential and business energy efficiency programs. These energy efficiency programs will cost approximately $145 million to administer and would result in a loss of approximately $105 million, when compared to investing in traditional supply side resources like a power plant or poles and wires, absent the proposed regulatory mechanism. This $105 million loss is referred to as the "throughput disincentive". Ameren Missouri seeks recovery of these administrative and throughput disincentive in order to implement this portfolio of energy efficiency programs. Customer benefits as a result of these energy efficiency programs are expected to significantly exceed these costs with over $800 million (almost $500 million net present value) of calculated total benefits over the next 20 years.

Given the benefits of energy efficiency, why isn't it already a larger portion of Ameren Missouri's current energy portfolio? The answer to this question is multi-faceted and requires a bit of a history recitation. To begin with, Ameren Missouri is and has been a strong supporter of energy efficiency. Between 2009 and 2011, the Company invested over $70 million in energy efficiency programs and paid out over $30 million to customers as incentives for installing more efficient measures such as appliances and efficient lighting. In implementing these programs Ameren Missouri entered into more than 50 retailer/manufacturer partnerships which resulted in a modification of retail shelf stock resulting in an increase in the availability of energy efficient items for purchase by our customers. These efforts exceeded the program's original objectives. The Company's energy efficiency programs resulted in the sale of over 4 million Compact Fluorescent Lights (CFLs). They also resulted in the recycling of almost 10,000 refrigerators and freezers and the replacement of almost 3,000 high efficiency air conditioners. Clearly, these programs resulted in significant benefits to our customers. In particular, Ameren Missouri's customers saved more than 550,000 megawatt-hours

(MWh) of electricity, which is the equivalent to the average annual electric usage of over 42,000 homes in the Company's service territory.

This success, however, came at a cost. While Ameren Missouri's energy efficiency efforts helped our customers, they also caused significant financial harm to the Company. Our success in implementing energy efficiency meant that the Company sold less electricity, which damaged the Company because a majority of the fixed costs it has incurred in order to provide safe and reliable service to customers (power plants, environmental controls, poles, substations, etc.) are recovered through a volumetric (usage) charge which was designed assuming a certain level of kilowatt-hour (kWh) sales. When the Company's own energy efficiency program efforts suppressed the level of electricity sales, it deprived the Company of its ability to recover a substantial amount of the fixed costs it incurred to provide safe and reliable service. Through 2011, those losses have approximated $26.4 million and are expected to grow to $60 million by the end of 2014 even without further investment in energy efficiency. These losses are permanent. They reduce the cash the Company has available for investment in its operations and significantly reduce the Company's return on its investments (i.e., earnings). Clearly, this real and ongoing inability to recover costs represents a strong disincentive to continue investments in these energy efficiency programs and is simply not sustainable. No rational business can offer a product that does not even provide a recovery of the prudently incurred costs to create it; no company can continue to lose important cash flows and effectively address the needs of its energy system; and no company can continue to ask its investors to subsidize losses of this magnitude. As the Missouri Public Service Commission (Commission) explained in the Company's last rate case:

> Energy efficiency programs are designed to reduce electricity sales. Thus, by implementing energy efficiency programs, the utility is knowingly causing financial harm to itself. Understandably, utility companies are reluctant to reduce their earnings, resulting in a strong incentive for the company [Ameren Missouri] to spend as little as possible on energy efficiency programs.[1]

This disincentive is the "throughput disincentive" mentioned above.[2]

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[1] Case No. ER-2011-0028, Report and Order, July 23, 2011 p. 37.

[2] The Commission has attempted to address the throughput disincentive in its rules adopted under MEEIA with the definition of "lost revenues". However, lost revenue recovery is permitted only if the throughput actually declines below the level used to set rates in the utility's last rate case. This means that any natural growth in revenues between rate cases must be used to offset energy efficiency. This adversely impacts utilities because the potential for some limited natural growth in customer sales (throughput) is one of the few positives that can occur between rate cases to partially offset increases in

Concurrent with the Company's undertaking these large scale energy efficiency programs, legislation was passed with the goal of encouraging energy efficiency efforts in Missouri. The law--the Missouri Energy Efficiency Investment Act (MEEIA)--was enacted in August of 2009. MEEIA represents a shift in energy policy to partnering with our customers to use energy more efficiently to meet future needs. This statute recognized the very real challenges faced by utilities when promoting energy efficiency programs and was designed to remove the throughput disincentive for utilities so that effective energy efficiency programs can be made available for customers. This is exactly what the language of MEEIA refers to when it requires alignment of the financial interests of the utility with its customers' interest in using energy more efficiently. But MEEIA goes even further. It sets policy for the state and requires the Commission to take three specific steps in support of that mandate. MEEIA provides:

> It shall be the policy of the state to value demand-side investments equal to traditional investments in supply and delivery infrastructure and allow recovery of all reasonable and prudent costs of delivering cost-effective demand-side programs. In support of this policy, ***the commission shall***:
>
> (1) Provide timely cost recovery for utilities;
> (2) Ensure that utility financial incentives are aligned with helping customers use energy more efficiently and in a manner that sustains or enhances utility customers' incentives to use energy more efficiently; and
> (3) Provide timely earnings opportunities associated with cost-effective measurable and verifiable efficiency savings. [3]

This state policy, the principles behind the policy, and the mandates placed upon the Commission by MEEIA are critically important. Without a policy that values energy efficiency investment in a manner that is equivalent to traditional investments in supply-side alternatives (building a power plant, for example, which does not put downward pressure on electricity sales and in fact provides earnings opportunities for the utility), energy efficiency efforts cannot compete from a business perspective against other types of investments, and utility financial incentives are not aligned with customer interests in using energy more efficiently. In order to accomplish MEEIA's mandate and goals, utilities must have timely cost recovery, alignment of interests between utilities

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cost that utilities consistently experience. Using natural growth in throughput to offset the cost of energy efficiency violates the policy of MEEIA that demand-side investments must be valued equivalent to supply side investments. Where a utility invests in supply-side resources, it is permitted to retain the benefit of any throughput growth that may occur between rate cases to help offset increasing costs.

[3] 393.1075 RSMo. (Emphasis added.)

and their customers and timely earnings opportunities. Governor Nixon reiterated this point in his press release, issued when he signed MEEIA into law, pointing out that the bill gave the Commission the "ability to encourage cost-effective energy efficiency by making utility investments in energy efficiency programs for their customers at least as profitable as building new power plants or making capital investments."[4] Put another way, MEEIA is designed to make investment in energy efficiency at least as attractive to a utility as investing in a new power plant while providing customers with significant benefits.

In its last rate case, Ameren Missouri proposed a regulatory approach which would work toward MEEIA's stated policy and the three steps that the Commission is required to take, while retaining a set level of investment in energy efficiency. It was an interim step, but the Commission rejected the Company's proposal and told the Company to instead come back at a later date with a fully developed MEEIA filing. This is that filing.

Since the last rate case (concluded a little over five months ago), Ameren Missouri has worked diligently on this filing. Preparing this filing was a substantial effort, and required a tremendous amount of data gathering and analysis in order to comply with the Commission's MEEIA rules. During the course of preparing this filing, the Company was left with no reasonable choice but to substantially reduce its expenditures on energy efficiency programs because of the financial harm those programs were causing, as discussed above. However, Ameren Missouri has not eliminated its energy efficiency programs, and indeed has put into place bridge programs that are focused on keeping energy efficiency a viable resource option in the Company's service territory by funding these programs at a level that maintains a portion of the energy efficiency network (retail/manufacturing partnerships, trade allies and program contractors) that has been developed by the Company since 2009. In designing the bridge programs, the desire to maintain the Company's energy efficiency network was balanced against the recognition that even this lower level of energy efficiency investment would be economically harmful to the Company. The end result of this balancing effort is the current level of energy efficiency funding (approximately $10 million a year), a level Ameren Missouri considers temporary, until the Commission approves its MEEIA filing. The Company is aware that our customers and the stakeholders in Missouri want Ameren Missouri to invest at a higher level. The Company shares in that desire, and that desire is the driving force behind the requests made in this case, which if approved will make significantly greater levels of investment possible.

[4] Office of Missouri Governor Jay Nixon. (July 13, 2009). "Gov. Nixon signs legislation encouraging energy efficiency to save utility customers money." [Press release.] Retrieved from http://governor.mo.gov/newsroom/2009/Energy_Efficient_Investment_Act.

With that history in mind, the Company proposes in this filing a regulatory framework through which its financial incentives are aligned with customers' interests in using energy more efficiently, because that framework allows it to recover its energy efficiency investments and places investments in demand-side resources on equal footing with investments in supply-side resources. Consequently, approval of the regulatory framework reflected in this filing will accomplish the ground shift in state energy policy intended by MEEIA by allowing Ameren Missouri to fully pursue energy efficiency for its customers. Specifically, Ameren Missouri requests the Commission approve a Demand-Side Investment Mechanism (DSIM) which includes the following key elements:

- A three-year plan for energy efficiency investment;
- Investment in energy efficiency at the Realistic Achievable Potential (RAP) level;
- Adoption of a Technical Resource Manual (TRM) to determine kWh-savings achieved;
- Recovery of program costs and offset of the throughput disincentive, based upon a three-year forecasted average of each, recovered through base rates contemporaneously with when energy efficiency expenditures are made;
- An increase in customer charge to $12 per month (from $8 currently) for the residential class; and
- An opportunity for the Company to earn an incentive amount, similar to the earnings on a supply-side investment, based upon kWh savings actually achieved, after the programs have been evaluated at the end of the three year program.

This proposal, while seemingly different from the traditional regulatory approaches for energy efficiency investment, is consistent with Missouri law and the fundamental principle of our existing regulatory framework. The details of each aspect of this request are fully explained within this *Report*, but at a high level, this filing and MEEIA, the law upon which it is based, are consistent with the regulatory compact under which Missouri utilities have operated for decades. Under the traditional compact, the utility has the obligation to serve all customers within its service territory and to provide service at just and reasonable rates. As part of that compact, the utility is allowed an opportunity to recover its prudently incurred costs and to earn a fair return on its investments. MEEIA is consistent with this compact because it sets forth a state policy that requires the Commission to allow recovery of all reasonable and prudent costs of delivering cost-effective demand-side programs, including the throughput disincentive. This state policy isn't a new concept; rather it is an approach consistent with that used by other states and an approach that is also supported by the federal government in setting policies for dealing with the challenges and issues surrounding energy efficiency. In 1978, the Public Utilities Regulatory Policy Act encouraged energy efficient behavior through the adoption of "load management techniques" and rate design changes. Those directives were further refined in the 1992 Energy Policy Act which specifically recommends that demand-side resources be "…at least as profitable, giving appropriate consideration to income lost from reduced sales due to investments in and expenditures for conservation and efficiency, as its investments in and expenditures for the construction of new generation, transmission, and distribution equipment."[5] It is noteworthy that the Commission implemented the integrated resource planning recommendation from the 1992 Energy Policy Act but stopped short of adopting ratemaking policies to further the implementation of demand-side resources. Finally, the American Recovery and Reinvestment Act of 2009 contains an identical policy objective as MEEIA to align financial interests between the utility and its customers.

> The applicable State regulatory authority will seek to implement, in appropriate proceedings for each electric and gas utility, with respect to which the State regulatory authority has ratemaking authority, a general policy that ensures that utility financial incentives are aligned with helping their customers use energy more efficiently and that provide timely cost recovery and a timely earnings opportunity for utilities associated with cost-effective measureable and verifiable efficiency savings, in a way that sustains or enhances utility customers' incentives to use energy more efficiently.[6]

Not only is the DSIM requested in this filing consistent with the traditional regulatory compact, but it is treatment which is beneficial for Ameren Missouri's customers. Ameren Missouri's proposal is for a doubling of its 2009-2011 investment in energy efficiency to $145 million over three years, reducing electricity consumption by an anticipated 793,102 MWh (enough electricity to power approximately 60,000 average Missouri homes annually). As this *Report* documents, Ameren Missouri's proposal in this case offsets the throughput disincentive caused by energy efficiency programs while allowing customers to save on their electric bills each month. This is the type of regulatory treatment contemplated by MEEIA, which aligns the interests of Ameren Missouri and its customers. It is regulatory treatment which allows the Company to make the right business decision without suffering an economic penalty and allows the Company to sustain ongoing, substantial investment in energy efficiency in the state of Missouri and, more specifically, within Ameren Missouri's service territory.

In summary, Ameren Missouri's proposal results in a win-win for all stakeholders. It provides a program whereby significant energy efficiency investments are made,

[5] Energy Policy Act of 1992, Pub L No 102-486, 106 Stat 2776, §111(a)(8) (1992).
[6] American Recovery and Reinvestment Act of 2009, Pub L No 111-5, 123 Stat 115, §410(1) (2009).

consistent with customer and other key stakeholder expectations, and which are expected to result in significant long term benefits to customers and the state of Missouri. These investments are supported by a regulatory framework which aligns Ameren Missouri's interests with its customers' interests by keeping the Company whole; providing a reasonable opportunity to earn a fair return, and is consistent with Missouri law and the existing regulatory compact. Our proposal presents a significant opportunity for Missouri to move forward in this important area.
Ameren Missouri Expert/Witness: Warren Wood

1. Technical Summary

Highlights

- *Ameren Missouri's 2011 Integrated Resource Plan (IRP) identified energy efficiency as an attractive resource option, depending on customer acceptance and proper alignment of utility and customer financial incentives.*
- *The Missouri Energy Efficiency Investment Act (MEEIA) requires that the Commission ensure that utility financial incentives are aligned with helping customers use energy more efficiently and that timely earnings opportunities associated with energy efficiency savings are provided.*
- *The 3-year plan proposed in this Report includes $364 million of estimated customer net benefits over the next 20 years which can help alleviate the current economic challenges faced by customers.*
- *These savings will be achieved by employing an aggressive energy efficiency portfolio called Realistic Achievable Potential. This portfolio is based on extensive market research of Ameren Missouri's customers and is consistent with the MEEIA goal of achieving all cost-effective demand-side savings.*
- *Under Ameren Missouri's proposal, customers will retain 91% of net benefits associated with the proposed energy efficiency portfolio.*
- *Ameren Missouri's proposal also includes the use of a Technical Resource Manual. This manual establishes energy savings for actions taken under our Energy Efficiency programs up front and is largely based on recent evaluations by independent third parties.*

Background

Over the past several years Ameren Missouri has been implementing energy efficiency programs and analyzing energy efficiency as a long-term resource option. From 2009 through September, 2011, Ameren Missouri implemented full-scale energy efficiency programs including 5 residential and 4 business programs. The impetus for the Company's entry into energy efficiency was based on Ameren Missouri's 2008 Integrated Resource Plan which identified energy efficiency as a promising resource option. Ameren Missouri moved forward with the aggressive implementation of its energy efficiency portfolio as an important step for advancing energy efficiency as a viable resource. During the three-year period, Ameren Missouri evaluated the costs and benefits, for customers and for the Company, of its highly successful energy efficiency portfolio and identified an unsustainable imbalance caused by the existing regulatory framework.

In July, 2009, Governor Nixon signed the Missouri Energy Efficiency Investment Act into law. The sponsors and supporters of MEEIA recognized the misalignment of financial incentives associated with implementation of utility sponsored energy efficiency in the absence of changes to the pre-MEEIA regulatory framework. In adopting MEEIA, the General Assembly made important changes to the pre-existing regulatory framework, set the state's policy regarding energy efficiency, and mandated that the Missouri Public Service Commission (Commission) do three things to support the state's policy and to address this misalignment, as follows[7]:

(1) Provide timely cost recovery for utilities for investments in energy efficiency;
(2) Ensure that utility financial incentives are aligned with helping customers use energy more efficiently and in a manner that sustains or enhances utility customers' incentives to use energy more efficiently; and
(3) Provide timely earnings opportunities associated with cost-effective and verifiable efficiency savings.

In January, 2010, Ameren Missouri published the results of a major research study aimed at understanding the potential for energy efficiency improvements in its customers' homes and businesses. This information has been indispensible in the planning efforts outlined in this Report. To inform energy efficiency plans and assess future needs, a third-party vendor surveyed more than 4,000 of Ameren Missouri's residential and commercial customers using both online and onsite surveys. This entire “Potential Study” has been published on Ameren Missouri's website and is available to the public.

In September, 2010, Ameren Missouri filed an electric rate case which included a proposal to align interests consistent with the law to continue its energy efficiency programs. The goal of the proposal was to keep Ameren Missouri's energy efficiency programs meaningfully funded as a bridge between the programs already in place and those that could be implemented following the promulgation of Commission rules regarding MEEIA. The Company provided testimony showing the negative financial impact (i.e., the financial misalignment) from energy efficiency and indicated that it would be left with no reasonable choice but to significantly reduce energy efficiency expenditures absent appropriate regulatory treatment that properly addressed the financial misalignment consistent with the law. Late in the rate case, on May 30, 2011, the MEEIA rules became effective.

In February, 2011, Ameren Missouri filed its 2011 IRP. Based on the Potential Study, the 2011 IRP identified energy efficiency as a promising resource option assuming

[7] See Section 393.1075.3, RSMo. (Cum. Supp. 2010)

customer acceptance and the proper alignment of financial incentives, as required by MEEIA.

The timing of the rate case, issuance of final MEEIA rules, and the filing of the 2011 IRP resulted in several significant challenges in supporting the expansion of Ameren Missouri's energy efficiency programs. Ameren Missouri's existing energy efficiency programs were scheduled to expire September 30, 2011. It was simply not possible to complete an effective MEEIA filing under the newly adopted rules before the existing programs expired.

The Commission rejected Ameren Missouri's energy efficiency proposal in the rate case. In doing so, the Commission acknowledged the fact that by implementing energy efficiency programs the utility is knowingly causing financial harm to itself and the MEEIA statute does not require the utility to implement energy efficiency programs.[8]

Ameren Missouri spent approximately $70 million on energy efficiency programs between 2009 and 2011 and the Company will incur financial losses of approximately $60 million resulting from those programs. As a result of the Commission's order in the rate case and the lack of a regulatory framework consistent with the law, the Company made the prudent decision to allow its energy efficiency tariffs to expire on September 30, 2011.

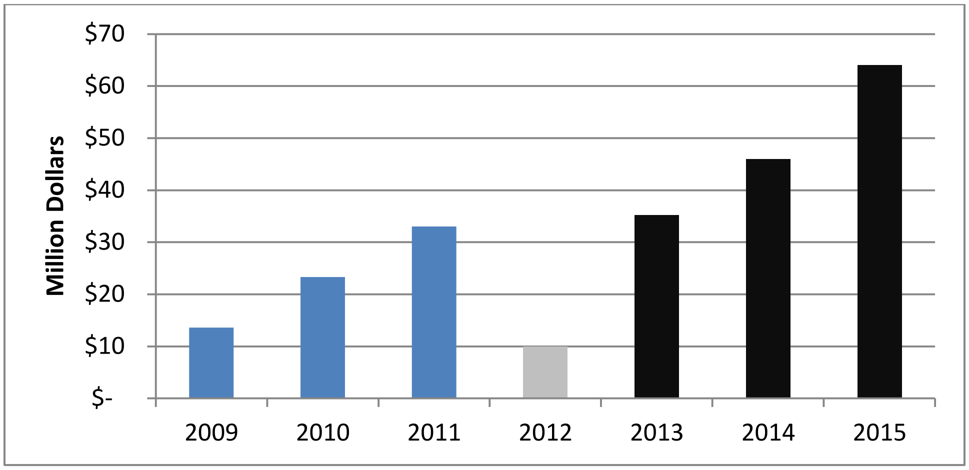
However, having a strong desire to preserve much of the valuable energy efficiency infrastructure it had established, Ameren Missouri proposed limited programs to bridge the period after September 30, 2011 until implementation of the plan proposed in this Report, which the Company plans to fully implement in January of 2013, should it's proposal in this filing be adopted by the Commission. The Commission has recently allowed the tariffs for the bridge energy efficiency programs to take effect (November 24, 2011 for the residential programs and December 18, 2011 for the business programs.) Although the initial phase of these bridge programs expires June 30, 2012, Ameren Missouri expects to extend the programs following a constructive outcome in this case.

Figure 1.1 shows the historical and planned energy efficiency budgets. The blue bars represent the first three-year plan while the black bars represent the proposed three-year plan. The graph clearly indicates a growing trend, with a substantial reduction in 2012 (to reflect the bridge period until an appropriate regulatory framework can be put in place) followed by a resumption of the growth in the Company's energy efficiency investments assuming Commission approval of the Demand Side Investment

[8] *Re Union Electric Company, d/b/a Ameren Missouri,* Case No. ER-2011-0028, *Report and Order* (July 13, 2011), p. 37

Mechanism (DSIM) proposed in this Report. Although energy efficiency has been identified as an attractive resource option based on program cost alone, the existing regulatory framework creates significant economic barriers to its continued implementation.

Figure 1.1 Historical and Planned Energy Efficiency Spending



1.1 Key Policy Matters

This Report reflects the following five key policy matters:

1) Aligning financial interests;
2) Defining "all cost-effective" demand-side savings;
3) Use of a Technical Resource Manual;
4) Use of gross energy savings;
5) Requested rule waivers.

Each of these five issues is addressed in this Report and Ameren Missouri believes each is necessary to accomplish the goals and mandates of the Missouri Energy Efficiency Investment Act.

Aligning Financial Incentives

It is widely documented and also explicitly recognized within MEEIA that there are three ways in which energy efficiency affects the utility's financial position:

1) Recovery of the direct program costs;
2) The impact of reduced sales on utility financials (i.e. throughput disincentive);
3) The effect on shareholder value compared to supply-side alternatives.

These three items are analogous to a three-legged stool. This analogy is useful because all three legs are necessary for the stool to stand. In this case, all three financial issues must be addressed for energy efficiency efforts to be sustainable.

Recovery of the direct program costs is simply the dollar-for-dollar recovery of direct costs associated with program administration (including evaluation), implementation, and rebates to program participants.

The impact of reduced sales on utility financials is not about providing additional earnings to the utility but is rather about making the utility whole consistent with its existing regulatory framework. In short, energy efficiency causes negative effects to the utility's financial position (both earnings and cash flows suffer). In no way does MEEIA seek to penalize the utility. Providing alternative recovery, dollar-for-dollar, of these fixed costs simply reverses the negative financial effects of energy efficiency.

The effect on shareholder value compared to supply-side alternatives is recognition of the opportunity cost to the utility by substituting energy efficiency for supply-side alternatives. MEEIA law requires demand-side and supply-side resources be valued equally which requires demand-side resources provide an opportunity to enhance shareholder value. Providing timely earnings opportunities moves demand-side resources beyond a break-even proposition and allows fair competition with supply-side alternatives.

Ameren Missouri's proposal seeks to address each of these "legs of the stool" in order to comply with the law and support the sustainable implementation of demand-side resources. The requirement in Missouri law to align interests of the utility with those of its customers is not unique. The National Action Plan for Energy Efficiency (NAPEE), the State and Local Energy Efficiency Action Network (SEE), the American Council for an Energy-Efficient Economy (ACEEE), the Lawrence Berkley National Laboratory (LBNL) and the Regulatory Assistance Project, among other prominent national energy efficiency advocates, recommend that gas and electric utilities, utility regulators, other policy makers and partner organizations work to modify policies to align utility incentives with the delivery of cost-effective energy efficiency and modify ratemaking practices to promote energy efficiency investments.

The national organizations listed above address the cornerstones of the regulatory framework to enable investor-owned utilities to pursue energy efficiency – known as the “three legs of the stool.” As mentioned earlier, the three legs of the stool include the recovery of the direct program costs, the impact of reduced sales on utility earnings, and the effects on shareholder value compared to supply-side alternatives.

ACEEE is well known for its annual State Energy Efficiency Scorecard. A common characteristic of every state that ranks at the top of the scorecard is that each state has a regulatory framework in place that addresses each leg of the three-legged stool. Table 1.1 is an extract from the ACEEE 2011 State Scorecard and characterizes the regulatory framework for each of the top 10 ranked states. Notably, preserving revenues to cover utility fixed costs is addressed in every state and most also have additional performance incentives.

Table 1.1 ACEEE Top Ten States Fixed Cost Recovery

State	Fixed Cost Recovery		Performance Incentive
	Decoupling	Lost Revenue Mechanism	
Massachusetts	✓		✓
California	✓		✓
New York	✓		✓
Oregon	✓		
Vermont	✓		✓
Washington	✓	✓	
Rhode Island	Pending		✓
Minnesota	✓		✓
Connecticut	✓	✓	✓
Maryland	✓		
Missouri (Rank - 44)	✗	✗	✗

Source: The 2011 State Energy Efficiency Scorecard, Report E115, October 2011 Summary of Ratepayer-Funded Electric Efficiency Impacts, Expenditures, and Budgets, updated January 2011

States that rank at the bottom of the scorecard, including Missouri at 44th, do not have adequate regulatory framework elements needed for investor-owned utilities to aggressively pursue energy efficiency. Without the removal of financial disincentives, implementation of contemporaneous recovery of program costs, and financial performance incentives that allow for the opportunity to earn the equivalent of supply-side investments, performance at or above that demonstrated by the Company's programs from 2009-2011 is not sustainable. Based on the work from ACEEE and other similar organizations, it is evident there is a strong link between the regulatory framework and the aggressiveness of energy efficiency.

Ameren Missouri Expert/Witness: William Davis

All Cost-Effective Demand-Side Savings

There is no explicit definition of the term "all cost effective" in MEEIA. Nor is there a definition in the Commission's rules implementing the MEEIA legislation. Taken in isolation the "all cost effective" provision in MEEIA appears ambiguous. It is apparent, however, that the General Assembly intended that a demand-side program would only be considered cost effective if it can be implemented consistent with MEEIA's overarching goal, supported by the three Commission actions mandated by MEEIA. And it is also apparent that "all cost effective" means programs that can practically (realistically) be implemented. Indeed, the Commission's MEEIA rules suggest the Commission use the utility's market potential study (reflecting what one could reasonably expect to achieve in the "real world") or the savings goals outlined in the rules as a guideline to review the progress towards achieving "all cost effective" demand-side savings.

As noted earlier, Ameren Missouri has conducted a Potential Study, prepared by a nationally recognized independent contractor team. That study reflects an energy efficiency market assessment using 100% Ameren Missouri appliance saturation surveys, demographics surveys and customer psychographic surveys. The primary objective of the study was to assess and understand the technical, economic, and achievable potential for all Ameren Missouri customer segments for the period from 2009 to 2030. Perhaps the most ground breaking and important aspect of the study was the development of Ameren Missouri customer choice models to estimate the amount of energy efficiency that electric customers would realistically consider pursuing from Ameren Missouri. The amount of energy efficiency achieved by customers as a direct result of Ameren Missouri sponsored customer energy efficiency programs is defined as realistic achievable potential (RAP). Assuming regulatory treatment that reflects the requirements of MEEIA, RAP represents all cost effective energy efficiency because, by definition, it represents a forecast of likely customer behavior under realistic program design and implementation.

Technical Resource Manual (TRM)

There are a wide range of options to estimate energy savings from the installation of more efficient equipment. Consequently, there is considerable evaluation risk associated with estimating energy and demand savings attributable to energy efficiency programs and technologies. In order for Ameren Missouri to pursue all cost effective demand-side savings in a manner that is fair and equitable with regards to evaluation risk, cost and savings estimates should be based on the best available information at the time these measures are implemented. Given current regulatory treatment, it is difficult to align interests of all parties given the uncertainty surrounding the load reduction impacts of the programs, which is why it is imperative that these measure level values be determined prior to implementation. This will reduce the ambiguity associated with pre-evaluation planning and post-evaluation results.

The best way to accomplish this is by adopting a TRM to identify measure level savings values and algorithms to develop energy efficiency measure savings estimates. As mentioned earlier, it is critical that these values be agreed upon at the beginning of the program implementation and applied prospectively for the three year implementation period.

Ameren Missouri has developed its TRM to achieve the savings goals set forth in this plan and to provide a transparent method of measuring the energy and demand reductions of its programs. Ameren Missouri leveraged previous evaluation reports from its programs implemented between 2009 and 2011 (Cycle 1), Ameren Missouri specific data from its DSM Potential Study, its internal database of measures, and other states' TRMs when needed.

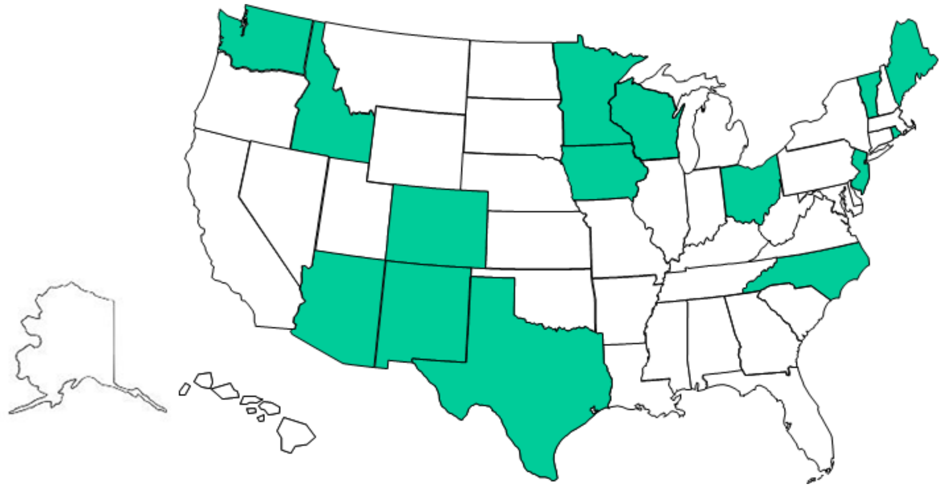
Not only will the TRM assist in reducing uncertainty in Evaluation, Measurement and Verification (EMV), but it will also benefit customers. By using the TRM, Ameren Missouri reduces the amount of time and resources required to obtain and analyze customer data, as the EMV contractor will use the savings for each measure found in the TRM and count the number of measures installed (as well as conducting process evaluations). This decreased EMV spend allows funds to be allocated more to incentives for customers or to be spent on refining delivery mechanisms to achieve more efficient program implementation.

Gross vs. Net Savings

Perhaps the greatest level of uncertainty regarding *ex ante* (prior to program evaluation) and *ex post* (results from evaluation contractor) savings lies within the calculation of the net-to-gross (NTG) factor. This measurement attempts to quantify the percentage of customers that would have participated in the program absent any financial incentive from Ameren Missouri. This value typically has a broad range of opinions and requires significant expense to quantify.

The NTG is comprised of two main components, freeridership and spillover. Free ridership is essentially the portion of energy savings that participants would have achieved in absence of the program. Spillover measures the adoption of measures by non-participants and participants who did not claim financial or technical assistance for additional installations of measures supported by the program. Accurately assessing the impact of these two factors, however, is difficult. Quantification often depends on methods such as customer surveys.

Figure 1.2 States Reporting Gross Savings



Ameren Missouri believes it is logical to assume spillover effects are equivalent to freeridership effects and therefore net savings equal gross savings. Figure 1.2 shows numerous states have adopted the policy that net savings equal gross savings. Although it is difficult to quantify the positive aspects of NTG (spillover) as mentioned above, ignoring those positive effects underestimates the programs' actual impacts. Furthermore, removing the uncertainty of the program NTG will allow program dollars to be allocated to improving programs and increasing incentive dollars available to customers rather than spending funds on surveys to determine NTG ratios for individual programs.

Ameren Missouri Expert/Witness: Richard Voytas

Requested Rule Waivers

Ameren Missouri has determined that it is necessary to request waivers from certain portions of the Commission's MEEIA rules, although efforts were made to minimize the requests. Without addressing these requested waivers, Ameren Missouri believes the resultant framework would not properly align financial incentives between the utility and customers. Furthermore, Ameren Missouri believes the requested waivers are consistent with MEEIA.

The most important waiver is relief from the rule requirements that shared net benefits recovery be implemented on a retrospective basis. These provisions in the rules unduly delay the recovery of fixed costs and significantly heighten recovery risk creating a disincentive for the utility. Notwithstanding the legal arguments about delayed recovery, this Report details why prospective recovery, using a TRM, is valuable and important. With the use of a TRM, the evaluation is initially focused on counting the number of measures installed. Implementation contractors have nearly real-time feedback to gauge the level of installations. The TRM is firmly grounded in past evaluations and best-practice estimates. In fact, 91% of the total number of measures and 71% of the total planned energy savings are based on recent EMV results.

Finally, the requirement of retrospective treatment of the incentive implies the utility will ultimately not meet the plan objectives. It is counterintuitive that the Commission would approve a plan it does not think the utility will achieve. In addition, as plan implementation progresses, the Company is required to comply with annual reporting and rule requirements to file for a plan modification if certain progress tolerances are exceeded.

Ameren Missouri Expert/Witness: William Davis

1.2 Proposed Energy Efficiency Portfolio

Ameren Missouri is proposing a robust set of energy efficiency programs designed to reach all major market segments, continue to leverage its existing energy efficiency infrastructure, and expand its previous program base. Table 1.2 describes the annual savings and budgets associated with the proposed portfolio. The 3-year budget of $145 million is expected to yield 793,100 MWH of cumulative energy savings.

Table 1.2 Incremental Savings and Costs

	2013	2014	2015
Energy Delivery (MWH)	37,476,879	37,844,450	38,146,206
Energy Efficiency Savings (MWH)	240,397	255,445	297,260
System Peak (MW)	7,533	7,591	7,640
Peak Demand Reductions (MW)	39	54	77
Total Budget	$35,239,613	$45,965,915	$64,087,685
% MWH reduction (from energy delivery)	0.6%	0. 7%	0.8%
% MW reduction (from system peak)	0.5%	0.7%	1.0%

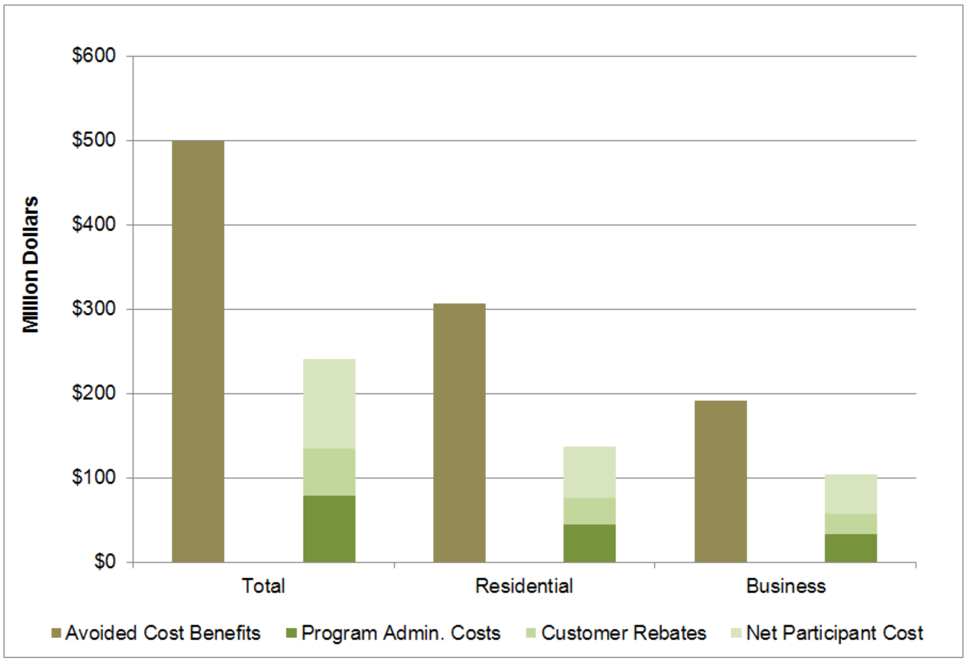
Note: The projected energy delivery, energy savings, system peak, and demand reductions are based on values at the meter.

Table 1.3 shows the cost-effectiveness of the proposed portfolio. These programs are expected to provide $499 million in lifetime benefits. The table below also highlights the differences between the Total Resource Cost (TRC) test and the Utility Cost Test (UCT). Notice that the UCT results do not include net participant costs while the TRC results do. Figure 1.3 is a graphical representation of the TRC results from Table 1.3 and shows the benefits far exceed the costs of this portfolio. In Table 1.3, the Program Admin. Costs plus Customer Rebates represent the increase in revenue requirement while the Avoided Cost Benefits reduce the revenue requirement. For the purposes of Table 1.3, Net Participant Cost refers to the gross incremental measure costs less the Customer Rebates.

Table 1.3 Portfolio Summary – Cost-Effectiveness Analysis ($MM)

	Total		Residential		Business	
	UCT	TRC	UCT	TRC	UCT	TRC
Avoided Cost Benefits	**$499**	**$499**	**$307**	**$307**	**$192**	**$192**
Program Admin. Cost	$79	$79	$45	$45	$34	$34
Customer Rebates	$55	$55	$31	$31	$24	$24
Net Participant Cost		$106		$60		$46
Total Cost	**$134**	**$241**	**$77**	**$137**	**$58**	**$104**
Net Benefits	**$364**	**$258**	**$230**	**$170**	**$134**	**$88**
Benefit/Cost Ratio	**3.71**	**2.07**	**4.00**	**2.24**	**3.33**	**1.85**

Figure 1.3 Total Resource Cost Test – Results Summary



Ameren Missouri is proposing seven residential programs with a Home Energy Performance program for both electric and gas customers. Although several of the programs are an extension of the Company's previous residential programs, there are three new programs. Ameren Missouri is also proposing four business programs similar to those that were in operation through September 2011. Below is a brief description of the programs with their TRC results in parentheses.

Residential Programs

- Lighting Program (3.66) – Incentives are provided to the manufacturing and retail partners to increase sales of qualified lighting. The end-user receives a discount on the price of ENERGY STAR qualified or other high efficiency lighting products.

- Energy Efficiency Products Program (1.55) – Measures such as ENERGY STAR high-efficiency water heaters, window ACs, and smart strips will be promoted through various incentives and rebates.
- HVAC Program (2.11) – Heating, ventilation and air-conditioning (HVAC) diagnostics/tune-up, retrofit, and replacement upgrades for air conditioners, heat pumps, and cooling systems are promoted.
- Refrigerator Recycling Program (2.23) – An incentive is provided to a customer for removing an inefficient refrigerator or freezer. A turnkey appliance recycling company verifies customer eligibility, schedules pick-up appointments, picks up appliances, recycles and disposes units, and performs incentive processing.
- Home Energy Performance (HEP) Program (1.64) – Home Energy Performance (HEP) may include a home energy audit, direct install measures, and follow up sealing measures, achieving electric energy savings.
- ENERGY STAR New Homes Program (1.26) – Targets builders and raters with incentives for construction of ENERGY STAR homes, achieving electric energy savings.
- Low Income Program (0.84) – Delivers energy savings to low income qualified customers through direct install of energy efficiency measures and appliances.

Business Programs

- Standard Incentive Program (2.14) – Provides pre-set incentives for energy efficient products that are readily available in the marketplace and will target measures for which energy savings can be reliably deemed, or calculated using simple threshold criteria. Incentives are available for lighting, heating, ventilation and air conditioning (HVAC) and refrigeration projects.
- Custom Incentive Program (1.77) – The Custom Incentive Program is for projects that save electricity, but are not on the Standard Incentive list. The incentive is fixed per estimated kWh saved during the first year of operation, with program incentives not to exceed 50 percent of the overall energy efficiency measure costs.
- New Construction Program (1.36) – Provides financial incentives and technical assistance for energy efficient building design and construction. Eligible facilities include new facilities built from the ground up, additions to existing facilities, or major renovation of existing facilities requiring significant mechanical and/or electrical equipment alteration.
- Retro-Commissioning Program (1.7) – Provides incentives for energy and demand reduction opportunities achievable through optimizing building control systems.

Ameren Missouri Expert/Witness: Richard Voytas

1.3 Proposed Demand-Side Investment Mechanism

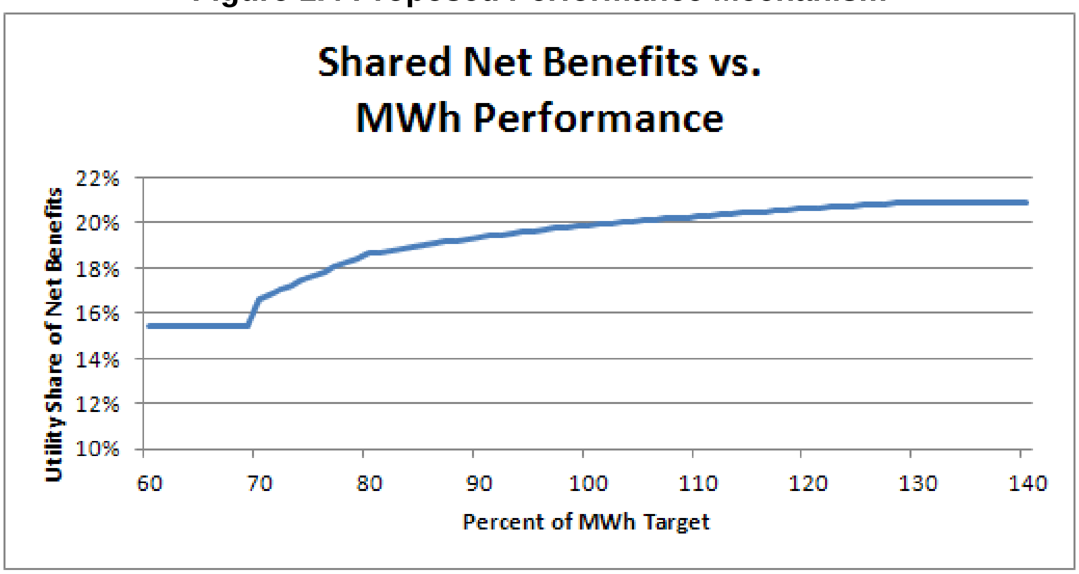
Ameren Missouri is proposing a DSIM that provides full and timely cost recovery, ensures that utility financial incentives are aligned with helping customers use energy more efficiently and provides timely earnings opportunities associated with cost-effective measurable and verifiable efficiency savings.

The proposed DSIM includes:

1. A forecasted expense tracker for direct program costs. The amount to be included in base rates (approximately $48.4 million) is equal to a three year average of direct program costs.
2. A performance based tracker for a portion of net benefits to remove economic disincentives and provide timely earnings opportunities. To limit the initial rate impact, only the portion associated with removing the economic disincentives will initially be included in rates ($32.5 million) during the three-year program. The remaining sharing will be collected through rates in the future based on performance against the three-year savings goals.

As Figure 1.4 shows, Ameren Missouri is requesting 20.2% of the net benefits. As Chapter 2 of this report explains, 15.4% of the sharing is associated with removing the economic disincentive and the remaining 4.8% is to provide an earnings opportunity equivalent to an alternative supply-side investment.

Figure 1.4 Proposed Performance Mechanism



Generically, the need for sharing in order to align financial incentives is a function of regulatory lag, the amount of fixed costs being collected in volumetric rates, the makeup of the demand-side programs, and whether the utility is vertically integrated. Therefore, any comparisons to other jurisdictions must consider these characteristics. For example, a utility in a restructured, or "deregulated", market does not include the fixed costs of generation facilities in rates, thus dramatically reducing the total amount of fixed costs being collected in rates. Also, if a utility has a much higher portion of fixed costs collected in a fixed customer charge or if the utility has the ability to set rates based on a future test year, then the amount of sharing necessary to align incentives would be substantially less than Ameren Missouri's proposal. In some cases the utility may even have other means by which to recover fixed costs, such as a decoupling mechanism. Finally, if the utility’s portfolio includes a significant proportion of demand response programs then the sharing percentage would be lower since the demand response programs do not materially contribute to the throughput disincentive but enhance the benefits being shared. Chapter 2 demonstrates the requested sharing percentage is appropriate based on Ameren Missouri's ratemaking environment and proposed energy efficiency portfolio.

Upon first impression, sharing 20% of net benefits seems to imply customers retain 80% of the net benefits. However, the initial 15.4% of the sharing is simply an alternative to the current regulatory framework of recovering fixed costs. The recovery of those fixed costs does not reduce the benefits retained by customers. In reality, under our proposal, customers will retain 91% of the net benefits (from a revenue requirements perspective). The fixed cost savings customers experience between rate cases are not legitimate benefits associated with energy efficiency and are not included in any of the cost effectiveness calculations such as the UCT or the TRC. Therefore, by allowing alternative recovery of those fixed costs through the proposed Performance Mechanism, customers still realize the legitimate avoided cost benefits of energy efficiency.

Given the ongoing legal challenges to the MEEIA rules, Ameren Missouri is not requesting the authority to utilize a rider to change rates outside a rate case. Therefore the Company is requesting both components of the proposed DSIM be implemented through its upcoming rate case, File No. ER-2012-0166.

The proposal reflected in this Report also reflects that in that rate case Ameren Missouri will propose an increase in the residential monthly customer charge from $8 to $12. Because of the inextricable link between the amount of fixed costs being collected in volumetric rates and the DSIM proposal, Ameren Missouri is requesting that this change to be approved as part of the MEEIA filing and then implemented in the upcoming general rate case. Without an increase in the residential customer charge the shared portion of net benefits will need to increase by 0.6% to account for the increase in throughput disincentive.

Ameren Missouri Expert/Witness: William Davis

2. Demand-Side Investment Mechanism

This chapter provides a detailed description of and rationale for the DSIM proposal. This Report will also provide a thorough review of how the ratemaking process influences the economics for the utility to engage in energy efficiency efforts. In short, the proposed DSIM is designed to put energy efficiency on an economically equivalent footing with supply-side alternatives.

2.1 Aligning Financial Incentives

The existing regulatory framework unintentionally penalizes the utility when customers reduce their usage. Remedying this detrimental byproduct of the ratemaking process does not diminish the benefits to customers yet removes a significant economic barrier to sustainable utility sponsored energy efficiency programs. Currently, between rate cases, costs for administration, research, design, development, implementation and evaluation (a.k.a. direct program costs) of demand-side management ("DSM") programs are accumulated in a regulatory asset as they are incurred along with interest at the Company's allowance for funds used during construction (AFUDC) rate. In the Company's subsequent rate case, the Company requests to have the amount in the regulatory asset included in rate base and amortized over six years. No consideration is made for the permanent financial losses caused by reductions in sales or the lost earnings opportunities associated with supply side alternatives. As a result, the current rate treatment falls dramatically short of the MEEIA requirements that the Commission ensure that financial incentives are aligned and that it provide timely earnings opportunities.

Figure 2.1 illustrates the misaligned incentives. Using the residential rate class as an example, the figure shows that the revenue requirement can be broken into the customer charge, net fuel cost, and the fixed system cost. The customer charge is a fixed monthly dollar amount while the net fuel costs and fixed system costs are collected in rates based on kWh usage. In the "No DSM" case, once rates are set, the total bill recovers the revenue requirement. However, in the Current Recovery Framework case in Figure 2.1, it is evident that incentives are not properly aligned. Notice that when customers install an energy efficient measure to reduce kWh usage they save in two ways. First, customers benefit from the reduction in net fuel costs and second, customers save by not paying the fixed system costs that otherwise would be collected through volumetric rates. Notice that in the Current Recovery Framework case, the revenue requirement decrease is equal to the amount associated with the reduction in net fuel costs, in this case $32. Those benefits will persist throughout the life of the measure. However, it is evident in this case that the utility under-collects the revenue requirement because of the rate design and regulatory lag associated with current Missouri ratemaking. It is important to note that those regulatory lag savings, $66 in this example, are temporary, and are an unintended byproduct of the current ratemaking practice rather than an intentional outcome of it. Those savings will be eliminated, eventually, through the normal ratemaking process. But that normal process takes several years because of the excessive regulatory lag. Under the Current Recovery Framework, the under-recovery of fixed system costs is a strong economic disincentive that inhibits the utility in providing energy efficiency programs to its customers.

Figure 2.1 Alignment of Financial Incentives

The Fixed Cost Recovery Framework case in Figure 2.1 illustrates a framework that aligns financial incentives. Notice that in this case the customer retains the benefits that reduce the revenue requirement and the utility recovers its fixed costs. It is important to distinguish between the legitimate benefits of energy efficiency that reduce the revenue requirement and the regulatory lag "savings" associated with the ratemaking process. Those regulatory lag "savings" represent a windfall to customers since energy efficiency does not reduce fixed costs between rate cases. Those extra "savings" are a major economic barrier to the implementation of energy efficiency which, unless removed, will ultimately prevent the customers from realizing the benefits associated with energy efficiency. Notice that even after providing fixed cost recovery to the utility, customers still benefit compared to the No DSM case. In fact, the TRC analysis of energy efficiency programs demonstrates that energy efficiency programs provide benefits of more than twice the costs when correctly excluding the extra regulatory lag "savings". Therefore, the mitigation of the throughput disincentive in no way diminishes the benefits of energy efficiency since those benefits are solely based on the legitimate reduction in ongoing revenue requirements. The unintentional effect that regulatory lag has on fixed cost recovery is not a legitimate benefit of energy efficiency but is a very real barrier to implementation of energy efficiency.

Finally, to illustrate the point further it is constructive to imagine a case where all fixed costs are collected in the customer charge. This is typically referred to as Straight-Fixed Variable rate design and is more common for natural gas utilities. In the context of Figure 2.1, the fixed system costs (blue bars) would be zero and the customer charge (green bars) would increase sustainably to include all fixed system costs. As a hypothetical situation, it is apparent that when fixed costs are not being collected in kWh related charges the economic disincentive to reducing sales through energy efficiency is eliminated. So whatever the form of the mitigating mechanism, the outcome is the same; that is, customers retain the true benefits of energy efficiency and the utility recovers its fixed system costs.

2.2 Throughput Disincentive

The throughput disincentive is a result of the traditional regulated utility business model in which the utility's revenues are linked to its sales or "throughput," creating a financial disincentive for the utility to engage in any activity that could reduce sales, such as promoting energy efficiency programs.

Traditional ratemaking is intended to allow utilities to recover both their fixed and variable costs and earn a fair return on their investments. Variable costs are those that vary with the production of energy, such as the cost of fuel and purchased power, while fixed costs are associated with activities that do not vary with energy production, like the cost of a plant, plant addition, environmental upgrades and new substations or extending distribution or transmission lines. The Fuel Adjustment Clause ("FAC") governs the over- or under-collection of the Company's variable costs, while the fixed costs are largely collected using a variable rate, expressed as ¢/kWh or a combination of ¢/kWh and $/kW, applied to weather normalized and "static" test year sales. The rates developed based on this snapshot of the relationship between the revenue requirement and sales will remain unchanged until the utility's next rate case.

Ignoring the customer charge, for the sake of illustration, it is important to understand that outside of a rate case, in a future period, the utility's actual revenue will be determined by the variable rate (developed based on the snapshot of test year sales), multiplied by the actual amount of electricity sales. Under traditional ratemaking, if retail electricity sales increase beyond the level used to develop the utility's rates, the utility keeps the additional revenue. This creates an incentive for the utility to maximize the "throughput," or sales. Typically, the additional revenues are not simply a bonus to the utility but rather an offset to the rising costs of service, like wages and general material costs, between rate cases. Thus, a traditional ratemaking framework does not align the utility's financial incentives with helping customers use energy more efficiently, because cost recovery and fair returns on investment are achieved by selling volumes of electricity.

The implementation of energy efficiency programs causes a decrease in electricity sales, which causes the utility to lose revenue that it would have otherwise collected. But even more importantly, it prevents the utility from recovering a portion of its fixed costs. Any increase in regulatory lag and/or time between rate cases amplifies the disincentive for a utility to support a reduction in sales volume It is also important to recognize that utility sponsored programs are only one source of fixed cost recovery erosion. To fully align utility incentives such that the utility can partner with third party energy efficiency or conservation efforts, the throughput disincentive must be adequately addressed.

Energy efficiency is unique as a source of sales variation because it is only associated with downward pressure on electricity sales. Other causes of sales variation, like weather and the economy, can cause both increases and decreases to sales volumes. Another unique aspect of energy efficiency is that although it can happen naturally, there are ways to induce it. In this case we are discussing the impacts of utility-run programs, but other sources that can induce energy efficiency include programs run by government agencies, building efficiency codes, and appliance efficiency standards. This is in contrast to other sources of variation, like the weather and the economy, which are clearly outside the control of the utility and any other single party.

Having defined the throughput disincentive above, there are three main factors that drive the magnitude of the throughput disincentive. First is rate design. Designing rates to recover fixed costs through volumetric charges is the origin of the throughput disincentive. As the percentage of revenues collected through volumetric charges decreases, so does the throughput disincentive. The duration of time between rate cases is another driver of the throughput disincentive, since the negative financial impact of reduced kWh sales due to energy efficiency savings compounds quickly between rate cases. The third main factor that drives the throughput disincentive is the expansion rate of energy efficiency programs. As energy efficiency programs and their resultant energy savings grow rapidly, the effects between rate cases compound rapidly, creating greater financial disincentive.

As mentioned previously, rate design is a main component to the throughput disincentive. Ameren Missouri's current rate design collects a vast majority of its fixed costs through volumetric rates. For example, 90% of residential fixed costs are collected in volumetric rates. The percentages for the other rate classes are similar. This heightens the sensitivity of utility earnings to sales volumes and amplifies the challenge of sustainable energy efficiency program implementation.

Figure 2.2 illustrates how the throughput disincentive is manifested through the ratemaking process. The analysis assumes rate cases are filed every 18 months, although the actual rate case timing will be determined as necessary. The solid lines represent rate effective dates and the dotted lines represent the test year end dates with each rate case represented by a different color. The shaded area represents the magnitude of throughput disincentive. The chart also includes the quantification of the throughput disincentive, which is experienced between rate cases. If Ameren Missouri were to implement the proposed Realistic Achievable Potential portfolio of programs over 2013-2015, absent a mechanism to address the throughput disincentive, it would collect approximately $105 million less fixed cost revenue from 2013 through 2018 than without its energy efficiency programs. The choppiness of the throughput disincentive is a reflection of seasonal rates and energy savings. This clearly is a severe impediment to the opportunity for the Company to earn its allowed return on equity. Again, the additional revenues are not a bonus to the utility but rather an offset to the rising costs of service, like costs associated with the Company's continued substantial capital investments in its system, and wages and general material costs, between rate cases. Furthermore, the plain and simple economic signal associated with the current rate design and regulatory mechanisms is to minimize spending on energy efficiency[9].

[9] Case No. ER-2011-0028, *Report and Order*, p. 37

Figure 2.2 Depiction of Throughput Disincentive

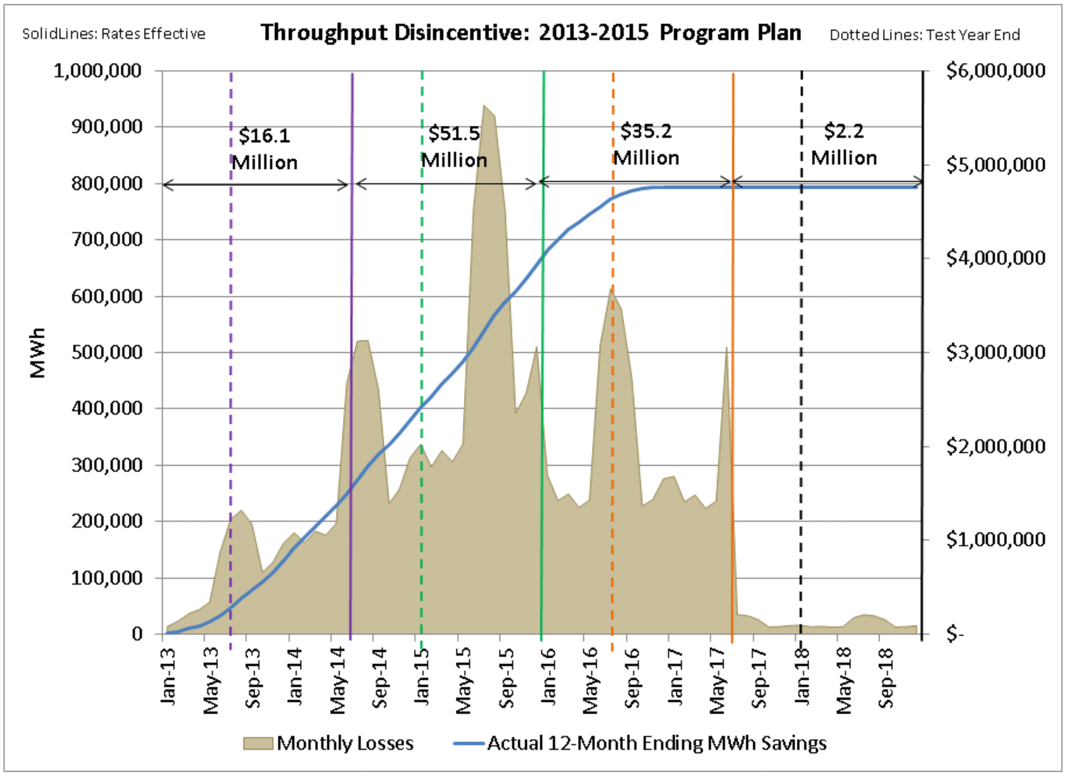
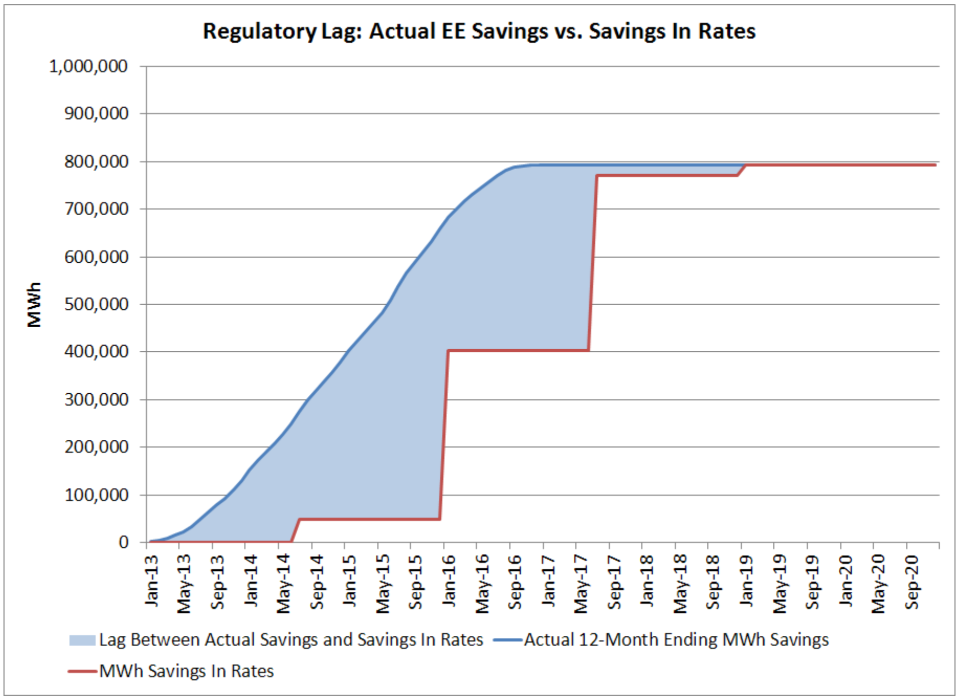


Figure 2.3 further illustrates the issue. The crux of the figure is to demonstrate that it takes many years and several rate cases to properly capture the effects of energy efficiency in rates. Although the effects of energy efficiency are eventually included in rates, the losses between rate cases are permanent and unrecoverable. The historical test year lag introduces a disconnect between the amount of savings being achieved and the amount included in the calculation of the existing rates. The red line represents the energy efficiency savings included in rates while the blue line represents the actual energy efficiency savings. The large "steps" in the red line are a reflection of an increase in the savings included in rates associated with rate cases. The shaded blue area highlights the significant differences between the energy savings actually occurring and the energy savings embedded in rates at any given time. Even when new rates go into effect, they do not incorporate all of the savings achieved up to that point, which reflects the regulatory lag of a historical test year. Eventually, over the course of many years and multiple rate cases, all energy savings are reflected in rates. If the red line were directly on top of the blue line then the throughput disincentive would be eliminated. The distance between the two lines in any given month is an indication of the magnitude of the utility's financial losses. For example, in May 2015, there would be approximately 50,000 MWh of energy efficiency savings in rates but there would be 500,000 MWh of actual energy efficiency savings. The utility would permanently lose revenues on the 450,000 MWh difference between the actual savings and the savings included in rates.

Figure 2.3 Billing Unit Regulatory Lag



The regulatory lag effect illustrated in Figure 2.3 is important to the accurate analysis of energy efficiency and the proper alignment of utility incentives and customer interests. When rates are set they are based on the revenue requirement and billing units from a historical test year. Using a historical test year introduces one layer of regulatory lag but there is another layer associated with the effects of energy efficiency. For example, consider a test year that is simply a calendar year from January 1st to December 31st. During implementation of energy efficiency programs there are efforts throughout the year to engage customers in energy efficient behaviors. So in each month there are new customers installing new energy efficient measures. If a customer installs a measure on January 1st then the test year includes twelve months of savings but if a customer installs a measure on December 1st then the test year only includes one month of savings. Here is the extra layer of regulatory lag; for the period in which rates will be effective there will be twelve months of actual energy savings for that measure installed on December 1st while only one month was included in rates. This effect dramatically delays the time in which the effects of energy efficiency programs are fully incorporated into rates. It is possible to mitigate this effect by annualizing the test year billing units for the effects of energy efficiency but this is not standard practice in Missouri. The analysis for Ameren Missouri's proposed DSIM does not assume the energy efficiency savings have been annualized for the test year.

2.3 Savings vs. Benefits

Although all energy reductions are eventually included in the test year and rates, the periods between rate cases cause a distortion in the economics of energy efficiency. In addition, even though the energy reductions are eventually included in rates, the losses between rate cases are permanent and unrecoverable. A distinction is needed between the financial "savings" and the financial "benefits" of energy efficiency. The TRC is recognized by MEEIA as the primary cost-effectiveness test. Ameren Missouri's analysis of its proposed programs estimates a TRC of 2.07. This means that the lifetime benefits are more than twice the utility and participant costs. Benefits are clearly defined as the avoided costs which include energy, capacity, and transmission and distribution costs. These avoided costs, which are the "benefits" to customers, represent reductions to the utility revenue requirement. It is imperative to distinguish these benefits from the regulatory lag "savings" associated with the throughput disincentive. The "savings" are not reductions to the revenue requirement but are a manifestation of rate design and regulatory lag. At no point are "avoided fixed cost charges" accounted for in the TRC analysis. This means that the cost-effectiveness is not impacted by providing financial relief of the throughput disincentive. The true and appropriate benefit of energy efficiency is the ongoing reduction to the revenue requirement, not the short-term avoidance of reimbursing the utility for fixed costs as a result of regulatory lag.

The fact remains that customers will retain the true benefits of energy efficiency programs. The avoided energy and capacity benefits manifest themselves through the reduction in net fuel costs. As rates are set, there is a lag in reflecting these benefits in the net base fuel costs that are embedded in customer rates. A significant distinction in Ameren Missouri's case is that the FAC is an existing mechanism that incorporates the energy efficiency benefits into net fuel costs between rate cases. So customers are realizing benefits between cases with limited impact of regulatory lag. This is a stark contrast to the fixed cost recovery erosion to the utility, which lacks a similar mechanism to manage the combined impacts of energy efficiency and regulatory lag. The avoided transmission and distribution (T&D) costs are realized over the long-term and are gradually reflected directly in the revenue requirement determined through rate cases.

2.4 DSIM Proposal

The Company’s DSIM proposal has two main components: direct program cost recovery and a sharing of net benefits to remove economic disincentives and provide timely earnings opportunities. Ameren Missouri is requesting the appropriate amounts be included in the revenue requirement in its upcoming rate case with rates being implemented in 2013. Because of the inextricable link between the amount of fixed costs being collected in volumetric charges and the throughput disincentive, Ameren Missouri is also requesting an increase in the residential monthly customer charge from $8 to $12 in this case. The Company's upcoming rate case will request implementation of both components of this plan in rates.

Program Cost Recovery

Ameren Missouri is proposing an expense tracker as the direct program cost recovery mechanism. This means that a level of expenditures will be included in base rates and the Company will monitor its spending and compare it to the amount collected from customers. If the Company spends less than the amount in rates, then the difference will be refunded in a future rate case. Conversely, any under-collection of actual expenditures would be reimbursed to the Company in a future rate case. The tracking will be done using a regulatory asset or liability and differences will accrue carrying charges at the Company's AFUDC rate. Table 2.1 shows the expected amount of energy efficiency expenditures over the 3-year implementation period. Because of the rapid growth in spending levels, it is appropriate to use an average of the expenses across the entire period. In this case Ameren Missouri is proposing that rates be set to include approximately $48 million for energy efficiency program costs. The residential revenue requirement would include $27.65 million and the business $20.78 million would be allocated among Small General Service, Large General Service, Small Primary Service, and Large Primary Service based on their relative kWh size. The final $/kWh charge will be determined based on the final billing units in Ameren Missouri's upcoming rate case, but the initial estimate is included in the Customer Impacts section in this report. The rate will be developed based on the latest information about which customers have exercised their legal right to opt-out of energy efficiency costs.

Table 2.1 EE Program Expenditures

Year	Total ($MM)	Residential ($MM)	Business ($MM)
2013	$35.24	$19.54	$15.70
2014	$45.97	$27.35	$18.62
2015	$64.09	$36.06	$28.03
Average	**$48.43**	**$27.65**	**$20.78**

It is noteworthy that the MEEIA rules provide an option for the utility to request the use of a rider; that is, the ability to change rates outside a rate case. Under normal circumstances, a rider would be advantageous because it provides more flexibility to match collections with costs. Unfortunately, the legality of the rider is being challenged in court. If the utility were to implement a rider only to have it stripped away by a legal decision after the time of the filing, then it would have no immediate recourse for program cost recovery. The use of an expense tracker will avoid any potential program cost recovery disruption. If the court upholds the use of a rider, then there will be opportunities to use it in the future.

There are several reasons why expensing energy efficiency program costs is appropriate. It is important to note that expensing does not impact the cost-effectiveness of energy efficiency. In fact, cost-effectiveness tests like the TRC and the UCT assume program costs are expensed. The promotion of energy efficiency is accomplished through a variety of marketing strategies with the goal of altering customers' energy related purchases and consumption behavior. Such activities require constant and ongoing expenditures and provide no physical assets or ownership rights to the utility. Furthermore, the customer rebates provided by utility programs only pay for a portion of the cost to purchase and install energy efficient measures, while the customers pay for the majority and ultimately own the measures.

When capitalizing program expenses (e.g. the current 6-year capitalization model) customers pay additional financing charges associated with the delayed recovery of costs whereas expensing can avoid these additional costs. In addition, the capitalization model creates reduced cash flow for the company to investment in its energy infrastructure. Sharing net benefits is purposefully designed to reward the utility if it can achieve energy savings for less cost (i.e. maximize customer benefits). In order to maximize net benefits to customers, the utility needs to be innovative to exceed performance targets at lower costs, meaning the programs will be more cost effective. This then represents an alignment of interests that will maximize energy efficiency savings as intended under MEEIA.

Expensing also offers a practical advantage. Expensing provides the greatest ability to respond to the ability of some customers to opt-out of funding utility energy efficiency programs. To illustrate the point, consider the current recovery model where expenses are tracked in a regulatory asset and then recovered over six years. The MEEIA rules require that a customer who participates in a utility program continue to fund programs for three years. In the six year amortization model, after the three year period during which the customer paid for programs, there would still be three more years of expenses to recover from the original programs that the customer participated in, yet that customer would be eligible to no longer pay for energy efficiency costs, including the recovery of costs from the programs in which it had participated. This situation is further complicated as different customers opt-out in different years and the fact that the capitalization model only includes expenses in rates after rate cases. It could very well be the case that if the utility did not file a rate case for two years then an opt-out customer would only pay one-year of program costs that are to be collected over six years. Expensing programs allows the program costs to be recovered annually. With annual recovery of costs it is vastly simpler to ensure program costs are recovered appropriately from customers who are eligible to opt-out. Incidentally, it is noteworthy that a rider would add more accuracy in matching annual collections with costs.

Shared Net Benefits

The sharing of net benefits is a useful construct that provides an economic signal for the utility to maximize customer net benefits. The sharing percentage is determined based on two main issues: removal of the throughput disincentive and providing an earnings opportunity equivalent to a supply-side alternative. Removing the throughput disincentive simply makes the utility whole for the revenues it would have collected absent the implementation of its energy efficiency programs whereas the earnings opportunity compensates for the forgone earning opportunities associated with supply-side investments. The unique aspect of sharing net benefits is that the utility share is based solely on providing customer benefits.

For sharing purposes the net benefits are based on the utility cost perspective, which is consistent with the MEEIA rules and synonymous with the UCT equation. In addition, this perspective sends the economic signal to minimize both administrative costs and customer rebates. Figure 2.4 shows the calculation of Net Benefits used as the amount to be shared, which is based on the present value of the lifetime effects of the proposed three-year plan. Again, these figures are consistent with the UCT analysis which is described in Chapter 3 of this report.

Figure 2.4 Net Benefits Calculation

Avoided Energy Costs	$370.3M
Avoided Capacity Costs	$91.2M
Avoided T&D Costs	$37.1M
Total Avoided Costs	**$498.6M**
Utility Program Costs	**$134.3M**
Net Benefits	**$364.3M**

With the net benefits established, the next step is to identify the amount that needs to be shared to adequately mitigate the throughput disincentive and provide appropriate earnings opportunities. Ameren Missouri has calculated that it requires a 20.2% share of the net benefits to accomplish these objectives.

As described earlier, the throughput disincentive is about how the reduction in sales volumes impacts the revenues collected by the utility. To quantify the amount of sharing needed, Ameren Missouri analyzed the effects of energy efficiency on its income statement. Therefore it is pertinent to evaluate the effects of energy efficiency by studying the income statement where the base comparison case does not include the Performance Mechanism. Table 2.2 shows the incremental effects of energy efficiency on the Company's income statement absent the Performance Mechanism.

Table 2.2 Income Statement Analysis of Energy Efficiency ($MM)

	Present Value	2013	2014	2015	2016	2017	2018
Program Cost Recovery	**$134**	$35.2	$46.0	$64.1	$0.0	$0.0	$0.0
Retail Non-Fuel Rev.	**($94)**	($8.2)	($22.4)	($39.0)	($25.7)	($11.7)	($1.5)
Retail Fuel Rev.	**($22)**	($1.8)	($5.0)	($8.9)	($5.9)	($3.0)	($0.3)
FAC Sharing Rev.	**$3**	$0.2	$0.6	$1.2	$0.9	$0.5	$0.1
Total Retail Revenues	**$21**	$25.4	$19.2	$17.4	($30.7)	($14.2)	($1.7)
Off-System Sales Rev.	**$180**	$5.7	$18.3	$35.6	$48.9	$55.0	$61.0
Total Revenues	**$201**	$31.1	$37.5	$53.0	$18.2	$40.8	$59.3
Net Fuel Cost	**($158)**	($3.9)	($13.3)	($26.7)	($43.0)	($52.0)	($60.7)
Program Expenses	**$134**	$35.2	$46.0	$64.1	$0.0	$0.0	$0.0
Income Taxes	**($35)**	($3.1)	($8.3)	($14.5)	($9.5)	($4.3)	($0.5)
Net Income (Earnings)	**($56)**	($5.0)	($13.4)	($23.3)	($15.3)	($6.9)	($0.9)

Table 2.2 reveals several important issues. The first thing to note is that using an expense tracker based on a forecasted average expense level does not impact utility earnings (i.e., net income). This is because accounting entries on the balance sheet account for the variances associated with using an average amount in rates over the three year period compared to the year-by-year expenses.

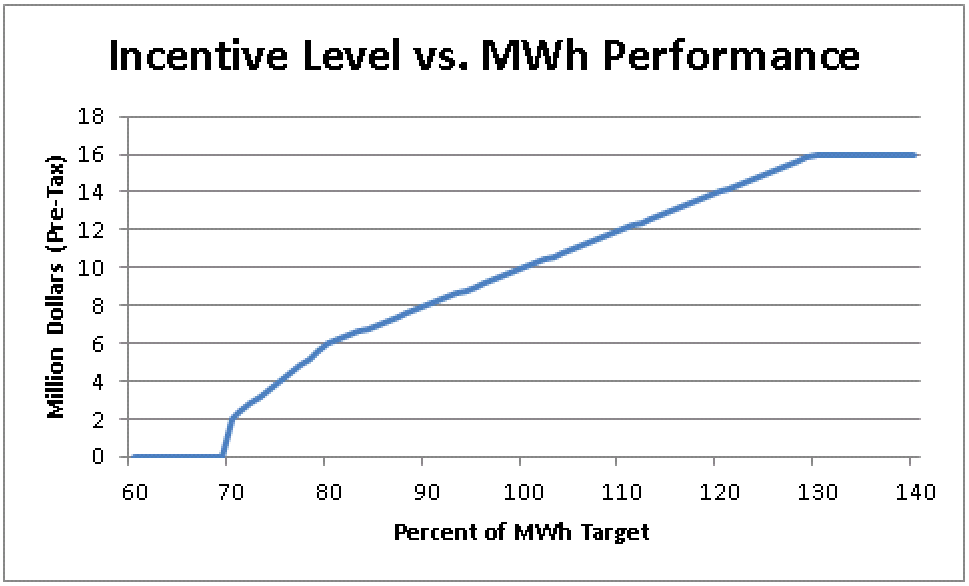
Second, notice that as customers use less energy the retail fuel revenues are decreasing and the off-system sales revenues are increasing. Ameren Missouri's generation units are dispatched into the Midwest ISO market based on whether the unit is economic relative to market prices, not based on the magnitude of the Company's native retail load obligation. Since the Company's generating units are relatively low-cost compared to the market, total generation output remains unchanged in the face of declining retail load obligations causing off-system sales to increase. The avoided energy and capacity costs are market based, so as the retail sales decrease the net fuel costs decrease and the benefits flow back to customers through the FAC. Customers save the retail fuel rate in real-time and then receive the off-system sales margin (i.e. the difference between the off-system sales price and the retail fuel rate) through the FAC. Through this framework, customers ultimately observe benefits equal to the full value of the market prices. It is important to note that these reductions in usage caused by energy efficiency between rate cases are a source of variation in the fuel costs and therefore are subject to the FAC sharing. Under its current FAC design, the Company retains 5% of the off-system sales margin. As the income statement shows, this effect has been included to offset the negative financial effects of energy efficiency on the Company. Table 2.2 only extends six years but the benefits continue throughout the life of the energy efficiency measures. Finally, similar to the effects of an expense tracker, the cash flow timing of FAC true-ups do not affect utility earnings (except for the mismatch in financial carrying costs not illustrated in this analysis).

The core of the income statement analysis is in observing the effects of the reduction in non-fuel retail revenues (which is highlighted in pink). Notice that the negative financial effects of energy efficiency are present several years beyond the three-year implementation period. As mentioned earlier, this is because of the significant regulatory lag associated with incorporating energy efficiency into rates. In fact, this particular effect is the quantification of the throughput disincentive. The income statement shows that these reductions in non-fuel retail revenue flow directly to net income and thus represent a significant reduction in utility earnings (highlighted in blue). The present value of the negative net income impact is $56 million or $64.7 million nominal dollars. Before taxes, the Company will collect $105 million dollars less than it would without energy efficiency. As mentioned earlier, these losses are permanent and are a severe economic disincentive to engage in energy efficiency efforts. Without addressing these losses, the requirements of the MEEIA law to align financial interests of the utility and customers cannot be achieved.

Sharing a portion of net benefits to cover the aforementioned decline in net income only removes the disincentive associated with energy efficiency. But without some way to match the earnings potential of supply-side projects, the utility will continue to favor investments in energy infrastructure projects. In Ameren Missouri's 2011 IRP the preferred resource plan called for the construction of a combined cycle plant to be completed in 2029. Therefore, if Ameren Missouri engaged in energy efficiency it would forfeit the potential equity earnings associated with that construction investment. In order for energy efficiency investments to be on an equivalent economic footing, the earnings opportunities must be equivalent. Ameren Missouri estimates that a long-term annual incentive of $10 million would provide a present value of earnings equal to that of constructing a combined cycle plant in 2029. It is also important to note that the current commensurate return is being compared to a combined cycle plant. Over time, as long-term plans evolve, the comparable supply-side resource may change based on updated views on long-term uncertainties. For example, changes in regulatory and/or legislative policies may make nuclear or renewables the new benchmark resource.

Even with the $10 million incentive level identified, it is appropriate and useful to prescribe the incentive earnings potential into a performance band. This performance band enhances the economic signal further to maximize customer net benefits. Figure 2.5 depicts the performance band proposed by Ameren Missouri. Notice that if the utility achieves 100 percent of its performance targets then it will achieve the annual $10 million incentive. It is apparent that as the performance targets are exceeded then the earnings potential is increased and conversely the earning potential decreases with under-performance. The proposal includes a cap at 130% and a floor of zero incentive at 70%.

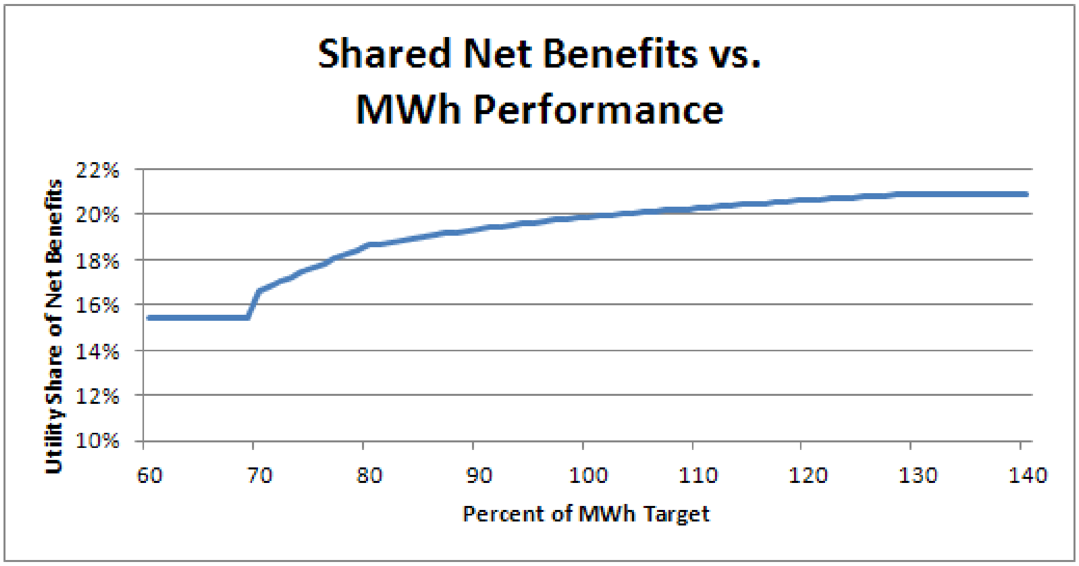
Figure 2.5 Performance Incentive



The overall Performance Mechanism must both offset the financial disincentive and provide equivalent earning opportunities to supply-side alternatives. In doing so, this combination must be translated into a portion of net benefits. The present value of the negative net income impact is $56 million, which represents the financial throughput disincentive associated with implementing energy efficiency. The present value of three years of $10 million annual incentive results in an after-tax net income effect of $17 million.

Still, the Performance Mechanism needs to be expressed in terms of a share of net benefits. The sum of the net income impacts of both the incentive and throughput disincentive is $73 million. Dividing this amount by the net benefit, $364 million, results in a target sharing percentage of 20.2% at the 100% performance level. Translating the sliding performance incentive into a sharing percentage incorporates the fact that the net benefits are higher or lower at different performance levels and it assumes those are reached at the same cost per MWh saved as the initial plan. Figure 2.6 shows the final Performance Mechanism sharing scale.

Figure 2.6 Performance Mechanism



Notice that in Figure 2.6 the minimum sharing percent is 15.4%, which holds true for performance levels from zero through 70 percent. This minimum sharing percentage provides adequate fixed cost recovery, but any performance below 70 percent would yield no earnings opportunity. Again, this design is consistent with the goal to first remove the economic disincentive and then provide an economic incentive to generate additional customer benefits.

To limit the initial rate impact of the proposed plan, Ameren Missouri is proposing that only 15.4% of the 20.2% be included in rates in the Company's upcoming rate case. Doing so allows the Company to be made whole for immediate financial penalties that would otherwise be incurred. Once the three year performance goals are met in 2015, the Company will request the remaining sharing based on performance (additional sharing of 4.8% at the target level) be included in rate base and amortized over three years. The combination of calculating the final sharing amounts in 2015 dollars and including the amount in rate base effectively accounts for the time value of money for the delayed recovery.

The initial income statement analysis in Table 2.2 did not include the effects of the Performance Mechanism (the sharing of net benefits.) Table 2.3 shows the earnings impact of the proposed mechanism and demonstrates the net effect is that, on a present value basis, the throughput disincentive is effectively mitigated and the incentive yields the expected earnings opportunity. It is also important to understand that the cash collection of the 4.8% sharing will be delayed but the earnings can be recognized once the performance targets have been achieved. Section 2.5 of this report discusses how the revenue requirement is determined.

Table 2.3 Income Statement Analysis of Energy Efficiency ($MM)

	Present Value	2013	2014	2015	2016	2017	2018
Program Cost Recovery	**$134**	$35.2	$46.0	$64.1	$0.0	$0.0	$0.0
Retail Non-Fuel Rev.	**($94)**	($8.2)	($22.4)	($39.0)	($25.7)	($11.7)	($1.5)
Perf. Mechanism	**$118**	$32	$32	$32	$32	$0	$0
Retail Fuel Rev.	**($22)**	($1.8)	($5.0)	($8.9)	($5.9)	($3.0)	($0.3)
FAC Sharing Rev.	**$3**	$0.2	$0.6	$1.2	$0.9	$0.5	$0.1
Total Retail Revenues	**$139**	$57.9	$51.7	$49.9	$1.4	($14.2)	($1.7)
Off-System Sales Rev.	**$180**	$5.7	$18.3	$35.6	$48.9	$55.0	$61.0
Total Revenues	**$318**	$63.6	$70.0	$85.5	$50.3	$40.8	$59.3
Net Fuel Cost	**($158)**	($3.9)	($13.3)	($26.7)	($43.0)	($52.0)	($60.7)
Program Expenses	**$134**	$35.2	$46.0	$64.1	$0.0	$0.0	$0.0
Income Taxes	**$10**	$9.4	$4.1	($2.0)	$2.8	($4.3)	($0.5)
Net Income (Earnings)	**$17**	$15.1	$6.6	($3.3)	$4.5	($6.9)	($0.9)

Table 2.3 shows the same negative impact to retail non-fuel revenue as Table 2.2 (highlighted in pink). The Performance Mechanism (highlighted in green) shows the initial recovery of the 15.4% for the first three years and then includes the full amount of the remaining 4.8% in the fourth year. For the income statement, the deferred 4.8% sharing amount is assumed to be credited to the utility in early 2016 after the results are available to determine the level of performance achieved. Although the cash has not been collected from customers yet, the earnings are able to be recorded because accounting entries on the balance sheet account for the variances associated with the final award of the incentive and the deferred three year recovery period. Finally, the net income effects (highlighted in blue) demonstrate the proposal achieves the desired result which is the complete offset of the throughput disincentive and the targeted positive earnings opportunity of $17 million present value.

While the income statement analysis demonstrates one perspective, another perspective is the impact to key utility credit metrics. Two key metrics are the Funds From Operations (FFO)-to-Debt and the FFO-to-Interest. At year-end 2010 the FFO/Debt percentage was 23.7% and the FFO/Interest ratio was 5.0. Table 2.4 shows the impact of the proposed energy efficiency plan to these key credit metrics with and without the proposed Performance Mechanism. Notice the case without the Performance Mechanism shows downward pressure on the key metrics, which reflects the reduction in non-fuel retail revenues (i.e. the throughput disincentive) and related cash flows.

Table 2.4 Change in Key Credit Metrics (Absolute Change in Metric)

	2013	2014	2015	2016	2017	2018
With Performance Mechanism						
FFO/Debt	0.6%	0.2%	(0.4%)	(0.2%)	0.0%	0.2%
FFO/Interest	0.02	0.01	(0.01)	(0.01)	0.00	0.01
Without Performance Mechanism						
FFO/Debt	0.2%	(0.2%)	(0.9%)	(0.4%)	(0.2%)	(0.0%)
FFO/Interest	0.01	(0.01)	(0.03)	(0.01)	(0.01)	(0.00)

Overall the Performance Mechanism is designed to neutralize changes in business risk associated with the implementation of the proposed energy efficiency plan.

Residential Customer Charge

As mentioned previously, Ameren Missouri is requesting an increase in its residential monthly customer charge from $8 to $12. The increase is supported by recent Class Cost of Service Studies (CCOSS) conducted by the Company and reduces the utility's sensitivity to the negative effects of energy efficiency. In case ER-2011-0028, the CCOS supported an $18 per month charge and it is expected the CCOSS to be included in the upcoming rate case filing will support a customer charge of at least that much. Moving to $12 is a reasonable step towards a cost-based customer charge while also limiting the impact of the change to customers.

The throughput disincentive decreases as the customer charge increases since less fixed costs would be collected through volumetric rates. By increasing the customer charge to $12/month, the throughput disincentive is reduced by $4 million. The proposed sharing of net benefits is predicated on the approval of this customer charge increase. In the event the requested increase is rejected, the portion of shared net benefits will need to be increased by 0.6%.

2.5 Customer Impacts

The UCT measures the revenue requirement impact to customers. For the proposed plan, the present value of the program costs is $134M while the lifetime benefits are $499M, resulting in a present value revenue requirement decrease of $364M. As was explained earlier in this report, there are no reductions in fixed costs between rate cases as a result of energy efficiency. However, because of regulatory lag and recovery of fixed costs through volumetric rates, customers realize savings between rate cases that are not associated with cost reductions. Allowing fixed cost rate recovery to the utility does not impact the true benefits associated with energy efficiency. Those true benefits associated with energy efficiency primarily represent reductions to the variable costs of the revenue requirement.

The revenue requirements analysis below only considers the costs associated with program cost recovery and the performance mechanism. It should be noted that the initial rate impacts will eventually be eclipsed by the long-term energy efficiency benefits that are included in the normal ratemaking process and flow through the FAC. Since those impacts are reflected in customer bills with or without a rate case, the positive offsetting effects are not enumerated below and will be observed by customers with no changes necessary to the ratemaking process.

The UCT measures the impacts to revenue requirements. Ameren Missouri also measured the impact to the Present Value of Revenue Requirements (PVRR) using its resource planning MIDAS model. The PVRR with the proposed three-year plan would be $358 million lower than a plan without it. Again, PVRR and the UCT are based on the same costs and benefits; so, observing a difference of less than 2% ($358M-MIDAS vs. $364M-DSMore) from different models provides reasonable assurance that the results are accurate.

Revenue Requirements

Tables 2.5, 2.6, and 2.7 below show the revenue requirement request associated with the proposed energy efficiency plan. Table 2.5 shows the program costs, Table 2.6 shows the Performance Mechanism, and Table 2.7 shows the total. Test year kWh (for purposes of this filing, the 12 months ending September 2011) that were used to develop the rates below include a reduction in kWh that reflects an estimate of customer opt-out impacts. This is to provide more accurate collections, as the inclusion of such opt-out customers would result in under-collection since opt-out customers are exempt from paying for the costs of energy efficiency programs.

Ameren Missouri's energy efficiency programs are administered as either Residential or Business. This means the revenue requirement for Business programs must be allocated to the appropriate rate classes. Weather normalized rate class energy, measured by kWh and adjusted for customer opt-out, is the most appropriate allocator for program costs because all customers in each class are eligible to participate in the programs.

Table 2.5 Program Cost Revenue Requirements

Rate Class	Revenue Req. ($MM)	Allocation (Class Energy)	Allocated Revenue Req.	Summer $/kWh	Winter $/kWh
RES	$27.65	100%	$27.6	$0.0027	$0.0017
SGS	$20.78	19.8%	$4.1	$0.0015	$0.0010
LGS		46.0%	$9.6	$0.0016	$0.0009
SPS		19.5%	$4.0	$0.0016	$0.0010
LPS		14.7%	$3.1	$0.0015	$0.0010
LTS	*$0*	*100%*	*$0*	*$0.0000*	*$0.0000*
Lighting	*$0*	*100%*	*$0*	*$0.0000*	*$0.0000*

The Performance Mechanism is applied against the total net benefits. Therefore, it is first necessary to allocate the total between Residential and Business. That initial allocation is based on the cumulative kWh reductions projected for the three-year plan with the residential share at 63.7% and the business at 36.3%. Once the initial allocation is applied, the Business portion must again be allocated to the individual rate classes. It is appropriate to estimate this allocation based on the annualized test year energy reductions by rate class associated with historical utility energy efficiency programs. Using this approach better apportions the fixed cost recovery back to the classes that are causing the under-recovery.

As the sharing percentage is applied, 20.2% at 100% of the performance target, the result is an after-tax present value amount. This amount must then be grossed-up for taxes at the same rate used in the analysis to determine the pre-tax amount, 38.39% in this case. Again, that is still a present value number that is to be collected over three years. Dividing by three at this stage would be inappropriate because the sharing percentage was determined based on the analysis of the performance incentive necessary and the mitigation of the throughput disincentive. The calculation of a three-year annuity from the before-tax shared portion of net benefits is appropriate because it provides a present value based off three years that is equal to the present value based on the analysis of both the throughput disincentive and performance incentive. In fact, this method also compensates for the time value of money so the nominal revenue requirement will be lower than the analysis of nominal net income. Table 2.6 shows the calculation of the 15.4% sharing revenue requirement while Table 2.7 shows the resulting revenue requirement and class allocations.

Table 2.6 Revenue Requirement Calculation (Million Dollars)

Net Benefit (PV)	$364	
Initial Sharing Percent	15.4%	
Initial Sharing Amount (PV)	$56	
Initial Allocation	**RES**	**BUS**
	63.7%	36.3%
After-Tax Rev. Req. (PV)	$36	$20
Marginal Income Tax Rate (Federal and State)	38.39%	38.39%
Before-Tax Rev. Req. (PV)	$58	$33
Revenue Requirement (3-Year Annuity)	**$20.70**	**11.78**

*PV – Present Value

Table 2.7 Performance Mechanism Revenue Requirements

Rate Class	Revenue Req. ($MM)	Allocation (Energy Reductions)	Allocated Revenue Req.	Summer $/kWh	Winter $/kWh
RES	$20.70	100%	$20.7	$0.0020	$0.0013
SGS	$11.78	8.9%	$1.0	$0.0004	$0.0003
LGS		46.2%	$5.4	$0.0009	$0.0005
SPS		24.5%	$2.9	$0.0011	$0.0007
LPS		20.5%	$2.4	$0.0012	$0.0008
LTS	*$0*	*100%*	*$0*	*$0.0000*	*$0.0000*
Lighting	*$0*	*100%*	*$0*	*$0.0000*	*$0.0000*

It is useful to understand the total revenue requirement including both program costs and the performance mechanism. Table 2.8 shows the total revenue requirement impact. It is important to note that the rate estimated below will be subject to the final billing units in Ameren Missouri's upcoming rate case. Also, the rate below will not be the final rate included on customer bills. The total energy efficiency rate on customer bills will include the amounts estimated below and the amounts from prior rate cases still being recovered, as seen in Table 2.9. The prior period rates in Table 2.9 are the current energy efficiency rates and will be subject to the updated revenue requirement in the upcoming rate case.

Table 2.8 Total Revenue Requirements

Rate Class	Revenue Req. ($MM)	Allocation	Allocated Revenue Req.	Summer $/kWh	Winter $/kWh
RES	$48.35	100%	$48.4	$0.0047	$0.0030
SGS	$32.56	15.84%	$5.2	$0.0018	$0.0013
LGS		46.07%	$15.0	$0.0025	$0.0015
SPS		21.27%	$6.9	$0.0027	$0.0016
LPS		16.82%	$5.5	$0.0027	$0.0018
LTS	*$0*	*100%*	*$0*	*$0.0000*	*$0.0000*
Lighting	*$0*	*100%*	*$0*	*$0.0000*	*$0.0000*

Table 2.9 Energy Efficiency Rates

	Prior Periods		Total EE Rate	
Rate Class	Summer $/kWh	Winter $/kWh	Summer $/kWh	Winter $/kWh
Residential	$0.0007	$0.0004	$0.0054	$0.0034
SGS	$0.0002	$0.0001	$0.0020	$0.0014
LGS	$0.0005	$0.0003	$0.0030	$0.0018
SPS	$0.0006	$0.0003	$0.0033	$0.0019
LPS	$0.0001	$0.0001	$0.0028	$0.0019
LTS	*$0.0000*	*$0.0000*	*$0.0000*	*$0.0000*
Lighting	*$0.0000*	*$0.0000*	*$0.0000*	*$0.0000*

Average Bill Impacts

The purpose of energy efficiency is to lower long-term costs. Therefore the revenue requirements in the previous section only provide a snap-shot of the immediate cost to customers. However, the long-term benefits are ongoing and eventually outweigh the initial costs, which is what the cost-effectiveness tests conclude. Figure 2.7 shows ten years of customer impacts associated with the proposed plan, although the benefits continue past ten years. Notice that the program costs and minimum sharing award (15.4%) is collected during the first three years. The incentive portion of the sharing (4.8%) is collected over 2016-2018 and the revenue requirement decreases as the regulatory asset is amortized. Also notice that as the energy efficiency energy reductions are included in rates, the fixed cost "savings" between rate cases (i.e. the throughput disincentive depicted by the light grey bars in Figure 2.7) eventually end. Figure 2.7 yields two important observations: 1) there are substantial ongoing benefits without any ongoing costs and 2) the present value benefits exceed the present value costs by year six. The red line in Figure 2.7 is the cumulative net cost of the proposal and when it drops below zero it means the cumulative benefits have exceeded the cumulative costs. These are important observations because they represent the value proposition of energy efficiency to customers. Again, this further illustrates that the long-term benefits of energy efficiency can be achieved while fully aligning financial incentives. In fact, only the additional utility incentive (4.8% sharing) above and beyond the fixed cost recovery portion impacts the long-term benefits. The impact of the utility incentive on the economics of energy efficiency is small, as can be observed by the light blue bars in years 2016 through 2018.

Figure 2.7 Customer Costs

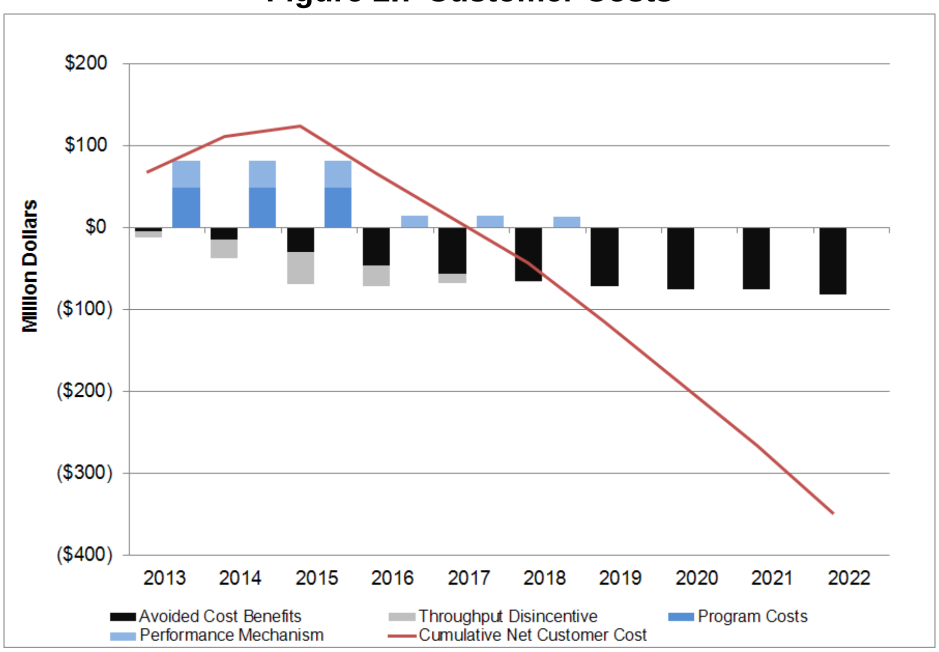


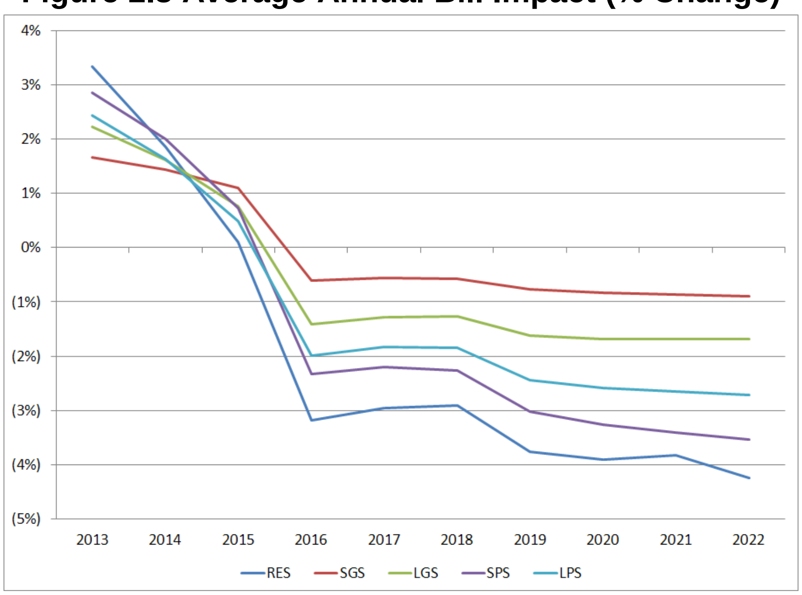
Table 2.10 is a tabular view of Figure 2.7 and also shows the significant ongoing benefits beyond year ten. In addition, Table 2.10 demonstrates that customers retain $331 million of net benefits (91% of $364 million net benefits) after including the effects of Ameren Missouri's DSIM proposal.

Table 2.10 Total Customer Cost ($MM)

	Lifetime Present Value	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Ongoing (Present Value)
Program Cost Recovery	**$136**	$48.4	$48.4	$48.4	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	**$0**
Performance Mechanism	**$122**	$32	$32	$32	$14.5	$13.5	$12.6	$0.0	$0.0	$0.0	$0.0	**$0**
Retail Non-Fuel Revenues	**($94)**	($8.2)	($22.4)	($39.0)	($25.7)	($11.7)	($1.5)	$0.0	$0.0	$0.0	$0.0	**$0**
FAC Sharing	**$3**	$0.2	$0.6	$1.2	$0.9	$0.5	$0.1	$0.0	$0.0	$0.0	$0.0	**$0**
Net Fuel Savings	**($461)**	($3.9)	($13.3)	($26.7)	($43.0)	($52.0)	($60.7)	($66.6)	($70.8)	($71.6)	($78.3)	**($130)**
Avoided T&D	**($37)**	($1.0)	($2.4)	($4.6)	($4.7)	($4.8)	($4.9)	($4.9)	($4.6)	($4.3)	($4.2)	**($8)**
Net Customer Cost	**($331)**	$68.0	$43.4	$11.8	($57.9)	($54.4)	($54.4)	($71.4)	($75.5)	($75.9)	($82.4)	**($138)**

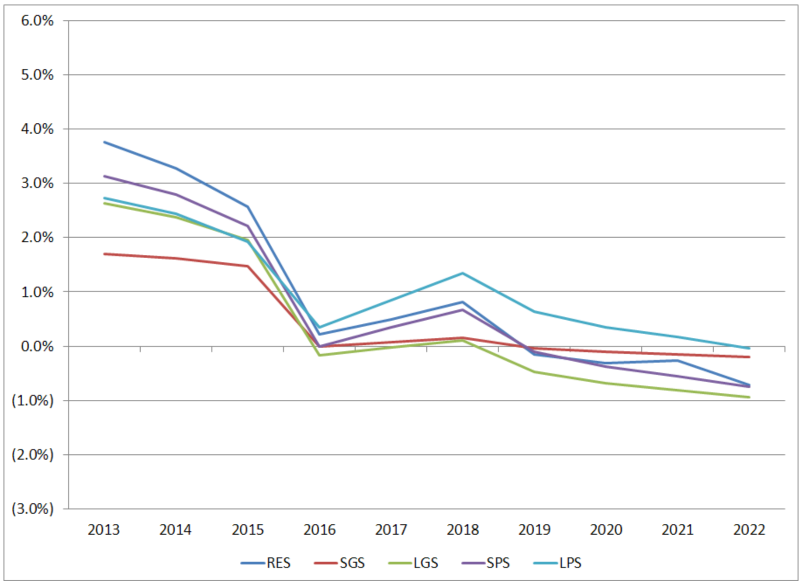
Figure 2.8 shows the average annual bill impacts to each rate class based on the net customer costs. Notice that the energy efficiency benefits quickly create ongoing bill reductions after the initial bill increase.

Figure 2.8 Average Annual Bill Impact (% Change)



The distinction between bill impact and rate impact is important. As seen in Figure 2.8, energy efficiency reduces average customer bills over time. Customer rates (cost per kWh) change based not only on the total revenue requirement but also based on a reduced level of sales. Since sales are lower, rates must increase to recover fixed costs over fewer kWh. Figure 2.9 shows the initial rate increases associated with the program costs and sharing of net benefits. There is continued upward pressure on rates as the lower sales are reflected in rate cases but over the long-term the avoided cost benefits drive down the rate impacts.

Figure 2.9 Average Annual Rate Impact (% Change)



Customer Opt-Out

As mentioned earlier, the energy efficiency rates are based on the current list of customers who have exercised the opt-out clause in MEEIA. Table 2.11 includes the list of customers who have opt-out and the kWh in each rate class for each customer. So far, 7.4% of the total business sales, excluding LTS, have decided to not participate in Ameren Missouri's energy efficiency programs. The estimates of customer opt-out are based on actual usage for the test period. The table below excludes the LTS class, who has also decided to not participate in Ameren Missouri's programs.

Table 2.11 Customer Opt-Out List (MWh) – Highly Confidential

Customer Name	SGS	LGS	SPS	LPS	Total
** [redacted] **	1,982	15,446	28,498	185,308	**231,234**
** [redacted] **	-	-	-	54,712	**54,712**
** [redacted] **	443	3,712	79,036	197,874	**281,065**
** [redacted] **	784	822	57,091	365,929	**424,626**
** [redacted] **	42	-	28,444	-	**28,485**
** [redacted] **	-	212	-	111,283	**111,495**
** [redacted] **	-	-	-	84,921	**84,921**
** [redacted] **	-	-	-	26,043	**26,043**
** [redacted] **	11	293	-	42,617	**42,921**
** [redacted] **	67	1,226	-	147,559	**148,852**
Total	**3,328**	**21,712**	**193,068**	**1,216,245**	**1,434,353**

2.6 Implementation

As noted earlier, Ameren Missouri is requesting the program expense tracker and a portion of the Performance Mechanism be included in base rates in its upcoming rate case. While the implementation of the program expense tracker is straightforward, the mechanics of sharing net benefits need to be precisely defined. Table 2.12 shows the items associated with estimating net benefits and whether those items will be updated for purposes of assessing performance and benefits as part of the implementation process. Notice that several items will not be updated, so the focus remains on the cost of the programs and the number of measures implemented. The TRM provides significant value in simplifying this process as several important inputs are deemed.

Table 2.12 Description of Update Process

Category	Update?	Description
Avoided Costs	✗	The avoided energy, capacity, and T&D values are deemed
Measure Attributes	✗	The TRM provides the deemed values or protocols for all measures
DSMore Software	✗	XLS Version 5.0.14, GCG Version 5.0.23
Number of Measures	✓	The number of measures will be measured as part of the evaluation process
Program Admin. Costs	✓	The direct program costs will be tracked
Measure Rebate Costs	✓	Measure rebates are included in the direct program costs
Net-to-Gross Factors	✗	The TRM provides the deemed values
Customer Opt-Out	✓	The final performance goals shall be adjusted based on final opt-out estimates
Discount Rate	✗	The discount rate shall remain 6.95%

Ameren Missouri will track and report its progress against the three-year cumulative goal of 793,100 MWh of energy saved at the meter (excluding line losses). It is

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important to judge the performance on the results of the three year plan rather than on any one particular year of the plan, and true-up of the sharing will happen at the culmination of the three year plan. It is also important to understand that as large customers decide to opt-out of the utility's programs, the energy efficiency potential decreases and conversely if customers revoke their opt-out then the energy efficiency potential increases. The proposed goals assume an opt-out rate of 20%. Therefore, when the final performance is judged, the MWh target shall be increased or decreased according to how the opt-out magnitude actually compared to the planning estimate. For example, since Global Energy Partners, LLC's (GEP) original RAP was estimated without considering customer opt-out, their original business RAP savings estimates were reduced by 20% in this filing as discussed in Chapter 3. Since the potential is assumed to move proportionally to the level of customer sales, the potential is reduced by the same percent as the proportion of opt-out customers. Therefore if opt-out is only 10% at the end of the three year plan then the business performance targets will be increased to 90% of the original GEP RAP estimates for business programs. Conversely, if opt-out increases to 30% by the end of the three year plan then the business performance targets will be reduced to 70% of the original GEP RAP estimates. The estimates will also be updated based on the test period of 12 months ending September, 2011.

Once the three year plan implementation is complete, Ameren Missouri will update its DSMore model with the evaluated number of measures implemented and the final program costs. With that updated analysis the final value for net benefits will be calculated and the sharing percentage applied. As mentioned earlier, the sharing percentage is based on performance against the three year MWh savings goal, adjusted for opt-out. Figure 2.6 shows the sharing percentages that are applicable at the different performance levels. Finally the calculation of shared net benefits shall be converted to the revenue requirement in the same fashion as described above. Any differences in the nominal revenue requirement from this calculation compared to the amount already collected in rates shall be refunded or collected over a period of twelve months.

From an accounting standpoint, the program expenses will be booked to FERC account 923. The tracked amounts will be booked to either a regulatory asset (account 482) or regulatory liability (account 254).

Ameren Missouri Expert/Witness: William Davis

3. Program Analysis

3.1 Plan Summary

Ameren Missouri serves approximately 1.2 million electric customers in 59 counties and 508 towns across central and eastern Missouri, with a territory that spans 34% of the state (24,000 square miles). A breakdown of Ameren Missouri's electric customers is shown in Table 3.1.

Table 3.1 Ameren Missouri – 2010 Electric Customer Details

Customer Type	Rate Class	Energy (MWh)	Demand (MW)	# of Customers
Residential	1M RES	14,584,085	3,802	1,035,425
Small General Service	2M SGS	3,670,173	785	142,899
Large General Service	3M LGS	8,383,701	1,526	9,971
Small Primary Service	4M SPS	3,707,765	594	648
Large Primary Service	11M LPS	3,906,560	544	72
Other	5M,6M,12M	4,258,565	466	
TOTAL		**38,510,850**	**7,717**	**1,189,014**

Note: Energy and demand is based on actual historical data for energy delivered and demand supplied at the meter.

Ameren Missouri's DSM implementation plan for the 2013-2015 MEEIA planning period is generally consistent with the RAP plan that Ameren Missouri filed in its February 2011 IRP with the Commission with the following exceptions:

- Cost-effectiveness of DSM measures and programs were updated to reflect revised avoided energy and capacity costs attributable, in large part, to lower natural gas prices
  - Avoided capacity benefits also have been adjusted by 17% to reflect the fact that reduced load attributable to energy efficiency initiatives results in the need to carry lower planning reserve margins.
- Energy efficiency measure values were updated to reflect most recent EMV results
- Business motors were removed as a measure due to new federal motor efficiency standards
- Business lighting technology baseline was revised from T12 to T8 lights and fixtures due to new federal lighting efficiency standards
- The discount rate used in the analysis changed from 7.67% to 6.95%.

The MEEIA rules set annual energy and demand load reduction goals or guidelines specified in the MEEIA rules that are not mandatory. Consequently, there is no penalty or adverse consequence to a utility that is unable to achieve the annual energy and demand savings goals specified in the rule. Table 3.2 summarizes the guidelines for the 2013-2015 implementation plan period.

Table 3.2 Incremental Annual Demand-Side Savings Goals

	2013	2014	2015
Energy Efficiency: % of energy delivered	0.3%	0.5%	0.7%
Peak Demand: % reduction of prior year peak demand	1.0%	1.0%	1.0%

Note: Ameren Missouri considers 2012 as a MEEIA first docket filing year. Consequently, for purposes of comparing its proposed annual RAP load reduction estimates for 2013-2015 to MEEIA rulemaking annual goals, Ameren Missouri considers the MEEIA 2012 goal of 0.3% of total annual energy and 1.0% of annual peak demand to actually begin in 2013. Subsequent MEEIA annual load reduction goals would also be pushed back one year.

The implementation plan covers a three year period beginning January 1, 2013 extending through December 31, 2015. Table 3.3 summarizes Ameren Missouri's proposed energy savings, peak demand load reductions, and costs for the 2013-2015 implementation planning period.

Table 3.3 Estimated Incremental Savings and Costs

	2013	2014	2015
Energy Delivery (MWH)	37,476,879	37,844,450	38,146,206
Energy Efficiency Savings (MWH)	240,397	255,445	297,260
System Peak (MW)	7,533	7,591	7,640
Peak Demand Reductions (MW)	39	54	77
Total Budget	$35,239,613	$45,965,915	$64,087,685
% MWH reduction (from energy delivery)	0.6%	0. 7%	0.8%
% MW reduction (from system peak)	0.5%	0.7%	1.0%

Note: The projected energy delivery, energy savings, system peak, and demand reductions are based on values at the meter.

Ameren Missouri's implementation plan is designed to meet or exceed the Commission's guidelines for energy reductions over the 2013-2015 implementation period. To do so, Ameren Missouri proposes a broad portfolio of cost effective electric energy efficiency measures available to all customer segments. The sections that follow describe the basis for Ameren Missouri's MEEIA implementation plan as well as the portfolio flexibility that is essential to meeting goals on schedule and within budget.

Portfolio of Programs

Ameren Missouri will implement the energy efficiency programs in Table 3.4 to cover its broad market segments. Further detail about each program can be found in Appendix B – Program Templates.

Table 3.4 Portfolio of Programs

Residential – Lighting	Incentives are provided to the retail partners to increase sales of qualified lighting whereby the end-user receives a discount on the price of ENERGY STAR qualified or other high efficiency lighting products.
Residential – Energy Efficient Products	Measures such as ENERGY STAR high-efficiency water heaters, window ACs, smart strips, and pool pumps will be promoted through rebates and incentives.
Residential – HVAC	HVAC diagnostics/tune-up, retrofit, and replacement upgrades for air conditioners, heat pumps, and cooling systems, achieving electric energy savings.
Residential - Refrigerator Recycling	An incentive is provided to a customer for removing an inefficient refrigerator or freezer whereby a turnkey appliance recycling company verifies customer eligibility, schedules pick-up appointments, picks up, recycles and disposes units, and performs incentive processing.
Residential - Home Energy Performance (HEP)	Home Energy Performance (HEP) includes energy assessment, direct install measures and cost effective follow up measures, achieving electric energy savings.
Residential - ENERGY STAR New Homes	Targets builders and energy raters with incentives for construction of ENERGY STAR homes, achieving electric energy savings.
Residential – Low Income	Delivers energy savings to low income qualified customers through direct install measures and energy efficient appliances.
Business – Standard Incentive	Incents customers to purchase energy efficient measures with predetermined savings values and fixed incentive levels.
Business – Custom Incentive	Applies to energy efficient measures that do not fall into the Standard Incentive program. These projects are sometimes complex and unique, requiring separate incentive applications and calculations of estimated energy savings to achieve electric energy savings.
Business - Retro-Commissioning	This program has a special focus on complex control systems and provides options and incentives for businesses to improve operations and maintenance practices.
Business - New Construction	Provides incentives to overcome cost barriers to incorporating energy efficient building design and construction, achieving electric energy savings.

Portfolio Cost-effectiveness

The MEEIA filing's program details are listed in the following tables. Table 3.5 summarizes the cost-effectiveness of the portfolio. The cost-effectiveness tests below do not incorporate any demand response and are specific to energy efficiency only.

Table 3.5 Portfolio Cost-Effectiveness Tests

MEEIA Implementation Plan 2013-2015	Utility Test	TRC Test	RIM Test	RIM Test (Net Fuel)	Societal Test	PCT
TOTAL PORTFOLIO	**3.71**	**2.07**	**0.72**	**0.83**	**2.46**	**3.86**

Note: Data in table reflects cost-based values calculated using DSMore

The primary metric to review is the TRC, which compares the "avoided energy" benefits of the portfolio to the costs of implementing the portfolio, on a system wide basis. To get a better idea of the dollars associated with these tests, Table 3.6 summarizes the benefits and costs associated with each test.

Table 3.6 Portfolio Cost -Effectiveness Summary

Cost Test	NPV of Benefits	NPV of Costs
TRC	$ 498,542,037	$ 240,658,032
UCT	$ 498,542,037	$ 134,247,848
PCT	$ 627,508,298	$ 162,765,922
RIM	$ 498,542,037	$ 690,612,203

Note: Data in table reflects cost-based values calculated using DSMore.

Each cost test is further defined in Section 3.6: Cost-Effectiveness Defined, but looking specifically at the TRC, the benefits of the program total nearly $499 million over the lifetime of the program (extending beyond three years as most measures in the portfolio have effective useful lives exceeding 3 years). This figure is almost twice what the program will cost over the lifetime of the programs, a good indication of the value customers receive through implementing this portfolio.

Table 3.7 summarizes each proposed program's estimated cost-effectiveness tests.

Table 3.7 Cost-Effectiveness Test Summary

MEEIA Implementation Plan 2013-2015	TRC	UCT	PCT	RIM
RES-Lighting	3.66	6.01	10.18	0.56
RES-Efficient Products	1.55	3.90	2.85	0.62
RES-HVAC	2.11	4.61	2.63	0.94
RES-Refrigerator Recycling	2.23	2. 93	11.67	0.63
RES-HEP	1.64	3.00	3.11	0.68
RES-New Homes	1.26	1.77	3.61	0.57
RES-Low Income	0.84	0.84	2.85	0.43
RES-TOTAL	**2.24**	**4.00**	**4.52**	**0.68**
BUS-Standard	2.14	3.15	4.10	0.75
BUS-Custom	1.77	3.55	2.62	0.82
BUS-RCx	1.70	3.77	2.51	0.79
BUS-New Construction	1.36	2.22	2.42	0.71
BUS-TOTAL	**1.85**	**3.33**	**2.98**	**0.79**
PORTFOLIO TOTAL	**2.07**	**3.71**	**3.86**	**0.72**

Note: Data in table reflects cost-based values calculated using DSMore.

Table 3.7 indicates that a few programs are quite cost effective, whereas other programs have lower test results. Those programs with TRC scores nearing the threshold of 1.00 could require more administrative costs to implement, larger incentives, or contain more expensive measures. An example is the Low Income program where many of the measures are directly installed at the customer's premise at no charge, so the program costs include the entire cost of the measure as well as the additional implementation cost of the installation. These factors contributed to a low TRC score, which is typical of many Low Income programs across the United States. The Business Standard incentive program, on the other hand, has a higher TRC due, in part, to its simpler administrative process that requires less administrative rigor and offers fixed incentives for measure readily available in the marketplace.

3.2 All Cost Effective Energy Efficiency

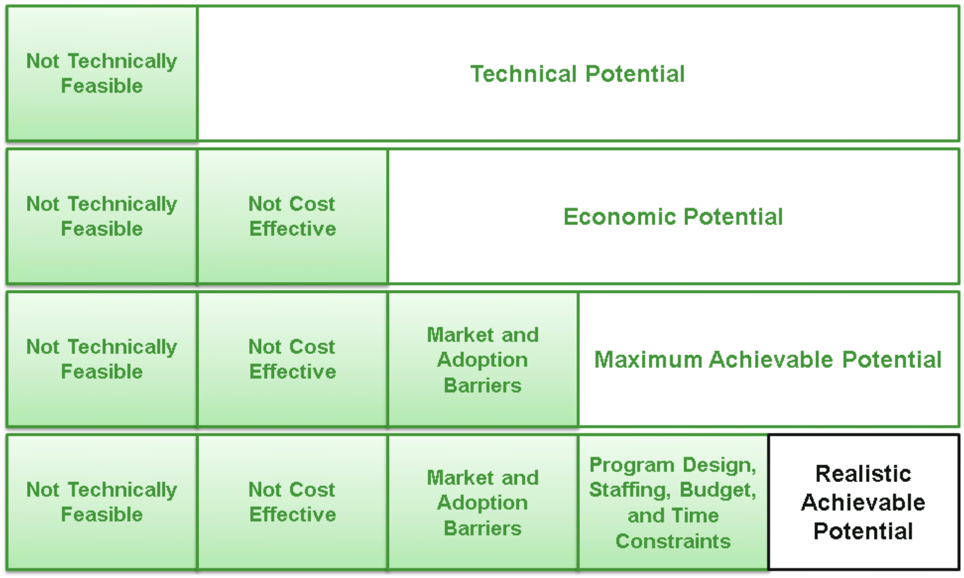
The Commission approved rules to implement MEEIA and further clarified the meaning of the term "goal." The MEEIA rules state that annual energy and demand load reduction goals or guidelines specified in the rules are not mandatory. Consequently, there is no penalty or adverse consequence to a utility that is unable to achieve the annual energy and demand savings goals specified in the rule.

The term "all cost-effective" is not defined either in MEEIA or the Commission's rules covering the implementation of MEEIA so the purpose of this section is to explain how Ameren Missouri defines and quantifies "all cost-effective" energy efficiency for its 2013-2015 MEEIA filing.

Definitions

Ameren Missouri employed an external, independent third party to conduct a DSM Potential study to serve as the basis for estimating energy efficiency potential for its 2011 Integrated Resource Plan filing. Ameren Missouri engaged a team led by GEP to perform the study to assess the various categories of electric energy efficiency and demand response potential in the residential, commercial, and industrial sectors of the Ameren Missouri service area for 2009 to 2030. Figure 3.1 illustrates the different levels of potential.

Figure 3.1 Levels of Potential Estimates



The following are definitions of the basic types of potential identified by GEP:

Technical potential is a theoretical construct that assumes all feasible measures are adopted by customers, regardless of cost or customer preferences.

Economic potential is also a theoretical construct that assumes all ***cost-effective*** measures are adopted by customers, regardless of customer preferences.

Maximum achievable potential (MAP) takes into account expected program participation, based on customer preferences resulting from ideal implementation conditions. MAP establishes a maximum target for the energy efficiency and demand response savings that a utility can hope to achieve through its energy efficiency and demand response programs and involves incentives that represent a substantial portion of the incremental cost combined with high administrative and marketing costs. It is commonly-accepted in the industry that MAP is considered the hypothetical upper-boundary of achievable savings potential simply because it presumes conditions that are ideal and not typically observed in real-world experience. “Ideal implementation conditions” that are prerequisites to attempt to achieve MAP type annual load reductions include:

A regulatory framework that:

- Removes utility disincentives to implement energy efficiency programs.
- Encourages utilities to voluntarily undertake energy efficiency programs.
- Ensures appropriate returns on energy efficiency programs.
- Provide sufficient certainty of cost recovery.

- Government – Executive, Legislative and Regulatory alignment on state energy efficiency policies.
- Complementary policies by state and local government to utility programs such as appliance efficiency standards, building codes, and tax incentives.
- Statewide energy efficiency customer information and education coordinated with utility efforts.
- No budget restrictions.

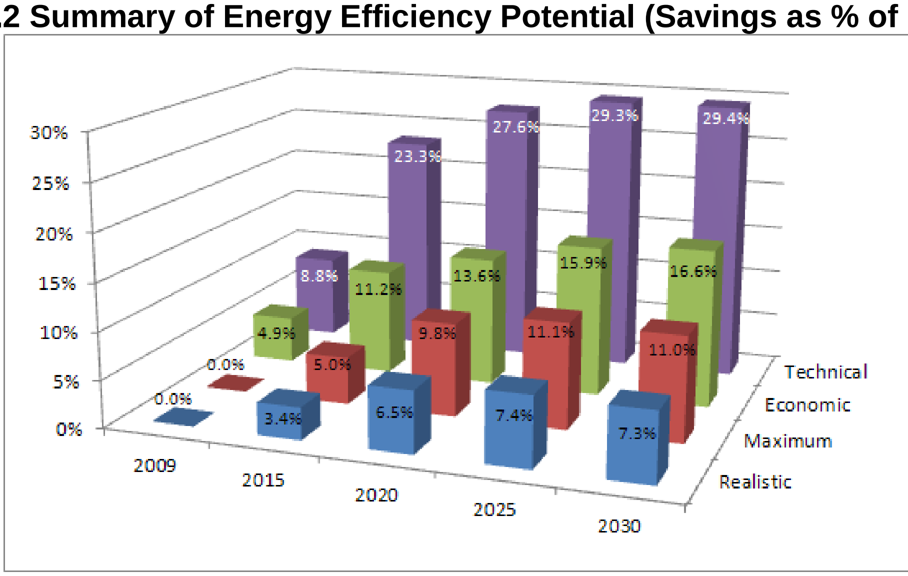
Missouri has none of the prerequisites currently in place for investor owned utilities to attempt to achieve MAP level annual load reductions. Approval of Ameren Missouri's DSIM can only impact the first four issues on the list, which is not sufficient to achieve MAP.

Realistic achievable potential (RAP) Ameren Missouri believes RAP is consistent with the goal of achieving all cost-effective demand-side savings, assuming the appropriate regulatory recovery mechanisms are in place. RAP represents realistic estimates of energy efficiency and demand response potential based on reasonable parameters associated with energy efficiency and demand response program implementation (i.e., limited budgets, customer acceptance barriers, etc.). RAP is of most interest for this study since it represents the mid-point of achievable potential and corresponds to best practices based on program experience from around the country.

Realistic Achievable Potential

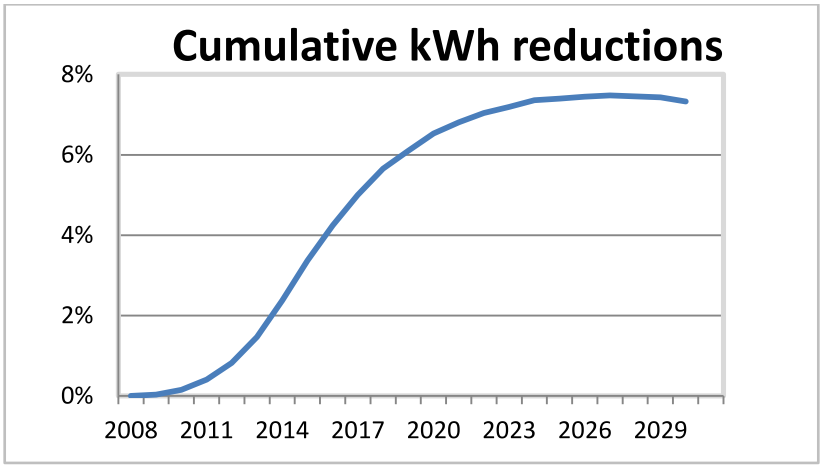
Figure 3.2 below is a chart from the Ameren Missouri DSM Potential Study that represents the various forms of DSM potential over a 21-year planning horizon.

Figure 3.2 Summary of Energy Efficiency Potential (Savings as % of Baseline)



The anticipated annual load reductions associated with RAP are depicted in the graph in Figure 3.3 below.

Figure 3.3 Annual Ramp Rates For RAP



At the time of maximum program ramp-up in 2015, RAP is achieving 1.0% savings per year. Note that ramp rates have shifted by one year in Ameren Missouri's MEEIA filing when compared to the IRP. This reflects the fact that 2012 is a MEEIA filing year and not an implementation year. Even with Ameren Missouri's proposed phased introduction of advanced technologies, however, this high rate of energy savings necessarily tapers off. Customer segments and opportunities will, at some point, become saturated, and incremental impacts will become increasingly smaller as energy efficiency improvements reach theoretical limits (i.e. efficiencies generally reach no higher than 100%).

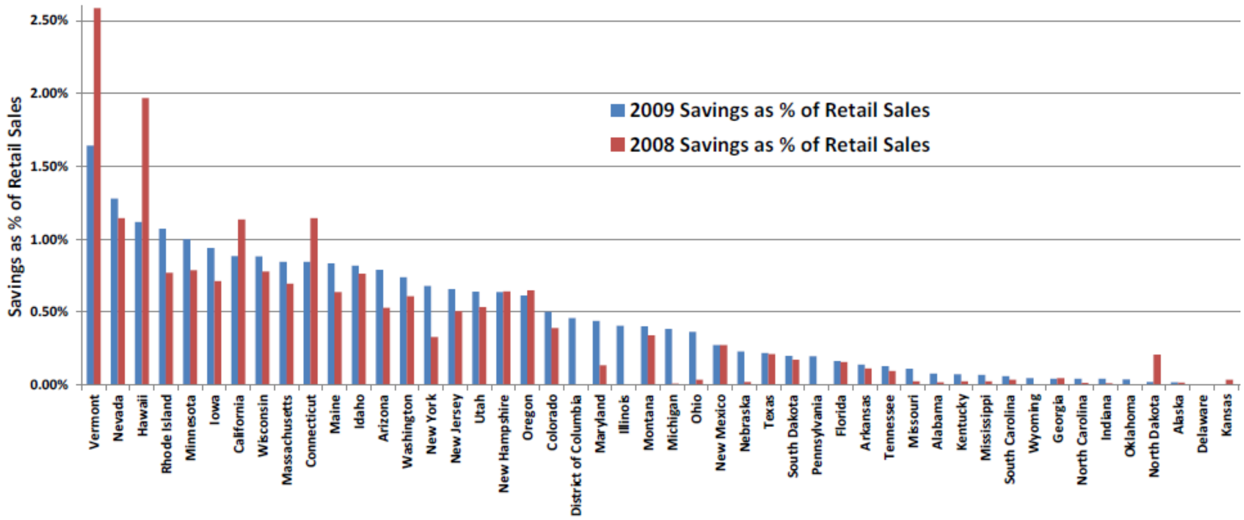
Below are several reasons why Ameren Missouri's DSM Potential Study depiction of RAP is a reasonable estimate of all cost effective energy efficiency.

1. The study used best practice market research
    a. Over 4,000 Ameren Missouri customers were surveyed
        i. Saturation surveys
        ii. Program interest surveys
        iii. On site surveys for C&I customers
        iv. Surveys of trade allies
2. Best practice sample design with proportionate weighting by:
    a. Customer age
    b. Geographic location
    c. Usage level
    d. Income
    e. Industry type

3. Thorough mitigation of sources of potential uncertainty
    a. Energy efficiency measure assumptions
    b. Sales forecasting benchmarking
    c. Human behavior
    d. Survey response bias
    e. Survey response error
4. Customer take rates based on Ameren Missouri customer preferences, instead of:
    a. Generic market acceptance rate curves
    b. Average take rates of other studies over the last 20 years
    c. Arbitrary high, low, and medium assigned values to represent a range of possible take rates
5. Ameren Missouri's proposed 2013-2015 MEEIA budgets represent 1 – 2% of revenues
    a. Based on 2011 ACEEE State Scorecard, spending at the rate of 2% of revenues would rank Missouri in the top 10 states in terms of energy efficiency budgets
    b. 1% spending would rank Missouri in the top 22 states as compared to Missouri's 2011 overall rank of 44
6. Ameren Missouri's proposed 2013-2015 MEEIA implementation plan is more than twice the budget and almost double the load reductions as compared to the Company's 2009-2011 implementation plan

A valid sanity check of the reasonableness of the projected levels of RAP (shown in Figure 3.2) at Ameren Missouri is a comparison to the 2011 ACEEE State Energy Efficiency Scorecard that reports on states' 2009 energy efficiency load reductions. The comparison shows how aggressive the Ameren Missouri annual RAP load reductions are compared to other states' efforts. The 2011 ACEEE State Scorecard results for 2008 and 2009 are shown in Figure 3.4.

Figure 3.4 Electric Energy Savings from Ratepayer-Funded Programs



Source: The 2011 State Energy Efficiency Scorecard, ACEEE Report Number E115, October 2011

The leading state, Vermont, reduced electric retail sales by approximately 1.5% in 2009 down from 2.5% in 2008 – a 40% reduction in one year. In total, there were only 5 states that achieved 1% or more load reductions in 2009. The vast majority of states in 2009 achieved far less than 1% annual load reductions.

The majority of all load reductions in 2009 were attributable to sales of compact fluorescent lights (CFLs). Due to increased lighting efficiency standards specified in the Energy Independence and Security Act of 2007 (EISA), the standard incandescent light bulb will be phased out of production between 2012 to 2014. Consequently, electric utilities may no longer be able to rely upon CFLs to achieve the majority of electric load reductions in their energy efficiency portfolios.

A more detailed review shown in Table 3.8 of the components of Vermont's energy efficiency savings shows the impact of CFL sales on Vermont's reported 2008 and 2009 energy efficiency savings:

Table 3.8 Vermont's 2008 and 2009 Energy Efficiency Reductions By End Use

Net MWH Saved				
End Use	**2008 Actual**	**2008 % of Total**	**2009 Actual**	**2009 % of Total**
Lighting	113,282	81%	59,198	73%
Air Conditioning	3,063	2%	3,137	4%
Cooking and Laundry	1,176	1%	1,045	1%
Fuel Switching	2,438	2%	994	1%
Hot Water	480	0%	418	1%
Industrial Process	6,848	5%	4,366	5%
Metering	0	0%	3	0%
Motors	4,335	3%	4,227	5%
Other	2,067	1%	2,109	3%
Refrigeration	4,737	3%	3,560	4%
Space Heat	656	0%	456	1%
Ventilation	1,480	1%	1,062	1%
Total	140,562	100%	80,574	100%

Source: (1) pg 29 of Efficiency Vermont Year 2008 Annual Report dated October 1, 2009
(2) pg 40 of Efficiency Vermont 2009 Annual Report dated November 2010
(3) pg 15 of Efficiency Vermont Year 2010 Savings Claim dated April 1, 2011
(4) http://www.efficiencyvermont.com/about_us/information_reports/annual_reports.aspx

The point of emphasis in comparing the Ameren Missouri projected RAP levels of energy efficiency savings with Vermont, which ACEEE ranks as the state achieving the highest percentage of electric load reductions in 2009, is to show that Vermont historically has relied upon lighting to provide the vast majority of its reported annual energy efficiency savings. When opportunities to achieve lighting energy efficiency savings diminish as the result of EISA, the expectation is that annual energy efficiency load reductions, expressed as a percent of sales, will also diminish. Ameren Missouri's filing represents annual load reduction targets that will likely meet or exceed these diminished savings.

Ameren Missouri considers 2012 as a MEEIA filing year. Consequently, for purposes of comparing its proposed annual RAP load reduction estimates for 2013-2015 to MEEIA rulemaking annual goals, Ameren Missouri considers the MEEIA 2012 goal of 0.3% of total annual energy and 1.0% of annual peak demand to actually begin in 2013. Subsequent MEEIA annual load reduction goals would also be pushed back one year.

3.3 Technical Resource Manual

Commission approval of an Ameren Missouri TRM as well as acknowledgement of the *prospective* application of any changes to the TRM are both prerequisites for Ameren Missouri to pursue all cost effective demand-side savings.

Estimating the energy and demand reduction impacts attributable to energy efficiency programs is a significant challenge. This is because there is no practical way to directly measure the energy and demand savings for all participating customers. Instead, savings are determined by comparing energy use and demand after a program has been implemented to what would have occurred had the program not been implemented. Many subjective assumptions and adjustments are applied to attempt to isolate load reduction impacts due solely to program effects. While the existing EMV methodologies are capable of estimating load impacts associated with energy efficiency programs, the subjective nature of assumptions that must be made present significant uncertainty into the calculation of final results and also provide room for second-guessing of estimates by various parties. Hence, the inherent evaluation risk to Ameren Missouri to achieve all cost effective demand-side savings is high and can vary by evaluation contractor, evaluation methodology(ies), and the size of the impact evaluation budget.

To further illustrate the risk for estimating savings attributable to energy efficiency programs, the SEE published a scoping study in June, 2011, to evaluate the feasibility of national databases for EMV documents and measure savings. The study reports, based on a review of 20 energy efficiency measures across 17 TRMs, there was a wide variation in savings estimate methodologies, technical assumptions, and input variables for estimating savings.

Due to this inherent uncertainty and measurement difficulties of electric load reductions attributable to DSM programs, Ameren Missouri has developed Missouri's first comprehensive TRM to make all load reduction impacts attributable to DSM measures as transparent as possible at the start of the implementation period. The TRM was developed to provide measure level characteristics in order to design, implement, track and evaluate Ameren Missouri DSM programs. The savings algorithms utilize Ameren Missouri measure and customer data as input values to the extent possible. These values were measured and calculated by third party independent EMV contractors for Ameren Missouri DSM programs implemented in Cycle 1. Where Ameren Missouri specific data was not available, electric input values were derived primarily from the Morgan Measure Library and supplemented with a review of literature from various industry organizations, equipment manufacturers, and suppliers. Ameren Missouri will update input values at least once every three years with current field measurements as well as to reflect changes in building codes, federal standards, and recent program evaluations. A copy of the TRM has been included as Appendix A of this filing.

Technical Resource Manual Philosophy

The estimated cost and savings from energy efficiency measures or programs are typically made both prior to measure installation or program implementation (i.e., *ex ante*) and post measure installation or program implementation (i.e., *ex post*).

Ex post cost and savings estimates have the advantage of being able to compare pre-measure installation use with post-measure installation use and estimated cost with actual data. Ameren Missouri has been implementing and evaluating its DSM programs for three consecutive years using independent, national third party EMV contractors. Therefore, Ameren Missouri has the benefit of extensive *ex post* actual field measurements of individual measures on which to develop individual energy efficiency measure incremental costs and energy savings for its 2013-2015 DSM implementation plan.

The fact that *ex ante* savings estimates may differ from *ex post* savings estimates raises the issue of whether stipulated savings claims, based on values in a Commission approved TRM, should be adjusted retroactively or only applied on a going forward basis. For example:

> ***If the use of TRM values developed prior to the start of implementation of DSM programs in 2013 indicate total DSM portfolio savings of 100 MWh for 2013 but an ex post impact evaluation indicates that actual savings are 90 MWh, should the Commission credit the utility with 100 MWh of savings or 90 MWh?***

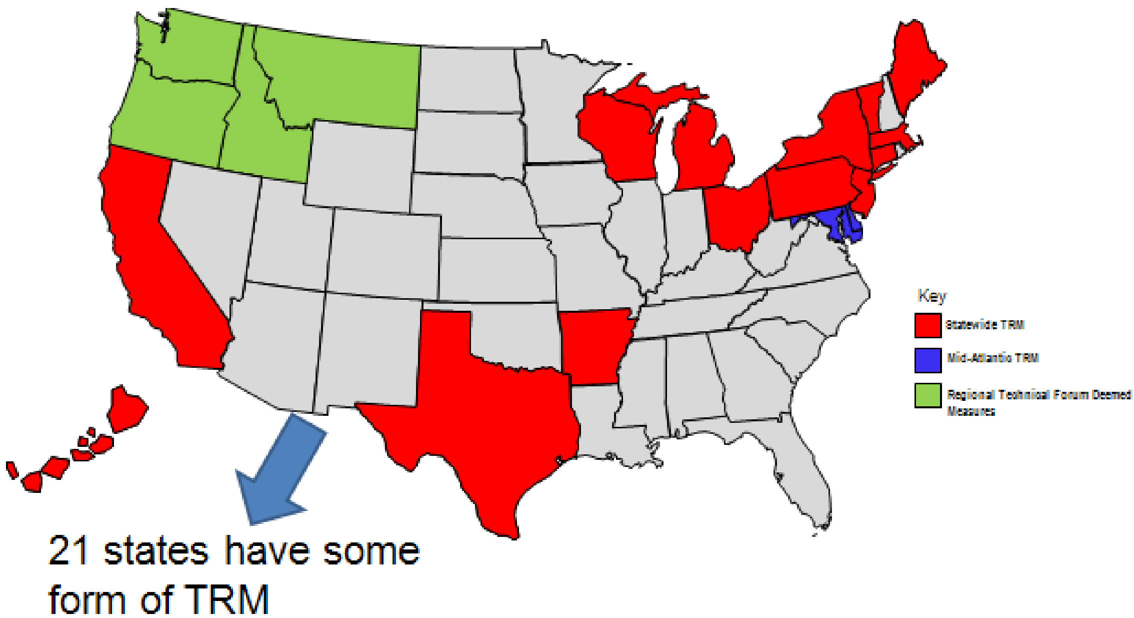
Cost and savings estimates in the TRM should be based on the best available information at the time these estimates and/or calculations are made. Therefore, if *ex post* cost and savings estimates for efficiency measures and programs vary from *ex ante* estimates, *ex post* estimates should be the preferred values for use in <u>future programs</u>. Ameren Missouri used *ex post* data from independent third party EMV contractors in the development of the TRM. *Ex post* estimates of energy savings from Ameren Missouri programs implemented from 2009-2011 are the primary basis for the TRM measure savings in the 2013-2015 DSM implementation plan. As a rule, deemed or calculated savings should not be applied retrospectively.

Finally, energy savings from custom projects or programs where there are no stipulated or "deemed" estimates of costs and energy savings should be based upon agreed to protocols to determine savings. Those protocols are also described in the TRM.

TRM – A National Perspective

Twenty-one (21) states currently have TRMs. Figure 3.5 shows a map of the states with TRMs.

Figure 3.5 U.S. Map of States with TRMs



Information taken from State & Local Energy Efficiency Action Network. "Scoping Study to Evaluate Feasibility of National Databases for EM&V Documents and Measure Savings." June 2011.

SEE reports that there is a wide variation in savings estimate methodologies, technical assumptions, and input variables for estimating individual energy efficiency measure savings among the 21 states with TRMs. Such wide variations in estimated impacts of energy efficiency savings illustrate the evaluation risks that electric utilities face when energy efficiency measure savings have not been deemed at the time an energy efficiency implementation plan has been approved. The value of the TRM is that it provides an opportunity for the Company, the Commission, and stakeholders to agree upfront on reasonable expectations of load reductions attributable to the implementation of energy efficiency measures, thereby eliminating surprises attributable to the evaluation, measurement, and verification of energy savings.

Purpose of the TRM

The Ameren Missouri TRM has been developed specifically to determine *a priori* compliance parameters for Ameren Missouri's 2013-2015 MEEIA filing – for cost-effectiveness screening and program planning, tracking, reporting, independent program evaluator impact assessments, and the calculation of Ameren Missouri performance incentives.

Standard energy savings measures are detailed in the TRM. The TRM provides a consistent framework for deeming savings for a menu of energy efficiency measures using supported assumptions and actual customer data (where available) from prior impact evaluation of Ameren Missouri customer energy efficiency programs by independent EMV contractors. The framework in this TRM was developed for the purpose of calculating annual energy savings for program design, implementation, and compliance purposes for a limited selection of energy efficient technologies and measures. Where deemed or stipulated energy savings cannot be calculated, i.e., custom business processes, the TRM specifies a protocol to be used to estimate energy savings.

Customer Benefits From Use of a TRM

All calculations of customer electric load reductions attributable to utility sponsored energy efficiency programs are estimates. Establishing the level of rigor and setting acceptable confidence/precision levels for savings is, to some degree, a technical issue. However, the issue of rigor is fundamentally a policy choice. The policy choice is how much money and effort by Ameren Missouri, the Commission, and other interested stakeholders should be allocated to have an acceptable level of confidence that the claimed savings from energy efficiency programs are what each stakeholder thinks they should be.

Nationally, utility budgets allocated to EMV work range from 2% to 10% of the DSM portfolio budget. Ameren Missouri currently allocates 5% of its DSM portfolio budget to EMV. States that use TRMs to deem or stipulate load reduction impacts tend to have EMV budgets closer to the 2% of the DSM portfolio budget range. The reason for the reduced EMV budget is that there is not a need for EMV contractors to annually allocate resources to obtain field measurements of estimates of energy and demand savings attributable to DSM programs. Rather, EMV contractors would periodically perform field measurements. The new field measurement results will then be used to inform the TRM for utility programs from that date forward. In the interim (between actual field measurements), EMV contractors should continue to do process evaluations, i.e., assess how well a program is working and offer specific recommendations for improvement, and continue to track the number of installations of energy efficiency measures.

As an example, assume that the Ameren Missouri MEEIA filing three year DSM portfolio budget is $145 million. Further assume that Ameren Missouri continued to allocate 5% of the budget or $7.25 million over the three year period for EMV work based on annual field measurements of energy efficiency measure installations. If the budget was reduced to 3% to reflect the implementation of a TRM, the new EMV budget would be $4.35 million over three years. The nearly $3 million of savings can go towards providing more incentives to customers to purchase and install more energy efficient equipment.

There is also a multiplier effect associated with minimizing the inevitable controversies associated with how best to estimate the load reductions associated with measures, programs, and portfolios – that would likely occur in a retrospective review of the reported energy and demand savings. DSM impacts are well informed estimates of energy savings. Estimates are a function of multiple factors including: baseline measure savings, efficient measure savings, effective useful lives of measures, free ridership, participant spillover, non-participant spillover, rebound effects, survey design and implementation, and interactive factors. Since there is a significant amount of subjectivity involved in the calculation of each factor, every stakeholder or EMV expert could testify to a different estimate of load impacts attributable to measures, programs and portfolios. It is a burden to the Commission to determine the most technically appropriate assumptions, processes, and methodologies to estimate energy efficiency savings.

3.4 Gross vs. Net Savings

The issue of using either gross kWh or net kWh savings as the appropriate metric to assess whether the Company has met its annual load reduction targets is a question of attribution. In other words, how many energy efficiency measures were installed as a result of the utility program versus how many would have been installed absent the program? The ratio of net program savings to gross program savings is the NTG ratio.

The discussion below supports Ameren Missouri's proposal to use gross savings/reductions as the metric for tracking utility and customer progress toward the Ameren Missouri energy efficiency goals and for the calculation of the TRC and for all applicable performance incentives.

The expense of obtaining high quality analysis on subjective assessments of estimating NTG should be considered. Ameren Missouri believes the money could be better spent on program design, implementation, and customer incentives. This portfolio has been designed to provide more benefits to the customers and use the additional EMV dollars to better implement the programs.

Definitions

"Free ridership" and "spillover" are two adjustments to gross savings utilized to determine net savings. The first adjustment, estimating free ridership, subtracts from gross savings the actions of participants unaffected by the program. That is, participants are considered free riders if they would have taken the same energy saving action at the same time, in the same quantity, and at the same level of efficiency regardless of the program's existence.

The second adjustment, for spillover, adds energy savings from high-efficiency actions taken outside the program to gross impacts attributable to the program. These additional energy savings result from greater customer knowledge and awareness of energy efficiency options directly attributable to program availability but are not actually achieved through implementation of a program measure. Furthermore, spillover can occur within both participant and nonparticipant groups. For example, participants may be inspired to adopt high-efficiency measures beyond those available within a program. Nonparticipants can gain knowledge and awareness of energy efficient options due to program availability and apply that knowledge and awareness to implement high efficiency actions. These actions would not have occurred without the program's existence even though the savings are gained outside the program structure. The fact is that for most customer energy efficiency programs within a Company's service territory, the number of nonparticipants is greater than the number of participants. Thus, the potential exists for large spillover impacts within the nonparticipant population.

There is a third potential adjustment for "market effects." Market effect impacts can be measured by evaluating and estimating the impacts of any changes the program causes to the way markets operate. As a result of programs, manufacturers may change the efficiency of their products, or retailers and wholesalers may change the composition of their inventories to reflect the demand for more efficient goods created through a program or group of programs. Although the impact of market effects can be significant, measurement of market effects becomes both a significant and costly measurement and evaluation challenge.

There is substantial evidence of both free ridership and spillover with Ameren Missouri's energy efficiency programs. Table 3.9 summarizes the conclusions drawn in its EMV reports in relation to these issues.

Table 3.9 Free Ridership and Spillover Existence In Ameren Missouri Programs

Program	Net-to-Gross Ratio	Free ridership Identified	Free ridership Quantified	Spillover Identified	Spillover Quantified	Market Effects
Residential Lighting & Appliance	0.96[1]	✓	0.42*	✓	-	Appliance rebates encouraging other efficient behavior
Residential Appliance Recycling	0.64**	✓	0.36**	✓	-	Slow market transformation in first year
Residential HVAC[#]	N/A	N/A	N/A	N/A	N/A	N/A
Residential Multifamily Low Income	0.91	✓	0.09	✓	-	N/A
C&I Standard	0.90	✓	0.11	✓	0.054***	Contractors altering product mix and operations to more efficient practices[##]
C&I Custom	0.86	✓	0.14	✓	0.11***	Contractors altering product mix and operations to more efficient practices[##]
C&I Retro-Commissioning	0.83	✓	0.17	✓	0****	
C&I New Construction	0.95	✓	0.05	✓	0*****	Encouraging customers with less efficient building codes to install more efficient equipment[###]

* - Free ridership only for appliances; page 44 "Ameren Missouri Lighting and Appliance Evaluation PY 2" March 2011
** - calculated using a weighted average of freezer and refrigerator installations; Ameren Missouri Refrigerator Recycling Program Evaluation March 2011
*** - taken from page 3-8 "Evaluation of Business Energy Efficiency Program Custom and Standard Incentives" March 2011
**** - taken from page 3-7; "Evaluation of Business Energy Efficiency Program Retro-Commissioning Incentives" March 2011
***** - taken from page 3-7; "Evaluation of Business Energy Efficiency Program New Construction Incentives" March 2011
\# - No impact evaluation was completed due to lack of program data
\##- taken from page 5-2 "Evaluation of Business Energy Efficiency Program Custom and Standard Incentives" March 2011
\### - taken from page 5-1 "Evaluation of Business Energy Efficiency Program New Construction Incentives" March 2011
1 – Includes spillover

Net-To-Gross Estimation

Attribution

The issue of attribution - who or what organization should receive credit for changing customer energy consumption behaviors - is at best complicated and unclear. A good example is the influence of the more than $200 million from the Ameren Reinvestment and Recovery Act (ARRA) allocated to Missouri and administered by the Missouri Department of Natural Resources (DNR) for energy efficiency initiatives from 2010 through 2012. Many of the energy efficiency initiatives administered by DNR overlap with the Ameren Missouri DSM portfolio of customer programs. Which program had the most impact on moving customers to take energy efficiency actions? Of course, in addition to the ARRA, there are a variety of other state, local, and even retail initiatives that encourage customers to be more conscious of energy consumption.

The combination of the "negative" of free ridership and the "positive" of spillover are computed as the NTG ratio and are applied to gross savings to provide an estimate of attributable net savings for a program.

The measurement of spillover involves different issues than the measurement of free ridership. Free ridership assessments come from the pool of identified program participants. The effects from spillover are not realized from the participating projects. Identifying who to contact to explore the issue of spillover and associated indirect effects is daunting. For this reason alone, many states only consider free ridership in the calculation of NTG. This analytic asymmetry undervalues energy efficiency savings by incorporating only subtractions, such as free riders, from gross savings and ignoring potential additions, such as spillover.

Precision and Accuracy

It is rare for the NTG in EMV impact analyses to report any confidence ranges or even to discuss uncertainty associated with its estimation. It is as if the estimation of NTG is more of an art than a science and thus precision and accuracy cannot be determined. The potential for error and uncertainty associated with these measurements is significant. Difficulties include: (1) identifying an accurate baseline; (2) identifying and implementing a control group; (3) relying on self-reporting surveys; and (4) determining correction factors for self-reporting biases.

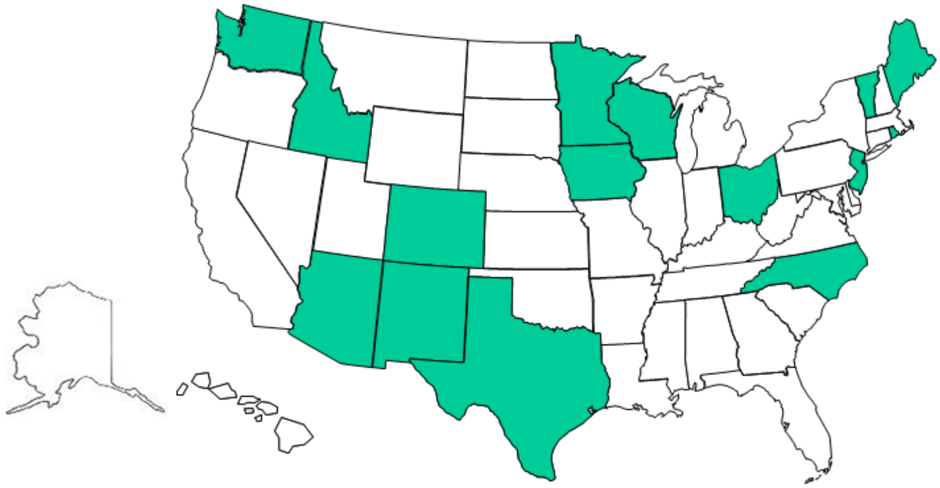
The MEEIA rules do not address the specifics, including preferred methodologies, to address the components of net demand and energy savings – free ridership, spillover, and market effects.

Gross vs. Net Savings – A National Perspective

The decision to include free ridership impacts without including spillover impacts is inherently an asymmetrical, and thus biased, view. The National Association of Regulatory Commissioners' Regulating DSM Evaluation Manual states that, "…as of 1994 virtually no regulators were requiring the measurement of spillover effect, yet…most encourage or require Free Ridership assessments, resulting in potentially lopsided analyses, which could undervalue the benefits of utility DSM programs."

There are approximately 15 states that currently base energy savings from utility sponsored energy efficiency programs on estimates of gross savings. A map of the U.S. depicting states that use gross savings is shown below in Figure 3.6.

Figure 3.6 States Using Gross Savings[3]



Key findings of prior national studies on net vs. gross estimates of energy efficiency load reductions include:

- Many states have assumed free ridership and spillover offset one another. A recent study conducted for the Nevada Power Company and Sierra Pacific Power Collaborative found 15 states (69%) have rejected the concept of free ridership in estimating net saving and thus rely on gross savings.
- Estimating free ridership and spillover is difficult, with no consensus on an approach for how best to estimate these values. There are inherent biases with both the self-report and statistical approaches, and the selection of one approach over another can give significantly different results.
- A study of best practice programs[10] found over two-thirds of all identified programs had a NTG value of approximately 1.0. Nearly half of the studies (49%) either assumed or calculated a net-to-gross value of 1.0, and 68% of the studies had NTG values between 0.9 and 1.0. In most cases, net-to-gross values, when used by a program, were only based on free ridership values; so an even higher percentage of programs would have a net-to-gross ratio of approximately 1.0 if spillover was examined.
- Assuming a NTG ratio of 1.0 may provide conservative estimates. Research indicates some programs, particularly for lighting, routinely achieve net-to-gross ratios of well over 1.0 when spillover is examined. Assuming a NTG of 1.0, therefore, is likely a conservative estimate, underestimating true program impacts for some measures.

[10] "Assessment of Energy and Capacity Savings Potential in Iowa" Prepared by Quantec. February 15, 2008

Furthermore, Ameren Missouri makes efforts to design effective programs that minimize free ridership by:

- Reviewing studies that indicate certain measures are achieving high market shares and thus high free ridership rates. For example, ENERGY STAR clothes washers continue to gain market share throughout the country, and results from other state studies indicate high free ridership and a NTG ratio of less than 1.0.
- Carefully setting incentive levels to minimize free ridership. As programs mature and market share for efficiency measures increase, program administrators may be inclined to reduce incentive levels. Paradoxically, however, as incentives *drop,* free ridership *increases*. This occurs because lower incentives are less likely to motivate participants who would not have installed a measure in the incentive's absence (i.e., a low incentive is not enough to motivate a customer to do what he or she was not already planning). Incentive levels should thus be carefully reviewed and set to make sure to motivate a substantial number of participants to install an efficiency measure they would likely not have installed in a program's absence.

3.5 Implementation Flexibility

Although Ameren Missouri's MEEIA implementation plan (Plan) represents the most current knowledge to design programs to meet program objectives, inevitably some programs will work better than expected while some will not work as well as expected. Risk is also influenced by time. Risk increases as the implementation plan horizon expands. The longer the horizon, the more the economy and markets can change from what was assumed during the program design process. A key element of program risk management is the flexibility to shift resources within the programs/portfolio and to modify the programs/portfolio composition and risk as the market responds to Ameren Missouri programs. Specifically, Ameren Missouri proposes the following:

- The flexibility to reallocate funds among program elements with the Residential and Business portfolios is critical to ensure Ameren Missouri's ability to meet its annual load reduction goals. This flexibility requires the ability to write tariff provisions that give utilities the flexibility to change program elements that do not require Commission approval. Otherwise, the time delays to re-file tariffs and receive Commission approval may preclude Ameren Missouri's ability to respond to the markets in a timely manner thereby wasting time and resources which result in lost opportunities to achieve load reductions between tariff filings. Investor owned utilities in states that the ACEEE rank highly in ACEEE's annual state energy efficiency scorecard and who require tariffs for utilities that sponsor energy efficiency programs generally have tariffs that model flexibility. Table 3.10 shows a sampling of those tariffs:

Table 3.10 List of Utilities that File Energy Efficiency Tariffs

State	Utility	Do EE Tariffs Exist	Individual Measures Described?	Measure Incentives Described?
CA	Pacific Gas & Electric	✓	✗	✗
CA	San Diego Gas & Electric	✓	✗	✗
CA	Southern California Edison	✓	✗	✗
CT	Connecticut Light & Power	✓	✗	✗
MA	Nstar	✓	✗	✗
MA	Western Massachusetts Electric	✓	✗	✗
MD	Baltimore Gas & Electric	✓	✗	✗
MD	PEPCO	✓	✗	✗
MN	Alliant/Interstate Power & Light	✓	✗	✗
MN	Minnesota Power	✓	✗	✗
MN	Otter Tail Power	✓	✗	✗
MN	Xcel Energy	✓	✗	✗
NY	ConEd	✓	✗	✗
NY	National Grid (Niagra Mohawk)	✓	✗	✗
NY	New York State Electric & Gas	✓	✗	✗
NY	Orange & Rockland	✓	✗	✗
NY	Rochester Gas & Electric	✓	✗	✗
OR	Idaho Power	✓	✗	✗
OR	Pacific Power	✓	✓	✓
OR	Portland General Electric[3]	✓	✗	✗
RI	National Grid (Narragansett)	✓	✗	✗
WA	Avista Utilities	✓	✓	✓
WA	Puget Sound Energy	✓	✓	✗

[1]The list of utilities are not necessarily all inclusive for these states and is primarily a list of EEI members taken from the EEI website
[2]Some utilities have tariffs for demand response programs such as HVAC cycling which are separate from the traditional EE initiatives
[3]Virtually ALL of the tariffs located (links provided) are generic cost recovery tariffs and not measure specific tariffs
[4]Some cells utilize the excel "comment" feature to provide specific information about a link or tariff
[5]As a state, WA utilities have the most EE detail in their tariff books
[6] Individually, Pacific Power has tariffs that are nearest to the format of Ameren Missouri's present EE tariffs

The point of emphasis in comparing/contrasting the energy efficiency tariff provisions of utilities in states that are considered to be pursuing energy efficiency aggressively is that the tariffs do not restrict utilities in any way from adjusting any of the components of their energy efficiency programs. This type of flexibility allows utilities to react to changes in the energy efficiency market in real time.

Proposed Program Tariffs

Historically, the primary purpose of a tariff was to provide information to customers about the specifics of an Ameren Missouri program that included payment of incentives to customers. Today, electric utilities across the nation nearly universally provide customers with that type of information via their websites. Because of the website technology, there is no longer a need for extremely detailed tariffs for energy efficiency programs. In fact, a customer normally would have to search for a specific Ameren Missouri energy efficiency program tariff via a web browser search.

More importantly, however, the Ameren Missouri proposed business model for energy efficiency is based upon maximizing the net benefits of energy efficiency attributable to Ameren Missouri customers. Such a business model requires that the Company move nimbly to react to markets. That may mean changing incentive levels for certain energy efficiency measures. It may mean changing delivery mechanisms for certain products or services. Ultimately, it means managing an energy efficiency portfolio such that costs are as low as possible and customer benefits are as high as possible.

Consequently, the Company prefers that the tariffs for its energy efficiency programs be modeled after those in states that are considered leaders in electric utility energy efficiency program implementation, most of which are mentioned in the preceding table.

Changing Market Conditions

The following sections describe how the energy efficiency markets have changed and continue to change since the Company completed its DSM Potential Study in 2010. The point of emphasis is that the Commission and stakeholders should expect to see changes as the Company implements its energy efficiency programs.

It is logical that the Commission approves general tariffs as part of the MEEIA filing and provide broad implementation flexibility. While the program templates in Appendix B provide a good description of proposed programs, implementation contractors will have significant influence in final program design. Hiring of these contractors will not occur until MEEIA approval and, therefore, the Company cannot provide final program details with this filing. Broad flexibility with regard to implementation but strict adherence to energy savings commitments and benefit sharing methodology will allow the Company to implement with less risk of regulatory delay over tariffs while still being held accountable for aggressive MWh acquisition. Although some implementation aspects of the programs will undoubtedly change prior to and during implementation, the overall MWh goals or the proposed sharing percentages of net benefits will not change.

The Company's implementation plan for its 2013-2015 MEEIA filing is based, to a great extent, on its DSM Potential Study primary market research obtained in 2009 with reports finalized in early 2010. Several significant market events have occurred since then. Those events and their impacts on annual realistic achievable potential were not considered at the time the Potential Study was finalized. A description of the more impactful events includes:

MEEIA – The Ameren Missouri DSM Potential Study does not include an assessment of the MEEIA provision that allows large business customers to opt out of participation (and funding) of Ameren Missouri DSM programs.

American Reinvestment and Recovery Act of 2009 (ARRA) – ARRA invested over $200 million in energy efficiency in Missouri in the 2010-2012 period. In fact, ACEEE estimates that the ARRA funds implemented by DNR will result in estimated savings of about 0.3% of electricity needs in Missouri.

Prolonged Economic Downturn – The prolonged economic downturn resulting in no discernable customer growth, high unemployment, and slow housing starts speaks to a lower annual electric sales forecast than that contemplated at the time of the DSM Potential Study.

The ever changing market will have an impact on the final implementation plan for each program in the Company's energy efficiency portfolio. After the Company hires its program implementation contractors, the Commission and stakeholders should expect to see some programs increased in scope while other programs are decreased in scope. Some measures may have more or less emphasis after implementation contractors, with the most up-to-date field experience, work with Ameren Missouri to develop a final implementation plan that will meet the overall portfolio kWh load reductions within budget.

Contractor Input

The Company is planning to hire third party contractors to implement the programs in the DSM portfolio. These contractors will be selected via competitive bid through requests for proposals (RFPs).

The program templates presented in the Company's MEEIA filing are intended to provide sufficient detail on program design, implementation and evaluation to support stakeholder and Commission review of the Company's portfolio. However, actual implementation must be based on much more detailed program designs and implementation plans using the national and regional implementation expertise of experienced implementation contractors. The Company envisions that these detailed plans will be developed jointly by the Ameren Missouri energy efficiency team and the contractors selected to implement the programs. Should performance-based contracts be used to encourage contractors to have a vested interest in the success of programs reaching load reduction targets, contractors should retain some latitude for program design to maximize the likelihood that it can meet performance targets.

Final program designs will describe the final proposed structure of the program, specific incentive levels or methods for calculating incentives, and marketing and recruiting strategies to ensure that targets are met. Final design is likely to refine the level of incentives and specific program costs based on implementation contractors' input. The final implementation plans will provide detailed roadmaps for program roll-out and management, including customer qualification, incentive strategies and tactics, customer care, data capture and tracking, reporting, and quality control processes.

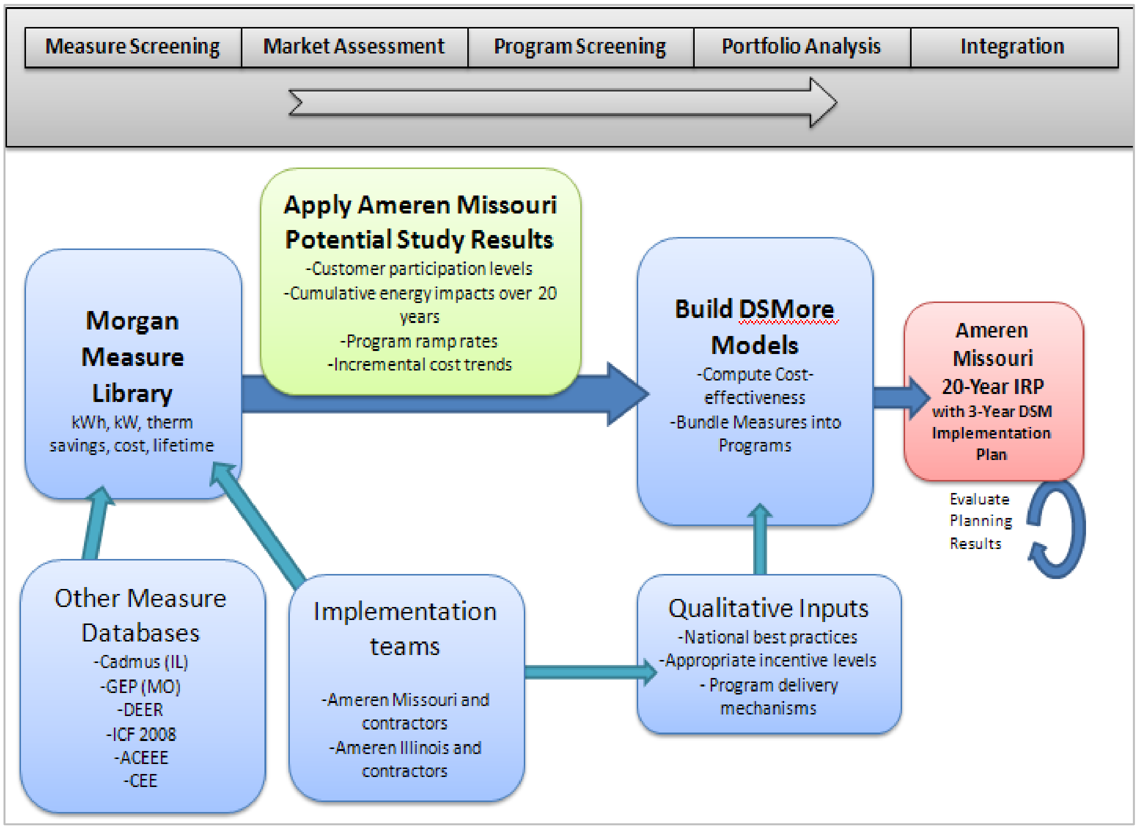
Portfolio Flexibility

While the information found within the MEEIA program templates (Appendix B) may change and update as market conditions warrant, the overall kWh goals for the 2013-2015 implementation period will remain fixed. Ameren Missouri recommends that the Commission both approve and encourage portfolio flexibility, which allows for adjustment of portfolio elements (program costs, targets, incentives, etc., in addition to stopping or starting programs), as needed to achieve portfolio success. Portfolio success is defined as achieving total portfolio level kWh and kW load reductions within the total portfolio budget parameters specified in the 2013-2015 MEEIA implementation plan.

3.6 The Planning Process

Ameren Missouri's portfolio for MEEIA contains a substantial list of improvements to the planning process from methods previously employed for Cycle 1. A primary source of improvement is the knowledge gained from the actual program implementation and evaluation experience of Cycle 1. Another primary improvement is the incorporation of its substantial DSM Potential Study with primary market research data for Ameren Missouri customers. Development of the plan also reflects: (1) the acquisition of the DSMore™ model – the leading cost effectiveness tool for energy efficiency and demand response programs; (2) the acquisition of multiple measure level databases; (3) a robust economic screening process including approximately 500 electric energy efficiency measures; and (4) a review of utility program design best practices. The flow of the overall planning process has been illustrated in Figure 3.7.

Figure 3.7 Overview of DSM Planning Process*



** Acronyms used in this diagram are as follows: Global Energy Partners (GEP),* Database for Energy Efficient Resources (DEER), American Council for an Energy-Efficient Economy (ACEEE), Consortium for Energy Efficiency *(CEE)**, Demand Side management (DSM).*

DSM Market Potential Study

As a foundational step in the DSM planning process, Ameren Missouri selected GEP through a competitive bidding process to conduct a rigorous DSM Potential Study. The study employed extensive primary market research on Ameren Missouri customers in order to estimate potential energy efficiency and demand response savings and costs. The DSM Potential Study can be found in Appendix C.

One of the primary reasons to conduct the DSM Potential Study was to have a factual basis on which to gauge the reasonableness or aggressiveness of DSM efforts. Key objectives for this study were to:

1. Assess and understand technical, economic, achievable and naturally occurring potential for all customer segments in the Ameren Missouri service area from 2009 to 2030.
2. Analyze energy savings at various levels of cost.

3. Conduct primary market research to collect electricity end-use data, customer demographics and psychographics.
4. Understand how customers in the Ameren Missouri service territory make decisions related to their electricity use and energy efficiency investments.
5. Develop several scenarios for assessing DSM potential.
6. Clearly communicate the DSM Potential in an objective way that is useful for Ameren Missouri senior management, Ameren Missouri stakeholders and Ameren Missouri DSM and IRP staff.

Conducted throughout 2009, the study included significant communication and coordination between Ameren Missouri, the contractor, and stakeholders. This has been outlined in detail in the following section.

Stakeholder Interactions During DSM Potential Study

A number of Stakeholder workshops were held regarding the development of the Ameren Missouri Demand Side Market Potential Study, which was used as a key input in the development of the Ameren Missouri DSM Portfolios that are analyzed within MEEIA.

February 4, 2009: An introductory Stakeholder workshop was held that identified the study team members, the study objectives, and tasks to be performed in the study. Stakeholder comments and suggestions were requested and a list of action items was developed and addressed in the following weeks.

April 7, 2009: As part of the action items follow-up to the February 4, 2009 meeting, the measure list inputs were developed and distributed for Stakeholder comment. Stakeholder comments were prepared and received by Ameren Missouri.

May 20, 2009: Stakeholder comments on the measure list inputs were prepared and received by Ameren Missouri, and were incorporated into the final version of the measure list.

June 23, 2009: A Stakeholder Workshop was held to provide a DSM Market Potential Study status update. During the meeting the measure list that would be screened was identified, along with the adjustments to the list as provided by the Stakeholders.

October 29, 2009: The next Stakeholder workshop included an update for the Ameren Missouri DSM Potential Study related to the market research results and the status of the remaining work for the study. The workshop also covered a number of subjects related to current energy efficiency program activities as well as the results of a recently completed Ameren Missouri Distributed Generation Market Penetration Assessment. Stakeholder comments and suggestions were accepted during the workshop.

January 28, 2010: The Final Report for the Ameren Missouri DSM Potential Study (a four volume report showing all steps of the study as well as the results and interpretation of the study results) was distributed to the Stakeholder group.

February 4, 2010: The Final Report for the Ameren Missouri Potential Study was discussed during a Stakeholder Workshop. The workshop provided an overview of the study, along with the results of the study. As with the previous workshops, Stakeholder comments and suggestions were accepted during the workshop.

Following this meeting there have been a number of post-study interactions between the Stakeholders and Ameren Missouri:

February 11, 2010: DNR submitted a number of questions related to the content of the study, via email. The subject of these questions was:

- Terminology
- Survey samples
- Data and inputs
- Energy potential benefits and supply curves
- Energy savings baselines
- Economic potential in the commercial sector

March 3, 2010: Ameren Missouri provided responses to the questions that were presented by DNR on February 11, 2010.

March 11, 2010: Ameren Missouri hosted a WebEx based discussion between the study contractors and the Stakeholders covering the responses provided on March 3, 2010.

March 18, 2010: Ameren Missouri hosted a follow-up teleconference to the March 11, 2010 WebEx, with David Lineweber, who led the market research work for the contractor team that prepared the study, and Mr. Adam Bickford, of DNR, to specifically address sample design.

April 1, 2010: Ameren Missouri issued a follow-up memo to Stakeholders via email that was thought to address all known comments and concerns that had been expressed by the Stakeholder group to date regarding the Ameren Missouri DSM Potential Study.

July 14, 2010: Mr. Bickford (DNR) sent memos to Ameren Missouri via email identifying additional concerns with the Ameren Missouri Potential Study memo and the market research methodologies used in the study.

July 15, 2010: Mr. Bickford (DNR) presented his concerns from the memos at the Ameren Missouri Regulatory Stakeholder Quarterly DSM meeting

August 11, 2010: Ameren Missouri distributed memos addressing Mr. Bickford's concerns that were presented on July 15, 2010.

Ameren Missouri believes that its potential study represents the state-of-the art in DSM Potential Studies. The study depicts achievable potential in the Company's service territory based on primary market research data.

Key Findings

The study enlightened Ameren Missouri about its customer base and the potential for energy savings and peak demand reductions that are possible through energy-efficiency and demand response programs. The key highlights are as follows:

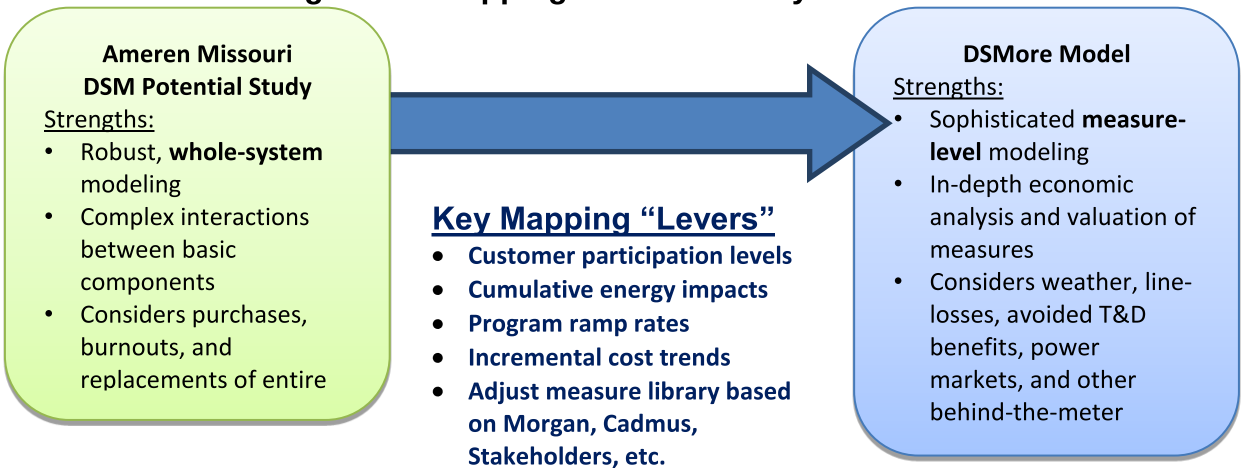
- There is more opportunity for program savings than was estimated using secondary data. Achievable potential is higher than what was included in the Ameren Missouri 2008 IRP.
- Concurrent with higher opportunities, budgets to harvest those opportunities reach an annual spend range of $100 million to $200 million by 2015. This range corresponds to roughly 2% and 5% of projected Ameren Missouri revenues, a spending level which exceeds nearly all electric utilities in the nation.
- A comprehensive view of measures yielded considerable economic potential. The study considered hundreds of measures and there are very significant savings opportunities.
- Ameren Missouri customers are different than others in the nation. They typically express less interest in DSM investments at this time.

Using a bottom-up, end-use approach, GEP assembled models of equipment stock and energy usage throughout the time horizon that were based on the primary market research data of the Ameren Missouri service territory. They then applied energy efficiency and demand response measures and programs to the model at levels defined by the extensive attitudinal research in order to estimate the potential energy saving effects. Each set of results has been briefly summarized below, and full detail is available in the 4 volume report which is publicly available on Ameren's website.

Mapping of Potential Study to Planning Assumptions

Several outputs of the Ameren Missouri DSM Potential Study required translation or mapping in order to become appropriate inputs for the Ameren Missouri IRP team. Ameren Missouri acquired DSMore modeling software in order to have a more sophisticated cost-effectiveness analysis at the measure level. It was necessary to map the various components of the GEP study to this updated analysis framework. This has been illustrated in Figure 3.8.

Figure 3.8 Mapping Potential Study to DSMore



The GEP measure database and Ameren Missouri's updated measure database each included hundreds of measures. To reconcile these databases, several adjustments were made to measure data including specifying values on a "per installation" basis instead of a "per square foot" basis, and matching measures that had disparate naming conventions or baseline assumptions. The Company also verified that savings, costs (exclusive of utility marketing, program delivery, and lost revenues), and lifetimes matched up after the reconciliation.

GEP then provided Ameren Missouri with the participation levels, program ramp rates, and incremental cost trends over the planning horizon such that the overall energy impacts were approximately equal to RAP and MAP from the Ameren Missouri's DSM Potential Study. With these values, Ameren Missouri was then ready to begin the actual portfolio analysis required for the MEEIA filing.

Effects of Missouri Energy Efficiency Investment Act

In 2010, the Commission submitted new rules to the Secretary of State to implement its MEEIA regulations. Provisions of the MEEIA statute and regulations affect the DSM planning process in multiple ways. First, the statute allowed qualifying commercial and industrial customers to opt out of energy efficiency programs and any associated surcharges on their bills. The regulations also call for a number of administrative, filing, and tracking exercises that will increase the costs associated with DSM. To account for the increased administrative requirements of MEEIA, Ameren Missouri inserted a 1% (1% of total program costs) placeholder in the administrative costs for each program. A placeholder cost for an updated potential study was also included at a cost of $109,090 in each program.

Business Customer Opt Out

MEEIA allows eligible large business customers to opt out of paying the costs of utility energy efficiency programs. Customers with single facilities exceeding 5.0 MW of peak demand can opt out immediately, and those with accounts that can aggregate to a peak demand over 2.5 MW can do so given that they demonstrate an achievement of savings at least equal to those expected by utility-provided programs.

Ameren Missouri estimated in its 2011 IRP that 20% of the available DSM potential from Commercial and Industrial (C&I) customers will opt out. Ameren Missouri has utilized that estimate for purposes of its MEEIA program analysis and has therefore reduced its business program potential estimates by 20% from those in the DSM Market Potential Study.

The 20% opt out estimate was the base case assumption used in the IRP analysis. However, that estimate was developed in the context of a high case (35%) and a low case (5%). The high and low estimates were developed by trying to ascertain the highest and lowest levels that would be possible given the law's provisions. The base case was assumed to be the midpoint between those more extreme scenarios.

The low case was based on an analysis of the customer load that had already notified Ameren Missouri of its intention to opt out of energy efficiency programs. One of those, customers, Noranda Aluminum, is large enough to be handled separately in such analysis. At the time of the initial analysis, the aggregated annual load for the remaining eight customers was compared to an estimate of the annual total C&I class loads to determine that 5% of the C&I class had already opted out. This makes a logical lower bound for the total load that will ultimately opt out.

The upper bound for opt out potential was developed by doing detailed analysis from the Ameren Missouri billing system to identify potential customers that would qualify for the opt out provision. First, customers that met the 5 MW threshold per their 2009 billing demand were identified to immediately qualify for opt-out. That list was adjusted for the fact that two customers on it had already closed or announced their intention to close their operations. Once again, the Noranda load was also removed from the list, as it is large enough to be treated separately. The annual MWh consumption for the remaining 5 MW customers for the year 2009 was aggregated as one group of opt out eligible load.

Next, individual accounts greater than 2.5 MW were identified and a similar aggregation of the associated annual consumption was calculated. This group must meet more stringent rules to opt out of energy efficiency programs. However, because these rules are relatively new and the market has little experience with them, it was conservatively assumed for the high case that all of them may be able to ultimately opt out.

Finally, several companies that were believed to be candidates to aggregate multiple accounts to the 2.5 MW level were identified. Because billing demand was not available for all of these accounts, an energy threshold was determined to represent a proxy for meeting the demand cut off. Customers that had energy consumption greater than 15.3

GWh were assumed to have a demand greater than 2.5 MW. This implies a 70% load factor, which is likely conservative for the types of customers under consideration. Customers included in these queries were ones that Ameren Missouri forecasting personnel were familiar with and in no way were meant to be an exhaustive list of all customers that could possibly opt out. Customers identified included hotel chains, retail chains, restaurant chains, and grocery chains.

Aggregating the three groups of customers that could potentially opt out, Ameren Missouri identified approximately 7 million MWh of annual usage as being potentially subject to the opt out provision. Estimated annual retail consumption of the C&I classes on a total basis (excluding Noranda) was approximately 19.5 million MWh (note that this estimate was prepared before the full load forecast was completed for the IRP and may not tie precisely to the base case forecast). Therefore, the percent of load eligible to opt out in the high case was determined to be approximately 35% (note the result was rounded down from 36% for simplicity). Because there was so little information about the likely behavior of eligible customers, the base case simply used the midpoint between the extreme scenarios as an estimate of the impact of this provision.

Table 3.11 Maximum Opt-Out Potential

Customer Category	2009 MWh
>5 MW Individual (ex-Noranda)	4,202,589
>2.5 MW Individual	2,121,112
>2.5 Aggregate	703,316
Total	**7,027,017**

Table 3.12 Opt-Out Scenarios

	High Case (All Eligible)	Base Case (Midpoint)	Low Case (Already Notified)
Total C&I Load Estimate (ex-Noranda)	19,479,367	19,479,367	19,479,367
Opt out MWh	7,027,017	3,952,103	877,190
Opt out %	**36%**	**20%**	**5%**

Cost-Effectiveness Defined

Ameren Missouri calculated the cost effectiveness of its DSM measures, programs, and portfolios using the TRC test, the UCT test, the participant cost test (PCT), and the ratepayer impact measure (RIM) test. In each year of the planning horizon, the benefits of each demand-side program are calculated as the cumulative energy impact multiplied by all applicable avoided costs, and then summed into net present values for the timeframe considered. The definitions of the tests, drawing upon the California Standard Practice protocol for DSM economic assessment, are outlined below:

The Total Resource Cost (TRC) test measures benefits and costs from the perspective of the utility and society as a whole. The benefits are the net present value of the energy and capacity saved by the measures. The costs are the net present value of all costs to implement those measures. These costs include program administrative costs and full incremental costs (both utility and participant contributions), but no incentive payments to customers. The full incremental costs include single upfront costs and operational & maintenance costs where applicable. Programs passing the TRC test (that is, having a B/C ratio greater than 1.0) result in a decrease in the total cost of energy services to all electric ratepayers.

The Utility Cost Test (UCT) measures the costs and benefits from the perspective of the utility administering the program. As such, this test is characterized as the revenue requirement test. Benefits are the net present value of the avoided energy and capacity costs resulting from the implementation of the measures. Costs are the administrative, marketing and evaluation costs resulting from program implementation along with the costs of incentives. Programs passing the UCT result in overall net benefits to the utility, thus making the program worthwhile from a utility cost accounting perspective.

The Participant Cost Test (PCT) measures the benefits and costs from the perspective of program participants, or customers, as a whole. Benefits are the net present value savings that customers receive on their electric bills as a result of the implementation of the energy efficiency and demand response measures. Costs are the customer’s up-front net capital costs to install the measures. If the customer receives some form of a rebate incentive, then those costs are considered as a credit to the customer and are subtracted from the customer’s total capital costs.

The Ratepayer Impact Measure (RIM) test measures the difference between the change in total revenues paid to a utility and the change in total costs to a utility resulting from the energy efficiency and demand response programs. If a change in the revenues is larger or smaller than the change in total costs (revenue requirements), then the rate levels may have to change as a result of the program.

Table 3.13 Summary of Cost-Effectiveness Tests

Component	TRC	UCT	PCT	RIM
Energy and capacity related avoided costs	Benefit	Benefit		Benefit
Incremental equipment and installation costs	Cost		Cost	
Program overhead costs	Cost	Cost		Cost
Customer Rebates		Cost	Benefit	Cost
Bill Savings			Benefit	Cost

Notice that "Bill Savings" are a cost in the RIM test. This recognizes the fact that fixed costs must be recovered by customers which ultimately cause an increase in customer rates. Furthermore, the bill savings are a function of rate design; that is, the participant's bill goes down based on the magnitude of the energy (and demand) savings and the volumetric rate. Since Ameren Missouri has a large portion of its fixed costs being collected in the volumetric rates, participants achieve greater bill savings but the utility's financial disincentive increases.

All of the cost-effectiveness tests assume fixed costs are being recovered. However, the regulatory lag associated with Missouri's ratemaking process prevents timely recovery of those fixed costs and therefore creates a strong economic disincentive for the utility to engage in energy efficiency efforts. These ratemaking and utility financial issues are discussed in Chapter 2.

Ameren Missouri Expert/Witness: Richard Voytas

Avoided Costs

Table 3.14 shows the avoided costs used for the cost-effectiveness analysis. The avoided energy costs represent an update to the IRP planning scenarios and a description of those updates is found below. The avoided capacity costs have been updated to reflect more recent short-term prices, an updated Cost of New Entry value (CONE) estimate, and the timing of regional resource needs. The avoided transmission and distribution costs have not changed from the 2011 IRP estimates.

Table 3.14 Avoided Costs – Highly Confidential

Year	Energy ($/MWh)	Capacity ($/kW-Year)	Distribution ($/kW-Year)	Transmission ($/kW-Year)
2013	$37	**HC**	$21	$10
2014	$40	**HC**	$22	$10
2015	$43	**HC**	$22	$10
2016	$46	**HC**	$23	$11
2017	$49	**HC**	$24	$11
2018	$51	**HC**	$24	$11
2019	$54	**HC**	$25	$11
2020	$56	**HC**	$26	$12
2021	$59	**HC**	$27	$12
2022	$61	**HC**	$27	$13
2023	$64	**HC**	$28	$13
2024	$67	**HC**	$29	$13
2025	$72	**HC**	$30	$14
2026	$77	**HC**	$31	$14
2027	$80	**HC**	$32	$15
2028	$84	**HC**	$33	$15
2029	$89	**HC**	$34	$15
2030	$93	**HC**	$35	$16
2031	$96	**HC**	$36	$16
2032	$99	**HC**	$37	$17

Avoided Energy Costs

The avoided energy costs are the probability weighted average of the eighteen planning scenarios defined in Figure 3.10. The development of the market price forecasts (avoided energy prices) was done using modeling software provided by Ventyx and is commonly referred to as “Strategic Planning” or MIDAS. This detailed simulation modeling software provides a dispatch production cost projection that utilizes load, fuel, and many other economic projections. To provide the detailed data needed to populate the MIDAS model for purposes of developing market prices forecasts, Ventyx provides a service that incorporates all the assumptions that are used in their “Ventyx Power Reference Case".

The Ventyx Power Reference Case is a product that uses an iterative integrated process to determine the impacts that capacity additions, and retirements have on power and natural gas. This process also considers the renewable energy expansion necessary to meet state RES targets and the resulting renewable energy credit prices.

For purposes of this analysis, the Fall 2010 Reference Case was used. Throughout 2010, the likelihood of federal greenhouse gas (GHG) legislation passing continually

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decreased. As of November 2010, with no current active legislation, the likelihood of a climate bill passing in the next two years was considered low. As a result of that political climate, the Fall 2010 Reference case does not assume the implementation of a GHG legislation during our forecast period. Similarly, Ventyx did not assume the implementation of a federal renewable energy standard but still meets individual state RES through the study horizon.

The executive summary of the Fall 2010 Reference Case is in Appendix E while the entire document and assumptions can be found in the Company work papers.

Three of the assumptions used in the Fall 2010 Reference Case were changed and varied in accordance with the new IRP planning scenarios. The three inputs that were chosen to vary are as follows;

- Load Growth – The base assumption that come from the Ventyx Fall 2010 Power Reference case includes an approximate 1% load growth across the entire eastern interconnect; additionally a ½% load growth assumption was modeled.

- Natural Gas Prices – Three levels of natural gas prices have been modeled. They have been generically identified as $5, $6 and $7 Gas. These identifiers have been provided to help differentiate the approximate real price levels of Henry Hub natural gas prices over the 20 year time frame.

- Coal Retirements – There are also three different levels of coal retirements for the eastern interconnect modeled for the IRP annual update. The three different levels are;
    - A total of 30 GW of coal retired by 2020, and 35 GW by 2030
    - A total of 45 GW of coal retired by 2020, and 55 GW by 2030
    - A total of 65 GW of coal retired by 2020, and 85 GW by 2030

The process of determining which coal plants would be retired started with a review from current news sources regarding announced coal plant retirements. This list was then compared to what was in the existing Ventyx dataset and if the coal unit retirement dates needed to be brought into alignment with recent announcements a change was made. Next this dataset was then compared to the MW's of coal generation that need to be retired to meet the 2020 and 2030 scenario targets. If additional coal plant retirements were required to meet the targets, they were brought forward from the existing coal plant retirements in the adjusted Ventyx dataset in future years. This process kept pulling future retirements earlier in time to meet the higher retirement scenario targets.

Avoided Capacity Costs

[redacted]

[redacted]

****Figure 3.9 Avoided Capacity Cost**

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New Planning Scenarios

Ameren Missouri's 2011 IRP included ten planning scenarios based on a combination of carbon policy, natural gas prices, and load growth. Those ten scenarios were included in a probability tree with each node representing the subjective probability assigned by Company experts. As part of the 2012 IRP annual update, the planning scenarios and subjective probabilities have been updated to better reflect the current planning environment. Figure 3.10 shows the new scenario probability tree which is based on environmental regulations, natural gas prices, and load growth.

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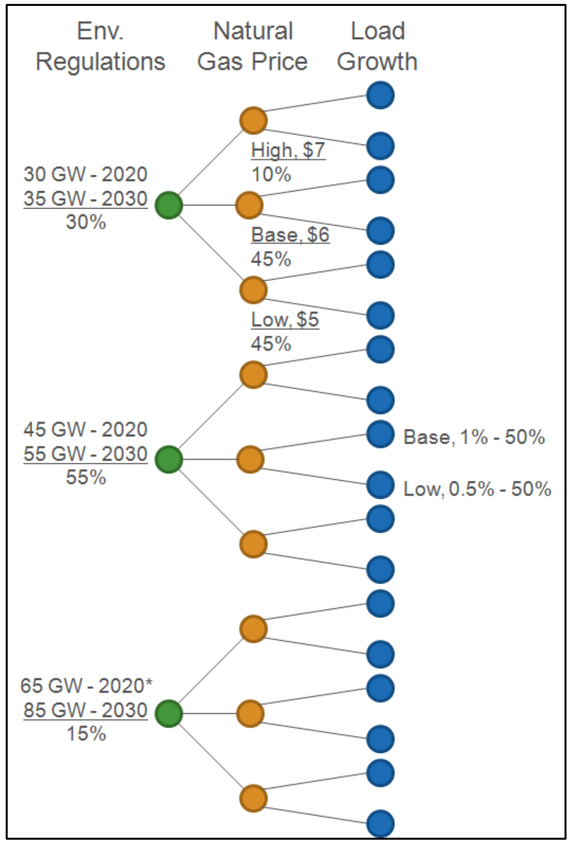
Environmental Regulation

Given the constant shifting nature of environmental regulations and the potential for changes in the mitigation options available to address regulations at a plant or unit level, it is problematic to precisely define various scenarios in terms of specific regulations. To understand the impact of environmental regulations on market price forecasts it is more practical to capture the uncertainty in how the electricity generation fleet responds to environmental regulations, rather than a range of explicitly determined environmental regulations. Using this approach ensures that whatever Ameren Missouri's resource plans include with respect to environmental mitigation is not inconsistent with the scenarios we use to evaluate the plans.

Figure 3.10 Scenario Probability Tree



*Includes $30 carbon price starting in 2025

The three levels of coal retirements are generally consistent with the range of industry studies that have aimed to characterize the potential impact of various EPA policies. It was also believed that the highest level of retirements would incorporate some carbon policy. That carbon policy is generically represented by a carbon price. The benefit of using a carbon price is that it is more practical to understand the financial impacts of carbon policy. For example, in the 2011 IRP, one carbon policy option was the Federal Energy Bill which was characterized as an indirect attempt to mitigate carbon emissions. A Federal Energy Bill type of scenario requires intricate macro-modeling to capture the effects on the market prices of electricity. Then, even with this intricate modeling, the effects on utility level resource planning analysis are muted because of the indirect signals sent by such a policy. Furthermore, there become practical constraints in modeling utility-specific resource plans that are explicitly consistent with both a Federal Energy Bill scenario and the other scenarios. With that said, using a carbon price as an indicative carbon policy provides clear and direct economic signals for utility resource planning purposes. The carbon prices used are consistent with the 2011 IRP.

Again, the goal is to characterize generic assumptions about the effects of environmental regulations instead of trying to predict the explicit regulations. Likewise the assignment of probabilities need not be overly complex. The subjective probabilities need to be consistent with the views of Company subject matter experts. Those experts were tasked with presenting their view of possible coal retirement levels and associated probabilities. In assessing probabilities, it is more important to understand the relative probabilities rather than to focus on the precise probabilities. For example, is one level of coal retirements more or less likely compared to the other levels? Following this more generic approach it was determined that the highest level of coal retirements is the least likely and the middle level was most likely. It was also thought that the lowest level was more likely than the highest level. The final probabilities, included in Figure 3.10, approximate the views of the Company's subject matter experts.

Natural Gas Prices

In an effort to provide a series of natural gas forecasts that reflect an Ameren perspective on potential prices of the commodity, a group of subject matter experts at Ameren have reviewed and developed a common understanding of those drivers in the natural gas industry that influence, effect and drive its price.

<u>Basic Fundamentals</u>

Supply – US natural gas production has surged with a significant expansion of domestic resources, efficiencies in horizontal drilling have continued to reduce gas production costs, new shale basins have proven to hold greater reserves than original estimates.

Demand – Reduction in demand from the economic downturn has shown to be structural in nature with heavy energy intensive industry moving from US shores.

Several directional indicators did help to frame the perspectives on both supply and demand.

Rig Count – Can be an indicator of health of the supply of gas, but with new technologies being deployed by drillers (i.e. horizontal and directional drilling) this indicator is not as helpful as it had been in the past. When a single rig can now drill in several directions for natural gas this efficiency gain often hides the lack of increases in rig count.

Fuel Switching – High coal or oil price increases can place pressure on the users of these energy sources to switch to natural gas, putting potential upward pressure on gas prices.

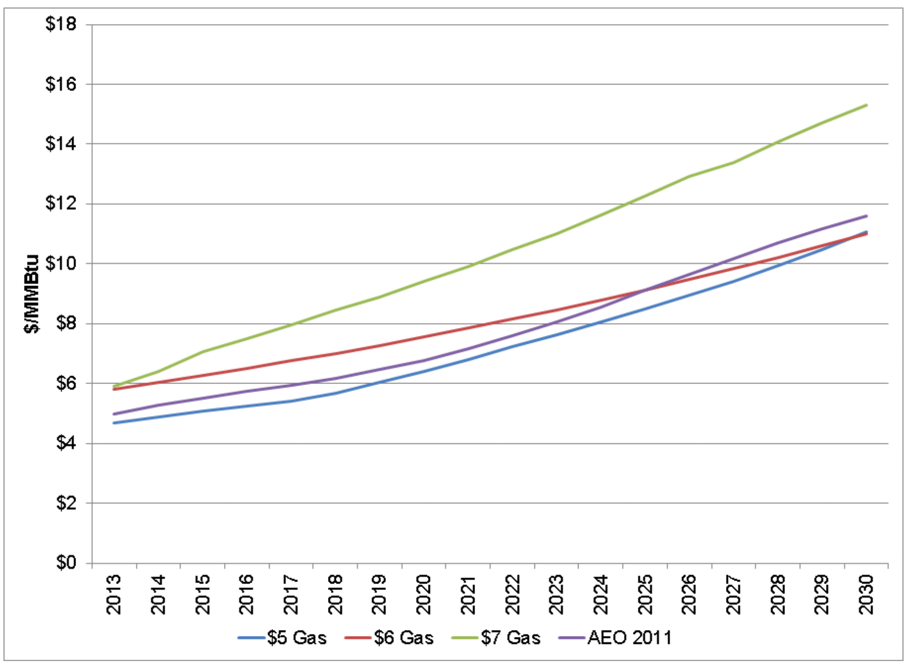
Export Capacity & Potential – The current US market is in an import capacity oversupply situation produced by cheap domestic shale gas production. This will put pressure to re-export LNG that arrives to the US with Global supply/demand factors influencing the potential for exports and upward price pressures.

Economic Health of Producers – The gas industry is very fragmented and diverse and if this highly leveraged group experiences financial stress, a period of consolidation could put upward pressure on the price of natural gas.

Environmental Regulation –Environmental regulations continue to become more restrictive for domestic shale drillers. Should this trend continue and the cost of meeting these regulations rise beyond current expectations, upward pressure would be placed on the market price for natural gas.

Several sources of forward natural gas projections have been reviewed in the determination for natural gas prices. These sources include Pira, Wood Mackenzie, and Bentek, along with the NYMEX Henry Hub market prices. These research services, along with the general market knowledge of the natural gas industry, have helped to frame the long term projections used and to provide context to the drivers of the market clearing price of natural gas.

Figure 3.11 Natural Gas Scenario Prices



Load Growth

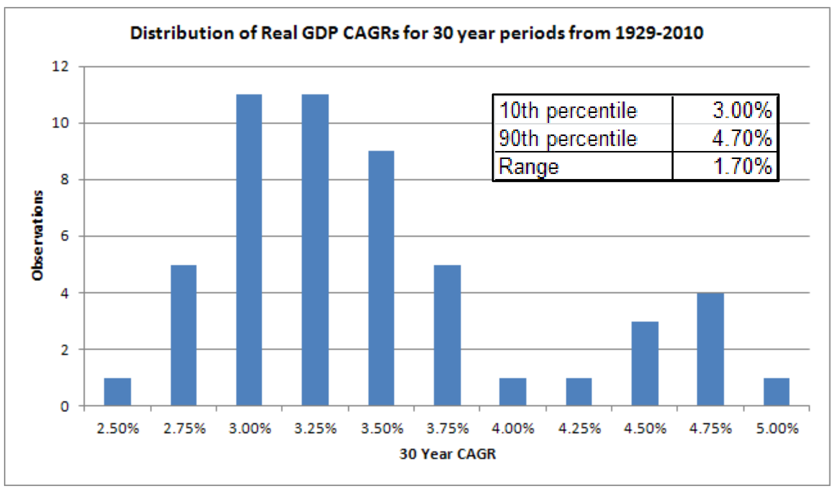
Two load growth scenarios were introduced in the probability tree. The Base load growth scenario features a 1% Compound Annual Growth Rate (CAGR) in load over the duration of the planning horizon. The Low load growth scenario is premised on a 0.5%

CAGR. These ranges were developed based on a macro level analysis of load and uncertainty around key drivers of both localized and regional load growth.

As a starting point for the analysis, Ameren Missouri reviewed updated load forecast assumptions for the Eastern United States published by the Energy Information Administration and also updated its own localized forecasting models to better reflect the realities of recent trends in observed loads. Based on these two sources, Ameren Missouri identified a central tendency of the new forecasts suggesting approximately 0.75% annual growth going forward. This is a reduction from the load growth forecasts released as recently as a year and a half ago. Given this starting point, the uncertainty in the key drivers was used to develop a likely range of future load growth.

One key driver analyzed as a potential source of upside or downside risk for load growth was Gross Domestic Product (GDP) growth. To determine the range of risk for GDP growth, analysis of real GDP growth rates for 30-year periods was conducted from 1929 to 2010. The real CAGR in GDP for each 30 year period in this window was calculated and the resulting distribution of growth was analyzed (see Figure 3.12).

Figure 3.12 GDP growth rates

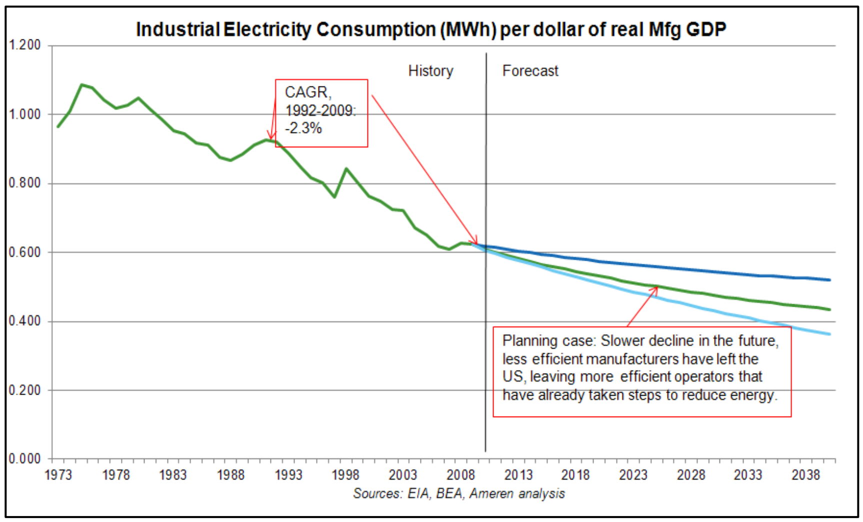


In this data, the range of uncertainty, when going from the 10th percentile to the 90th percentile, was 1.70 percentage points. This 1.70 percentage point uncertainty range represents a reasonable indication of the likely variability from its expected average of GDP growth over time intervals similar to our planning horizon. Assuming that GDP growth will be in a 1.7 percent range around our forecast suggests that the 2012 IRP Update's estimate of GDP growth could vary up or down by 0.85 percentage points for a total 1.7 percent range.

To translate GDP growth uncertainty to load growth uncertainty, an estimate of elasticity for electricity consumption with respect to GDP growth was developed from a review of national electricity consumption and economic activity as well as some Company specific analysis. Up until the 2009 recession (when the relationship temporarily weakened considerably) the most recent decade of data indicated an elasticity of load with respect to GDP of approximately 0.33. When this 0.33 elasticity estimate was applied to the +/-0.85 percentage points uncertainty range for GDP growth, there is around a +/- 0.25 percentage point of load growth uncertainty.

A second source of upside and downside risk for load growth was the energy intensity of the economy. Intuitively, a review of economic growth uncertainty and the uncertainty in the energy intensity of economic growth capture at a macro level the full picture of the potential path of load growth. Analysis of this factor was separated into 2 sectors, industrial and non-industrial, due to different scales of energy intensity and to different forces at work in these different sectors. However, declines in energy intensity have been occurring in both sectors for well over a decade.

Figure 3.13 Energy Intensity - Industrial Sector

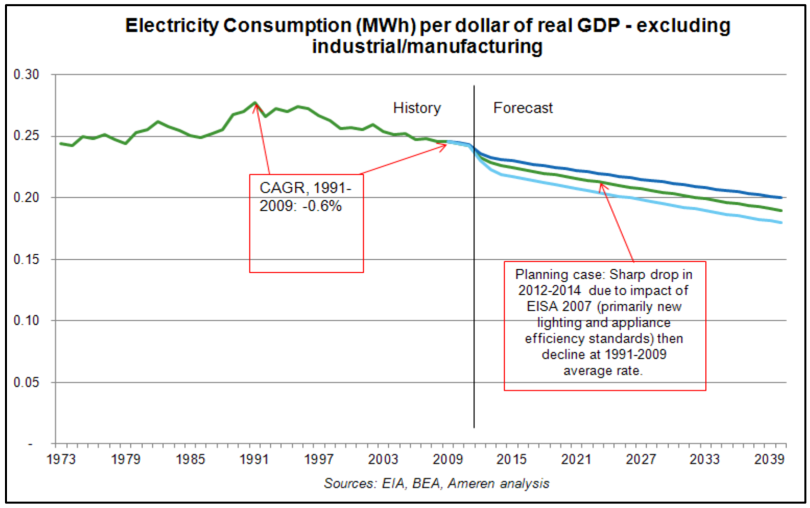


The industrial sector's energy intensity is shown in Figure 3.13. The historical energy intensity of national industrial activity is plotted, along with three forecast scenarios developed to represent future uncertainty in this variable. The expected case is for a continuing decline in energy intensity, but a decline at a slower pace than has been observed in recent history.

The reason is that many of the least efficient manufacturers have likely already stopped producing due to more efficient domestic or lower cost international competition. This leaves the more efficient manufacturers, which have already taken some steps to reduce energy consumption.

One alternative to the planning case in this sector is that cheaper competitive economies to which some US manufacturing has moved could mature and become more expensive, and/or the economics of shipping manufactured goods to the US could become less favorable, either one of them leading to a higher-than-planning-level of energy intensity. A different alternative is that as competitive economies achieve better economies of scale or other innovations, some of the marginal remaining US manufacturers move or close in response, leading to lower-than-planning-level of energy intensity.

Figure 3.14 Energy Intensity Nonindustrial Sector



The non-industrial sector's energy intensity is shown in Figure 3.14. After a relatively sharp drop expected in the 2012-2014 timeframe (due primarily to EISA), its energy intensity is expected to decline at the 1991-2009 average rate for this sector.

The uncertainty cases around the expected case include a scenario where efficiency gains slow down, either due to many of the most attractive opportunities for efficiency gain being already utilized or a Congressional repeal of some or all of the unpopular (amongst some parties) lighting and efficiency standards in EISA, leading to higher-than-planning-level energy intensity. Another alternative is that businesses become more efficient than expected due to unknown innovations and/or due to competitive/financial reasons, leading to lower-than-planning-level energy intensity.

Using these scenarios, Ameren Missouri developed load forecasts for the various levels of potential energy intensity. The range of uncertainty of load growth resulting from these impacts was an increase or decrease in load growth of approximately 0.25 percent.

Both the economic uncertainty and energy intensity uncertainties resulted in approximately 0.25 percent of load growth risk in either direction. Because these outcomes are not necessarily correlated (i.e. low economic growth could occur with increasing energy intensity or vice versa), Ameren Missouri did not assign full weight to both scenarios in developing its final load growth ranges. In fact, as both uncertain factors support a +/- 0.25 percent band, Ameren Missouri used this to define the Base and Low scenarios. Either of these factors could cause such an outcome entirely independently, or more probably, some combination of variability in each factor may end up occurring. However, in the view of Ameren Missouri's subject matter experts based on this analysis, a range of load growth from 0.5% to 1% represents a very reasonable estimation of the path of growth over the planning horizon, with equal, 50% probability on each.

Ameren Missouri Expert/Witness: William Davis

3.7 Baseline Forecast Comparison

The RAP savings estimates are based on the most recent Ameren Missouri Potential Study. The bulk of the work on the potential study took place in 2009. The baseline load forecast for the study was done on an end use basis utilizing actual load data through the calendar year 2008. It should be noted that the baseline forecast assumptions were developed early in the process consistent with Ameren Missouri's then current load forecast. This was before the full extent of the recession was apparent, and in particular, before the lasting impact on Ameren Missouri's load was apparent.

Since the development of the Ameren Missouri Potential Study baseline forecast, there has been some third party DSM activity, specifically in the form of programs sponsored by the DNR using money from the 2009 Federal stimulus. The impacts of this are not specifically accounted for in the modeling process, but because the historical data used in the modeling includes effects from these programs, the forecast also implicitly includes their impact as the model coefficients used to generate the forecast have been calibrated to the resultant lower level of loads. Naturally occurring energy efficiency was accounted for in both the potential study and the updated forecast. Assumptions on naturally occurring efficiency have been updated based on recent data from the Energy Information Administration, however, no major changes are present in the new assumptions, as EISA has been the source of the most pronounced changes in standards, and its effects were included in both forecasts.

Today's load expectations for the years covered by this filing are lower than the levels expected for this time period at the time of the potential study development in all classes across the board. Ameren Missouri has developed an updated load forecast that it anticipates filing as a part of the 2012 IRP Annual Update. Total load in 2013 is now expected to be approximately 4.5% lower than what was contemplated by the Ameren Missouri Potential Study. Residential load in 2013 is expected to be 5.8% lower than previous expectations. C&I load[11] is expected to be 3.7% lower than the original Ameren Missouri Potential Study baseline estimates.

Load growth over the DSIM implementation period of 2013-2015 is now expected to be positive, but less than 1% per year in the residential class, as compared with a very slight decline in load anticipated in the MPS baseline forecast. The C&I classes are now expected to grow at near 1.1%, just slightly faster than the 0.7% contemplated by

[11] For purposes of compatibility with the modeling framework employed by Global Energy Partners, Ameren Missouri's selected vendor for the Ameren Missouri Potential Study, some customers that Ameren Missouri classifies as Commercial customers were re-classified as Industrial customers. Therefore, direct comparisons of the study's forecasts of C&I classes to Ameren Missouri forecasts are not appropriate. Hence the comparison above is made using the combined C&I classes.

the Ameren Missouri Potential Study forecast. Both residential and C&I expected growth is generally in line with prior expectations, but slightly stronger than previously anticipated. This is primarily due to the lower absolute level of load at the outset of the period and an expectation that there will finally be a meaningful recovery in the economy, and particularly in the housing market, that will spur growth during the latter part of the time horizon. In fact, while residential growth expectations are stronger than previous estimates, use per customer is expected to be flat to declining throughout the 2013-2015 years, largely due to the effects of the federal lighting efficiency standard that will take effect as a result of EISA. By the end of the DSIM period, this modestly stronger growth is anticipated to bring total load to within 2.5% of the load projected in the Ameren Missouri Potential Study baseline forecast. It was also assumed that there was no change in customer participation in combined heat and power applications between the two forecasts.

All in all, while it can be said that there has been a very meaningful change in the load growth patterns since the Ameren Missouri Potential Study was developed in 2009, the load levels anticipated by that study over the life of this study are still reasonable representations of the load expected from Ameren Missouri's customer base. If anything, the reductions associated with the economic downturn may make RAP estimates, while still attainable in Ameren Missouri's view, more aggressive of a target than they were previously thought to be.

Table 3.15 reflects the changes mentioned above. The values are measured in GWh.

Table 3.15 Comparison of Potential Study and MEEIA Forecasts

	2012 MEEIA			MPS Baseline Forecast			Difference		
Year	**RES**	**C&I**	**Total**	**RES**	**C&I**	**Total**	**RES**	**C&I**	**Total**
2013	13,560	23,682	37,241	14,390	24,591	38,981	-5.8%	-3.7%	-4.5%
2014	13,738	23,870	37,609	14,359	24,528	38,887	-4.3%	-2.7%	-3.3%
2015	13,833	24,077	37,910	14,381	24,520	38,901	-3.8%	-1.8%	-2.5%

3.8 DSM Analysis

DSMore Model

DSMore™ is a powerful financial analysis tool designed to evaluate the costs, benefits, and risks of demand side management (DSM) programs and services. This tool, built by Integral Analytics, is the industry-leading DSM cost-effectiveness model and is used in more than 27 states for DSM program planning. The power of DSMore lies in its ability to process millions of calculations resulting in thousands of cost effectiveness results that vary with weather and/or market prices.

DSMore provides all of the familiar cost effectiveness test results, including Utility Cost Test, Total Resource Cost Test, Ratepayer Impact Measure Test, and Societal Test.

Moreover, these test results are provided for various weather conditions, including "normal" weather, and under a number of wholesale market conditions. DSM measures typically perform better during higher priced wholesale markets and more extreme weather. In fact, given that these two environmental forces tend to occur at the same time, the added boost in value that accrues to DSM avoided cost has a natural upward movement in value. By viewing numerous test results, the upward movement in DSM cost effectiveness becomes apparent.

Customization of the DSMore model by Integral Analytics and Ameren Missouri for measure analysis and program development included the addition of the following data specific to the Ameren Missouri service territory:

- Historic weather data
- Hourly market price data
- Historic rate level hourly energy usage (8760 load shapes)
- Rate information for the for the following classes
  - 1M RES Residential
  - 2M SGS Small General Service
  - 3M LGS Large General Service
  - 4M SPS Small Primary Service
  - 11M LPS Large Primary Service
- Annual avoided electric energy cost projections (summed over all avoided cost periods)
- Annual avoided capacity costs
- Avoided T&D costs
- Line loss factors applicable to the electric rates to perform calculations at transmission level
- Discount Rate
- Inflation Rate
- Hourly end-use load shapes (twenty year projections of 8760 load shapes) that represent the major end-usages of the customer population
  - All of the analyzed measures were assigned an end-use load shape
- Hourly system load shape (twenty year projection of 8760 hourly load shape with no energy efficiency programs present)

It should be noted that the DSMore model's energy inputs and outputs discussed in this report are at the Midwest ISO transmission level, and thus include the line loss factors necessary to aggregate and report impacts at that level.

Measure Level Screening

Ameren Missouri used multiple sources of data for the analysis of energy efficiency measures. The primary source of data was the EMV reports from Program Year 2. For any measure that was evaluated for the Residential or Business programs, the savings values, effective useful life, and any cost data was incorporated into Ameren Missouri's database of measures. To the extent these evaluated measures overlapped existing measure data already found within Ameren Missouri's database, EMV values took precedence and overrode existing values. For measures within the portfolio that have yet to be evaluated, the Morgan Measure Library was used. Morgan Marketing Partners (MMP) works with many DSMore users to develop utility specific databases of energy efficiency technologies and building simulations to use in program planning.

Two databases of residential and business measure level cost and savings data (weather sensitive and non-weather sensitive) have been customized for the Ameren Missouri service territory. A full list of measures considered in the development of a menu of energy efficiency and energy management measures can be found in the BatchTool spreadsheets within the Electronic Work Papers (DSM Workpapers\Measure Screen). The column labeled "End Use Effected" categorizes each measure into end-uses such as lighting, refrigeration, heating, cooling, water heating, and motors. The annual energy savings and coincident peak demand impacts per customer are located in columns AK - AM. The annual savings values were used for cost-effectiveness screening and the resulting TRC ratios for each measure are found in Column A of each BatchTool. The incremental costs per measure are also shown in the spreadsheet in column AP. A BatchTool for each rate class has been developed and can be found in the directory (DSM Workpapers\Measure Screen).

This database contains not only stand-alone efficiency measures, but also several bundled measure combinations. For example, many of the HVAC systems were viewed on a holistic basis incorporating several measures including an efficient air conditioner, refrigerant charge correction, fan motors, duct sealing, etc.

Another improvement from the 2011 IRP analysis was the incorporation of early replacement measures. This type of measure (mainly applicable to HVAC measures, specifically heat pumps and air conditioners), was previously omitted from the analysis as it was thought to be unlikely customers would replace equipment, in perfect working condition, with updated efficient technology replacements. After implementing various programs and learning more about our customer base, Ameren Missouri actively incentivized early replacement options, and as such, has developed the appropriate methodologies to analyze the cost effectiveness of these measures.

The essence of early replacement measures is exactly as the name suggests, replacing existing installed equipment with a new efficient alternative. Several key factors are involved when conducting early replacement cost effectiveness analysis.

1. Remaining effective useful life of the existing equipment (assumed to be 1/3 of the life of the equipment). For example, an air conditioner lasts 18 years, regardless of efficiency. The existing equipment installed in the home would then have 6 years of remaining useful life.
2. Remaining effective useful life of the efficient equipment (assumed to be 2/3 of the life of the equipment). For example, an air conditioner lasts 18 years, regardless of efficiency. The existing equipment installed in the home would then have 12 years of remaining useful life.
3. There are two levels of savings. One level of savings occurs from the new, efficient equipment and the existing, installed unit for the remaining effective useful life of the existing unit. The next level of savings is obtained by subtracting the current federal standard or code equipment's consumption from the new efficient equipment. Example: replacing an existing Seasonal Energy Efficiency Rating (SEER) 8 central air conditioner with a new SEER 15 air conditioner. There would be 6 years of savings for the first Tier (SEER 8 kWh – SEER 15 kWh), and then there would be 12 years of savings from the second tier (SEER 13 (code) kWh – SEER 15 kWh).
4. Incremental cost calculation. This is typically calculated as the difference between the full cost of the efficient measure and the net present value of the Standard/Code baseline equipment. The Standard/Code measure will be installed at the expiration of the remaining useful life of the existing equipment (in the previous example, 6 years from today).

Using this methodology, the cost effectiveness tests can be calculated appropriately.

The analytics team also adopted a new way of evaluating the incremental costs associated with lighting measures in cases where the efficient technology has a longer life than the baseline measure being replaced. An example of this is a CFL bulb. A CFL lasts 9 years, while a conventional incandescent light bulb only lasts 1 year while the newer EISA compliant bulbs last 2 years. This differential in lifetimes indicates that the incandescent bulb would actually need to be replaced 4 times over the life of the CFL. Furthermore, EISA has implications on the baseline technology, eliminating conventional incandescent bulbs and instilling new, more efficient bulbs. As mentioned in the section entitled, “Legislative Impacts” new halogen bulbs will likely be the baseline, and each bulb was assumed to cost $2 (based of primary market data collected by Ameren Missouri's contractors). By comparing the net present value of the CFL bulb installed today ($3.00), with the net present value of the lifetime of incandescent replacements, the new incremental cost is negative. Table 3.16 demonstrates the lifetime financial savings continually replacing incandescent lightbulbs over the life of the CFL exceed the present value of the cost of the CFL.

Table 3.16 Incremental Cost for Lighting Measures

	NPV	2012	2013	2014	2015	2016	2017	2018	2019	2020
Efficient (CFL)	**$3.00**	$ 3.0								
Base (Incandescent EISA compliant)	**$6.57**	$ 0.5	$ 0.5	$ 2.0	$ 0.0	$ 2.0	$ 0.0	$ 2.0	$ 0.0	$ 2.0

The following special considerations were accounted for in the Weather Sensitive measures:

- The weather basis used for analysis of weather sensitive measures consists of National Oceanic and Atmospheric Association historic hourly weather data (precipitation, temperature, dew point, winds, visibility, cloud cover, pressure) recorded in St. Louis, MO.
- A set of residential, commercial and industrial prototypical building models were developed using the United States Department of Energy (DOE) 2.2 building energy simulation program (more than 2900 were developed) for each of the market segments defined within the Morgan Measure Library. The prototypes are based on the models used in the California Database for Energy Efficiency Resources (DEER) study, with appropriate modifications to adapt these models to local design practices and climate. A more robust discussion of building simulation can be found in the TRM.
- Morgan Marketing Partners (MMP) provided a tool for blending the results of the discrete analyses and costing data to simplify further cost effectiveness analyses within the measure screen.
- Approximately 65 residential measures were analyzed for the possible combinations of the following residential building types, sizes, vintages, and applicable HVAC technologies – resulting in a total of approximately 2975 DOE 2.2 analyses.
- Approximately 160 commercial and industrial measures were analyzed for the possible combinations of the following commercial building types and applicable HVAC technologies – resulting in a total of more than 750 DOE 2.2 analyses.

Table 3.17 Residential Weather-Sensitive Modeling Variables

3 vintages of single and multi-family building types	7 HVAC technologies within single and multi-family homes	2 sizes of multi-family residential buildings	3 vintages of manufactured home types	6 HVAC technologies within manufactured homes
Old, poorly insulated (1950s)	Central AC with gas furnace	2-4 unit buildings	Old (Pre 1978)	Central AC with electric furnace
Existing, average insulation (1950-2004)	Central air source heat pump	5+ unit buildings	Existing, average (1978-1994)	Central AC with gas furnace
New (2004+)	Central dual fuel heat pump		Newer (1995-2005)	Central air source heat pump
	Electric furnace no AC			Central dual fuel heat pump
	Gas furnace no AC			Electric furnace no AC
	PTAC			Gas furnace no AC
	PTHP			

Table 3.18 Commercial & Industrial Weather-Sensitive Modeling Variables

13 Commercial and Industrial Building Types	9 HVAC technologies within select C&I Building Types
Assembly	Constant Volume (CV) reheat economizer with Air Cooled Chiller
Big Box Retail	CV reheat economizer (econ) with Gas Engine Chiller
Fast Food Restaurant	CV reheat econ with Water Cooled Chiller
Full Service Restaurant	CV reheat no econ with Air Cooled Chiller
Grocery	CV reheat no econ with Gas Engine Chiller
Hospital	CV reheat no econ with Water Cooled Chiller
Hotel	Variable Air Volume (VAV) reheat econ with Air Cooled Chiller
Large Office	VAV reheat econ with Gas Engine Chiller
Light Industrial	VAV reheat econ with Water Cooled Chiller Assembly
Primary School	
Small Office	
Small Retail	
Warehouse	

The Non-Weather Sensitive Database from MMP consisted of measure level data for 200 commercial and 74 residential measures.

Ameren Missouri reviewed the detailed data and analyses contained within the entire Morgan Measure Library to assess its accuracy and completeness. The non-weather sensitive database was then refined using results from the Ameren Missouri DSM Potential Study, as well as other recognized energy efficiency databases. Ultimately this resulted in a final non-weather-sensitive database consisting of 236 commercial and 107 residential measures.

The weather sensitive and non-weather-sensitive databases were combined and duplicate measures and nonsensical measures were removed using a qualitative screen. Furthermore, any new measures resulting from EMV activities in Cycle 1 were added to the database. The final master measure database after all these steps consisted of 577 measures for analysis, 288 of which passed the TRC screen. This database contains a plethora of best-practice measures that are compliant with existing code, account for future code changes (as in residential and business lighting), are technologically advanced (variable refrigerant flow, ductless heat pumps, LED lighting), and offer consumers multiple efficient options.

Interactive Effects

Interactive effects were assessed by Ameren Missouri's contractors for both the Ameren Missouri DSM Potential Study and the DOE-2.2 modeling that was performed by MMP for measures within the Morgan Measure Library. Capturing the interactive effects of all applicable measures required examining many instances where multiple measures affect a single end use both positively and negatively. To avoid overestimation of total savings, the assessment of cumulative impacts accounts for the interaction among the various end uses.

Within the DOE-2.2 models, this was accomplished by establishing a base level model that incorporated many non-related measures and identifying the savings achieved by stacking the incremental measure within an additional modeling run, with a comparison of the base and modified runs to arrive at the implemented measure impact on energy consumption.

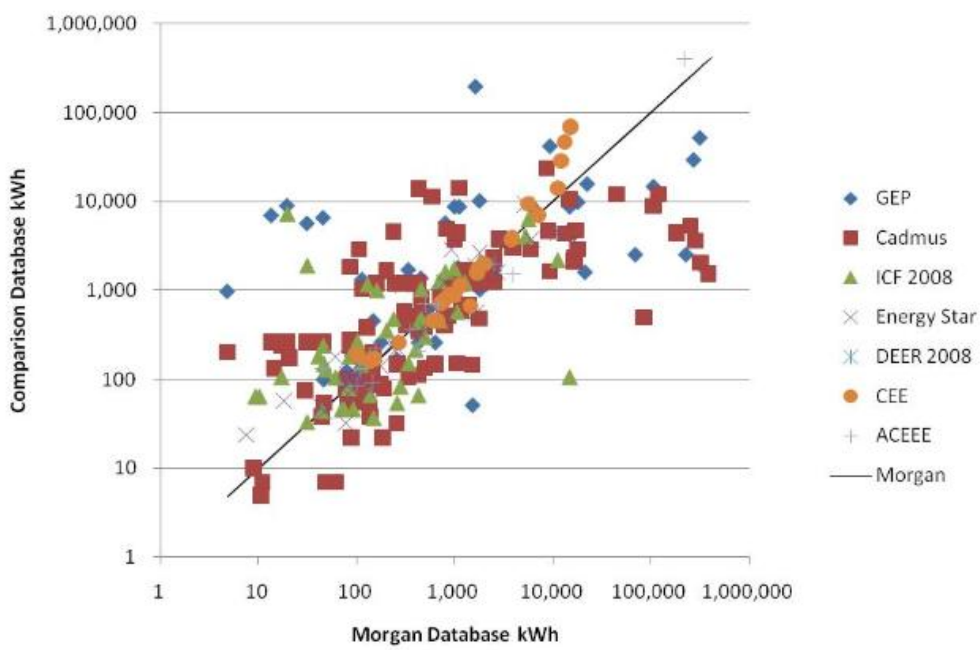
Checking Measure Level Results

Ameren Missouri went to great lengths to check the reasonableness of the Morgan Measure Library. Ameren Missouri performed a review of data provided by other data sources and contrasted that information with the data contained within the Morgan Measure Library to validate, or adjust if necessary, the measure database. The other measure databases that were used to validate the Morgan Measure Library contents were:

- GEP's measure database for DSM potential studies
- The Cadmus Group's measure database for DSM potential studies
- DEER 2008
- ICF 2008 data from Ameren Missouri's 2008 IRP Plan
- ENERGY STAR
- American Council For An Energy Efficient Economy (ACEEE)
- Consortium For Energy Efficiency (CEE)

Figure 3.15 illustrates just one of the validation processes that Ameren Missouri performed. This example shows a comparison of the incremental kWh savings value associated with the same energy efficiency measures from the various databases: Outliers, when present, were subsequently investigated, and corrective actions were implemented when necessary. As can be seen, the measure savings of the various sources trend as expected: along a diagonal line with a slope of one. This indicates that the sources feeding the measure database tend to converge.

Figure 3.15 Measure kWh Values by Database



With the master measure database assembled, Ameren Missouri then conducted a measure level screen for each measure in all rate classes (1M-Res, 2M-SGS, 3M-LGS, 4M-SPS, and 11M-LPS). This resulted in a total of more than 4000 measure level screening analyses being performed in DSMore to assess the cost-effectiveness using the TRC test.

To be inclusive of marginally cost-effective measures and provide greater diversity in the Ameren Missouri program mix, the measure level TRC criterion was set at 0.90. That is, individual measures tested without program costs were required to have a TRC benefit-to-cost ratio greater than 0.90 in order to pass the measure screen. Table 3.19 illustrates the number of passing measures. Table 3.20 subsequently lists the passing measure categories that have been included in the planning horizon. (These categories may include an aggregation of more specific measures.)

The Batch Tools found in the Electronic Work Papers (DSM Workpapers\Measure Screen) shows the results for each measure's TRC result for each applicable customer rate. All measures passing the screening test have been highlighted in green.

Table 3.19 Number of Measures Screened

	Measures Screened	Measures Passed	Percent of Measures Passed
Residential	217	126	58%
Business	360	162	45%
Total	**577**	**288**	**49%**

Table 3.20 Measure Categories Passing the TRC

Residential Measure Categories	Business Measure Categories
Air Source Heat Pump	Air Source Heat Pump
Basement Wall Insulation	Anti Sweat Heater Controls
Ceiling Fan	Barrel Wraps Inj Mold and Extruders
Central Air Conditioner	Central Air Conditioner
CFL bulbs – specialty	Ceramic metal halide lighting
CFL bulbs – standard	CFL bulbs – specialty
CFL fixture	CFL bulbs – standard
Crawlspace Wall Insulation	CFL fixture
Dehumidifier recycling	CHW reset
Dual Fuel Heat Pump	Commercial clothes washer
Duct Insulation	Commercial freezer – ENERGYSTAR
Duct Sealing	Commercial ice machine – ENERGYSTAR
ECM blower	Commercial refrigerator – ENERGYSTAR
Efficient faucet aerator	Compressed Air Optimization - Leak Audit, New Compressors, Improved Controls
Efficient pool pump	Cooking Equipment
Efficient showerhead	Cool roof

Electric Water Heater EF 0.93+	Daylight Sensor controls
Freezer recycling	Delamping
Geothermal heat pump	Demand Controlled Ventilation
Geothermal HP Desuperheater	ECM case motor
Gravity film heat exchanger (GFX)	Efficient Chiller
Heat Pump Clothes Dryer	Efficient Condenser
Heat Pump Water Heaters	Efficient faucet aerator
High Intensity Discharge Lamps (HID) - Exterior	Efficient motor
HVAC Maintenance and Tune-up	Efficient pool pump
Infiltration reduction	Efficient pump
LED lights	Efficient Refrigeration Condenser
Lighting Timeclock	Efficient showerhead
Metal Halide Outdoor Lighting	Energy Management System
Multiple Drawer Refrigerators	Engineered Nozzles Compressed Air
Occupancy Sensor	Exterior lighting control
Outdoor Lighting – Photovoltaics	Floating Head Pressure Control
Packaged Terminal Air Conditioner (PTAC)	Geothermal heat pump
Packaged Terminal Heat Pump (PTHP)	Guest Room Energy Management
Pipe Wrap	Head Pressure Control
Programmable / Set-back Thermostat	Heat Pump Water Heaters
Radiant Barrier	High bay T5 fluorescent lights
RCA improvement	High Intensity Discharge Lamps (HID) - Exterior
Refrigerator recycling	High performance T8 fluorescent lights
Room AC recycling	Infrared Heater
Smart power strip	LED Case lighting
Solar hot water heater	LED lights
Wall Insulation	Lighting Controls
Water heater blanket	Occupancy Sensor
Water heater thermostat setback	Optimizing Process Cooling
Window Air Conditioner	Optimizing Process Heating
	Pre rinse spray valve
	Programmable / Set-back Thermostat
	Pulse start metal halide lighting
	Radiant Barrier
	Refrigerant charging correction
	Refrigeration strip curtains
	Retro-Commissioning, Lighting
	Smart power strip
	Timeclocks
	Tractor Heater Timers

	Vending Equipment Controller
	VFD air compressor
	VFD fan
	VFD motor
	VFD pump
	Wall Insulation
	Water loop heat pump
	Window replacement

There were, in a few instances, measures that passed the TRC screen in the RAP measure screen that were not included within this MEEIA filing and vice versa. Table 3.21 summarizes these measures and provides a brief description of why that measure was not included.

Table 3.21 MEEIA Measures

Portfolio	Measures	In IRP	In MEEIA	Rationale
Business	Motors	✓		Standards Change
Business	T8 replacing T12	✓		Standards Change
Business	Exterior Bi-level control Lighting	✓		TRC < 1
Business	VFD 2 HP	✓		TRC < 1
Business	Hot Food Holding Cabinets 3/4 size	✓		TRC < 1
Business	Farm Based Digestor	✓		Distributed Generation Technology
Business	Dual Technology Sensors (more than 150 Watts)		✓	EMV added measure
Business	GU-24 pin-based CFL - 30W		✓	EMV added measure
Business	Interior High-Bay CF (3 fix. controlled)		✓	EMV added measure
Business	Interior High-Bay T5 (3 fix. Controlled)		✓	EMV added measure
Business	New pin-based CFL Fixture (_GT_45W)		✓	EMV added measure
Business	Passive Infrared or Ultrasonic		✓	EMV added measure

Business	Passive Infrared or Ultrasonic_2		✔	EMV added measure
Business	ENERGY STAR Vending Machine		✔	EMV added measure
Business	Lighted Snack Dispensing Machine		✔	EMV added measure
Residential	LED night light	✔		TRC < 1
Residential	radiant barrier	✔		TRC < 1
Residential	Crawl Space Insulation	✔		TRC < 1
Residential	Wall Insulation	✔		TRC < 1
Residential	Indoor Coil Cleaning		✔	PEG added measure*
Residential	Outdoor Coil Cleaning		✔	PEG added measure*
Residential	Heat Pump Strip Reset		✔	PEG added measure*
Residential	Heat Pump Strip Installed		✔	PEG added measure*
Residential	Energy Star Refrigerator		✔	EMV added measure

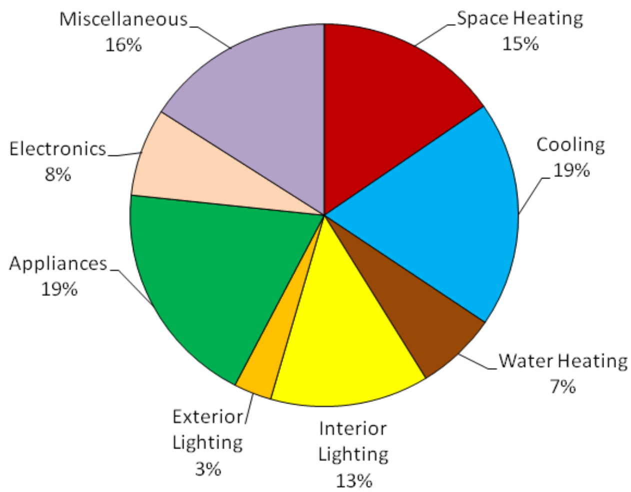
*-PEG = Proctor Engineering Group

Bundling Measures into Programs

An energy efficiency measure is a device, appliance, or practice which, when implemented for a home, business, or manufacturing process, results in a reduction in the amount of energy used per unit of useful service. For program design purposes, those measures passing the screening analysis were considered and incorporated into at least one program, and in many cases, multiple programs. In general, related measures were grouped together for bundling into programs. Each program was comprised of a cross-cutting set of measures capable of cost-effectively addressing the characteristics of each market segment.

Program participation estimates for each measure in each year of the implementation plan were based on participation rate assumptions and measure allocations derived from the Ameren Missouri DSM Potential Study. The primary market research obtained from the 2009 Ameren Missouri DSM Potential Study was used to clarify and define the program components to achieve those savings. As an example, Figure 3.16 describes how energy is used at the end-use level by Ameren Missouri Residential customers:

Figure 3.16 Base Year Residential Electric Consumption by End Use



Once participation levels were identified and incorporated, program design work could begin. The Company incorporated multiple components in the program design phase including primary market data from Ameren Missouri's DSM Potential Study and also input from its implementation team. As an example of how this information was used in the program design process, consider residential space heating – both electric and gas. The market share and equipment saturation of electric space heating in the Ameren Missouri market is relatively low, but because of the high energy intensity of this end use, the electric energy consumed in space heating (15%) is nearly equivalent to the electric energy used for cooling (19%), where the Ameren Missouri market share and equipment saturation is almost 100%. This speaks to the need for exploration of a program focused around improving electric space heating efficiency through various measures including furnace fan upgrades.

Input from the Ameren Missouri DSM implementation team was also a significant factor in the program design process. The implementation team has gained significant experience from participation in the energy efficiency market at both the residential and business levels. They have firsthand field experience and identified the necessary program elements required to move the market. Estimation of incentive levels, program administration and marketing costs, and portfolio level costs were based primarily on the Ameren Missouri implementation team's experience during Cycle 1.

Program Cost-Effectiveness Screening

Once measures had been assembled into programs, each program was analyzed using the aforementioned cost-effectiveness metrics, primarily the TRC test. The program screening process added program-level and portfolio-level costs to the bundled measures to estimate the level of their total delivered cost. The method in which these costs were developed has been described below. All programs that were included in the residential and business portfolios were designed to have a TRC ratio greater than 1.0, with the exception of the Low Income program. This is because typical Low Income programs target a hard-to-reach market and it is common practice for the utility to offer fully installed measures in this program with little or no cost to the customer.

Accompanying the TRC calculations are several other cost-effectiveness tests. For each program, TRC, RIM, and UCT tests also were calculated. These results, along with participation estimates, program costs, utility costs and energy and demand reduction estimates (load impacts) are in the Electronic Workpapers (DSM Workpapers\Program Aggregate Tools) for each program.

Calculation of Incentive Costs

Incremental costs which include upfront costs and operational & maintenance costs are listed in each Batch Tool (DSM Workpapers\Program BatchTools). Incentive costs were calculated by summing the average, per-measure incentive levels that were developed according to the following methodology.

- First, a simple payback analysis was performed on each measure to arrive at the initial target incentive level. This determined the incentive amount required to supplement the customer's electric bill savings such that the incremental cost of the measure would be paid back in 2 years.
- Second, upper and lower constraints were applied for each program based on an appropriate percent of incremental cost. These constraints were established based on experience gained from the Ameren Missouri Energy Efficiency implementation teams, the Ameren Missouri potential study efforts, and information from the last 3- year plan. These incentive thresholds are shown in the Table 3.22.

Table 3.22 Incentive Thresholds by Program (% of Incremental Cost)

ENERGY EFFICIENCY PROGRAM	Max Limit (%)	Min Limit (%)
RES-Lighting	30%	20%
RES-Efficient Products	30%	20%
RES-HVAC	30%	20%
RES-Appliance Recycling	N/A	N/A
RES-HEP	30%	20%
RES-New Construction	40%	20%
RES-Low Income	100%	100%
BUS-Standard	50%	40%
BUS-Custom	Based on $/ first year-kWh saved	
BUS-RCx	30%	20%
BUS-New Construction	40%	20%

- Finally, the resulting incentive level was reviewed and, in some cases, manually adjusted based on information from actual field experience, other utilities' program experience, the EMV contractor's input, and market conditions.

An example of a manually adjusted incentive is LED bulbs in the Residential Lighting program. Steps 1 and 2 above would have set the incentive level between 20% - 30% of incremental cost. A comparison of the broader market and input from the implementation team, however, caused Ameren Missouri to increase its LED incentive in the first program year to $15, or approximately 45% of the incremental measure cost. This more accurately reflects market conditions.

Another exception to the above methodology is when an assessment of market needs dictates that full measure cost or direct installation of measures must occur. This is the case in programs such as Low Income.

Specific incentive levels are available in the program templates and appropriate program Batch Tools.

Calculation of Administrative Costs

Portfolio Administrative Costs were calculated on a per-measure basis. These administrative costs were determined as a percentage of incentive costs. The administrative costs differed from program to program, but for the overall portfolio, they ranged from 75% – 85% of the incentive costs from year to year.

Portfolio Level Cost Estimates

There are 4 Portfolio Level Costs applied on a per-program basis: Portfolio Administrative Costs, EMV Costs, Educational Costs, and Marketing Costs. Each cost was calculated by applying the following percentages to the Total Program Costs:

Table 3.23 Portfolio Level Costs*

	% of Total Program PY 1-2 Costs*	% of Total Program PY 3 Costs*
Portfolio Admin Costs	6.0%	6.0%
EMV Costs	2.0%	5.0%
Educational Costs	5.5%	2.5%
Marketing Costs	2.5%	2.5%

**Total Program Costs include the Program Administrative Costs (previously mentioned), Incentive Costs (previously mentioned), Implementation Costs, and any Miscellaneous Costs.*

Portfolio administrative costs include a 1.0% of total program cost increase in order to reflect additional resources needed to comply with new rules from MEEIA and also a placeholder of $54,545 in each program for the last two years of the implementation cycle for an updated DSM potential study. The EMV costs are reduced to 2.0% for the first and second program years as the evaluation contractors will be primarily counting the number of installations of the measures and conducting process evaluation. The EMV cost increases in PY 3 when a full portfolio level impact and process evaluation will be conducted.

Net-To-Gross (NTG) Assumptions

For the MEEIA analysis, Ameren Missouri assumed net savings equal gross savings, or NTG = 1. There is one exception to this rule, which is the residential refrigerator recycling program which has a NTG of 0.64. This program is unique in that it has a finite program duration, indicating a limited stock of available opportunities. Furthermore, EMV reports from Ameren Missouri as well as other jurisdictions indicate there are significant free riders who already remove and/or recycle their existing refrigerator or freezer. For these reasons, a NTG ratio other than 1.0 was used to model the residential refrigerator recycling program.

Hourly Load Shapes

A set of hourly forecast end-use shapes was developed to represent all of the shapes of the measures that were being analyzed. These load shape forecasts were calendar aligned to be consistent with the hourly load forecast. These hourly shapes consisted of 8760 hours of load values for a 365 day year, and 8784 hours of load values for a 366 day year within the load forecast.

To provide for scaling of the shapes to represent the savings that were projected by the modeling within DSMore, each year of each end-use shape was unitized on an annual energy basis.

The annual energy savings projections (at the meter) for each class of end-use within a program were calculated. These annual energy values were multiplied by each hourly energy value within the corresponding unitized end-use load shape to create a correctly scaled hourly end-use load shape forecast. Each of the scaled end-use load shapes within a single program is then summed on an hourly basis to arrive at an hourly end-use forecast of the program impact at the meter.

The sum of each residential and business program meter level hourly load forecast is calculated on an hourly basis to arrive at the respective Meter Level Energy Efficiency Portfolio Load Shape.

Each hour of the Energy Efficiency Portfolio Load Shapes is adjusted by the appropriate line loss factors to arrive at the Integration Level Energy Efficiency Portfolio load shapes. These two shapes are then summed on an hourly basis to arrive at the Hourly Integration Level Energy Efficiency Portfolio Load Shape which is subsequently used in Ameren Missouri’s resource plan model, MIDAS.

3.9 Demand Response

This filing does not include a demand response (DR) component. The concept of demand response is to reduce load when doing so is more economic than purchasing additional supply. Ameren Missouri's capacity position during the 2013-2015 MEEIA implementation planning period is in Table 3.24.

Table 3.24 Ameren's Capacity Position

	2013	2014	2015
Existing Capacity	**[redacted]**	**[redacted]**	**[redacted]**
Purchases and Sales	**[redacted]**	**[redacted]**	**[redacted]**
Net Capacity	**[redacted]**	**[redacted]**	**[redacted]**
Retail Load	**[redacted]**	**[redacted]**	**[redacted]**
Wholesale	**[redacted]**	**[redacted]**	**[redacted]**
Voltage Reduction	**[redacted]**	**[redacted]**	**[redacted]**
Energy Efficiency	**[redacted]**	**[redacted]**	**[redacted]**
Load Requirements (@ Generation)	**[redacted]**	**[redacted]**	**[redacted]**
Reserve Margin	**[redacted]**	**[redacted]**	**[redacted]**
Load Requirements	**[redacted]**	**[redacted]**	**[redacted]**
Excess Capacity	**[redacted]**	**[redacted]**	**[redacted]**

Based on the near-term excess capacity, there is no need, from an Ameren Missouri capacity requirements perspective, to add new demand response resources during this three-year implementation period. Furthermore, the near-term capacity prices are exceptionally low and Ameren Missouri believes it is more prudent to reevaluate demand response opportunities as capacity prices rebound and its excess capacity is diminished.

However, the MEEIA rules allow the peak demand reduction component of energy efficiency measures to count towards peak demand reduction goals. From Table 3.24, Ameren Missouri's peak demand reductions from energy efficiency for 2013, 2014, and 2015 are projected to be approximately 0.5%, 0.7%, and 1.0% of system peak demand.

3.10 Implementation

In 2008, Ameren Missouri chose to utilize a prime contractor model to deliver energy efficiency programs. Since the Cycle 1 plan called for Ameren Missouri to spend roughly $25 million per year on energy efficiency programs, it was necessary to hire an experienced prime contractor to attempt to achieve the aggressive load reduction goals. The Prime Contractor's main responsibilities include managing sub-contractors, business development, advertising, and performance tracking. To further leverage economies of scale, Ameren Missouri chose to hire one contractor to implement both the Residential and Business portfolios, each with separate statements of work and contracts. This would allow for several benefits including streamlined statement of work

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development, shared personnel and capital equipment resources, and consolidation of communication channels between the implementer and the Company.

Midway through Cycle 1, Ameren Missouri switched to a hybrid approach in implementing the energy efficiency portfolio. A prime contractor model has been effective for the commercial and industrial market segments. Targeted marketing and experience with other utility programs has allowed the prime contractor to drive customer participation and build a substantial trade-ally network. The Prime Contractor's experience with other utility service territories allows for knowledge sharing and implementation techniques that would likely not be available if Ameren Missouri were to implement the program in-house. Many of the projects in the commercial and industrial market require engineering expertise and specialized skill-sets to garner large energy savings, indicating a strong need for past experience and competency in these areas by the implementation staff, all of which the contractor provides.

The residential portfolio, however, has achieved greater and more pervasive energy savings using an implementer by program approach. Ameren Missouri employees manage the individual programs, hiring individual implementers with expertise in the given area to interact with customers to meet the energy savings targets. Unlike many business projects, most of the residential energy programs require specialized knowledge, equipment, networks and partners in the particular program area. Examples of these types of programs include appliance recycling and lighting programs. In the MEEIA implementation cycle, the residential portfolio may be implemented by a prime contractor or using the existing model leveraging Ameren Missouri's staff.

Further information surrounding delivery mechanisms for specific programs can be found in the Program Templates, located in Appendix B. While many of the suggested implementation, marketing, and evaluation methodologies represent probable strategies the Company will use, each program is subject to change. Discussions with implementation teams, evaluation contractors, review of evaluation reports and further analysis of the market at the time of final program design will inform the final program details.

Trade Ally Network

The Trade Ally Network consists of contractors, retailers, and other program partners that are involved in the implementation of energy efficiency projects. Ameren Missouri has created a robust network of trade allies for both the Residential portfolio as well as the Business portfolio. Providing incentives and marketing through trade allies is an efficient way to promote the energy efficiency programs. Since these contractors tend to interact with customers frequently and at the point of purchase, they are an ideal segment to deliver incentives to the customer base. In order to produce effective trade allies, a significant emphasis must be given to developing a relationship with these contractors through outreach, training and educating.

Business Portfolio

As of December 1, 2011, Ameren Missouri had 235 trade allies enrolled in the commercial and industrial business programs. These allies represent a wide range of competencies including but not limited to large manufacturers, installation contractors, engineering consultants, and the smaller retail outlets. The growth of this important segment has been steady since its beginning in early 2009. Trade-shows, seminars, and electronic mailers have been effective tools to recruit and educate program allies. After the allies have been sufficiently trained and educated on the business programs, co-branding and other marketing opportunities are available to the contractor. As the efficiency programs mature, so will the Trade Ally Network. In this planning cycle, more education and training will be necessary and new emphasis on a systematic method of measuring trade ally performance will provide the necessary incentives to motivate program trade allies and continue the growth of the network and the productivity of its members.

Residential Portfolio

The residential energy efficiency portfolio leverages a diverse trade ally network. There are over 300 lighting stores enrolled in the Lighting & Appliance program and over 175 stores carrying qualified appliances. Stores ranging from rural retail outlets to large big box retailers are part of this trade ally classification. The HVAC program enlists over 350 technicians and 140 HVAC contractors. Residential HVAC trade allies have been recruited and trained by a contractor specializing in HVAC tune-up work. For this planning cycle, it will be important to grow the HVAC contractor network and continue to leverage their marketing and outreach capabilities. The Multi-family Income Qualified program enlists a contractor to recruit local subcontractors to install efficient upgrades. Incentivizing the contractor network allows for immediate rebates for the customer, a component that has been effective in driving customer participation.

Outreach, Marketing and Communications

Outreach, marketing and communications will continue to be an important mechanism for ensuring customers and trade allies are aware of, and participate in, portfolio programs.

The marketing efforts for the residential portfolio are administered internally, but each vendor offers marketing services as well. Residential Campaign activities may include:

- The Ameren Missouri Energy Efficiency website, which provides an overview of programs offerings, energy saving tips, a list of authorized CFL recycling locations, an online CFL store, program forms, rebate applications, a list of certified contractors, and more.

- Utilization of field representatives to train retailer/dealer, ensure retailer/dealer participation, and maintain detailed records.
- Training and in-store displays are provided for appliances sold by ally retailers/dealers.
- Utilization of the HVAC implementation contractor to lead the HVAC program with a large trade ally network to conduct assessments in each county of the service territory.
- Utilization of the multifamily implementation contractor with subcontractors to improve units qualified for the Multi-family Income Qualified program.
- Television, radio, print, direct mail, and magazine advertisements.
- News story press releases resulting in newspaper and television news stories.
- Brochures and literature.
- Conference and special event exhibits.
- Outreach, education seminars, and speaking events.

Trade ally recommendations and word-of-mouth are surprisingly very successful aids to promoting program offerings. The marketing efforts for the business portfolio are mainly internal, but external assistance has been utilized for sub-branding.

Business marketing campaign activities may include:

- The Ameren Missouri Energy Efficiency website, which provides an overview of programs offerings, energy saving tips and tools, a list of trade allies, program forms, incentive applications, a schedule of training opportunities, calendar of events, view of historical usage, and more.
- The *Powerful Solutions* eNewsletter which provides news, program updates, and informative articles and tools for businesses owners, managers and employees.
- The *Powerful Solutions* "Ask an Expert" service serves as an avenue to ask Ameren researchers, development experts and engineers industry-related questions.
- The *Powerful Solutions* eLibrary gives access to archived eNewsletters and "Ask An Expert" questions and responses.
- *Powerful Solutions* also provides tools for businesses such as workplace posters, a lighting calculator, a carbon footprint calculator and more.
- Direct mail and designed post card advertisements.
- Outreach, education seminars, speaking events, and trade shows.

- Target advertisements are occasionally utilized to reach certain customers or increase awareness of specific programs.
- The Trade Ally eNewsletter and the Trade Ally banquet endorse healthy communication.

Establishing Contractor Teams for MEEIA

The three year MEEIA Implementation cycle is anticipated to begin approximately January 1, 2013. To start this cycle of the DSM Implementation, a number of tasks need to be completed.

- The Ameren Missouri request of program approval
- A contractor team needs to be selected, which consists of the following tasks (anticipated to take 6 – 7 months):
    a. Prepare and Issue RFP – 6 weeks
    b. Receive bids from contractors on the work for the three year cycle of the Ameren Missouri MEEIA filing, hold Question and Answer sessions, complete the review and assessment process for all of the bids on the work,– 6 weeks
- Select the contractor team that will implement the second three year cycle of the Ameren Missouri DSM MEEIA plan, prepare Statement of Work document(s) for the contractor team(s), iron out contract details (will involve receiving approval of the Corporate Project Oversight Committee and the Strategic Sourcing groups), establish teams, and ramp up – 3 to 4 months.

3.11 Evaluation Measurement and Verification (EMV)

The EMV Process

When running any program, people will often want the answer to these basic questions: "Does the program work as expected? And how can it be improved?" These questions are answered by EMV.

A robust EMV program is often comprised of two parts: an Impact Evaluation and a Process Evaluation. The Impact Evaluation answers whether the program works by taking a systematic assessment of the relevant data relating to the operational outcomes of a program and comparing them to a set of explicit or implicit standards. In the context of Energy Efficiency, Impact Evaluation compares the actual kWh saved to the savings goal to see whether the goal was achieved. The Process Evaluation answers how the program can be improved through careful examination of program implementation by reviewing existing procedures and interviewing program participants and program staff. This review attempts to determine whether procedures are being followed, and how well these procedures are working.

In theory, Impact Evaluation is purely quantitative and Process Evaluation is highly qualitative. However, the reality is that there are overlapping elements of each in these evaluations. Thus, effective EMV programs often cover both Impact and Process in one report. The success of an EMV program is highly dependent on the evaluator's ability to properly design and implement both the qualitative and quantitative aspects of evaluation. EMV is often described as "part art, part science" and the evaluator needs to be objective and skillful in interpreting the data. Evaluator knowledge and experience can also be drawn upon for program design and process improvement during the implementation cycle. Additionally, for evaluation results to be credible, the process should be transparent and follow an evaluation plan that conforms to industry best practices.

Recognizing the importance of EMV, Ameren Missouri subscribes to the independent third party contractor model to provide an objective assessment of the performance of the energy efficiency portfolio.

Existing EMV Model at Ameren Missouri

Ameren Missouri currently has separate independent third-party evaluators under contract for the evaluation of the Residential and Business portfolios. The Cadmus Group, Inc. evaluates Residential activities while ADM Associates, Inc. evaluates the Business portfolio. Both of these evaluators are reputable, national firms with strong track records as leaders in the industry. The evaluations they perform are in accordance with EMV best practices and International Performance Measurement and Verification Protocols.

The evaluators will submit process and impact evaluations three to six months after the completion of each program year, and will provide a final report six months after the completion of the third and final program year, summarizing the 3 year implementation period. Reported program savings have been adjusted based on these evaluation reports. In addition, the evaluators submit monthly progress reports and participate in weekly conference calls with the Ameren Missouri Evaluation Team. These scheduled updates allow the Evaluation Team to continuously monitor and manage EMV activities and assist the Implementation Team in identifying areas that could potentially affect program performance. Updates on the progress of evaluation activities are shared with Stakeholders during quarterly update meetings. The annual evaluation reports are sent to Stakeholders, followed by formal presentations of evaluation results by the respective evaluators to Stakeholders, where questions and concerns are addressed.

Through the first two annual evaluation report presentations, the process has worked well: all Business Program Evaluation Reports were accepted with little comment and no concern by Stakeholders. There have also been no concerns regarding the Residential Multi Family Income Qualified Program and the Appliance Recycling

Program. The only concern that has been raised is with the calculation of the NTG ratio for the lighting portion of the Lighting & Appliance Program. This concern was due to an innovative model being used to calculate NTG which included both free ridership and spillover. This model was part of a large study for 10 utilities throughout the United States. Due to Stakeholder questions, additional discussions were held with Stakeholders and all related data and SAS code information was provided to Stakeholders to alleviate any concerns. This ambiguity is another reason why assuming net savings equal gross savings is rational and will ultimately reduce confusion between the parties involved in Ameren Missouri's energy efficiency programs.

A major objective of evaluation is to quantify the savings attributable to an energy efficiency program as opposed to other factors such as weather or behavioral shifts within markets. Evaluators compare savings to baseline estimates to determine the effects of individual measures and entire programs. Impact evaluations quantify the effects of the programs. A second type of evaluation known as process evaluation analyzes program design and implementation strategies through program documentation review, interviews with key stakeholders, and customer surveys.

Evaluations for PY3 and a final report on the three year program cycle are not yet complete. However, Ameren Missouri will have spent over $3 million on program evaluation from 2008 through 2012. This does not include the evaluation cost of the bridge program which would add an additional $500,000. This budget has allowed programs to be evaluated at better than a 10% precision level at 90% confidence for business programs, and a 20% precision level at 80% confidence for residential programs.

Common Aspects of Impact Evaluations

One of the most important aspects of evaluation is the measurement of savings achieved, or impact evaluation results. Ameren Missouri has developed, in coordination with the evaluation contractor, the necessary methods to estimate load impacts of the energy efficiency programs offered by the Company. An integral part of this calculation methodology has been the NTG ratio which is a factor that represents the relative size of net program load impact to the gross program load impact. The NTG factor is applied to gross program savings to determine the program's net impact. For MEEIA, however, this NTG factor will be removed, marking a significant change from the existing EMV model.

Process Evaluations

Ameren Missouri has collaborated with its evaluators to identify appropriate process evaluation goals, procedures, and practices. These evaluations focus more on program design and delivery, market segments, and other societal factors that affect the program‘s performance.

Process evaluations have used program implementer/contractor interviews, retailer surveys, participant surveys and review of program materials to inform the process evaluation. Stakeholder and retailer interviews provide details on program design, staffing levels, training, implementation, marketing to retailers, retailer satisfaction, marketing to consumers, products, payments and invoicing, communications, tracking and market feedback. Program data reviews provide further information on program design and implementation processes. Participant surveys include questions about how the participant learned about the program, how the process operated, decision-making criteria, and overall program satisfaction.

Program Improvements Based on Previous Evaluations

Evaluations of previous energy efficiency programs have allowed Ameren Missouri to make improvements to programs. These improvements have included:

- The removal of high leakage stores from the Lighting Program
- Removal of appliance measures that were not cost effective or for which the market had already been transformed
- Making programmable thermostats optional in the Multi-family Income Qualified Program due to building manager concerns
- Adjustments to measure savings values
- The information learned from evaluators, including measure savings values and incremental cost information, was used in the development of the TRM. By the time the TRM is finalized, all Ameren Missouri energy efficiency programs will have been evaluated at least once, with the three largest programs, Business Custom, Business Standard, and Residential Lighting & Appliance, being evaluated three times. The results from each year have been similar, such as the Business Custom and Standard NTG ratio based only on free-ridership being identical each year.

Changes to EMV for MEEIA

Ameren Missouri is submitting a TRM with this filing. This will greatly impact the evaluation needs. The TRM will contain deemed savings values for measures. In PY1 and PY2, the evaluator’s primary role in the impact evaluation will be to verify the installation of measures; taking instrumented readings of energy consumption will not be a part of the process. This verified number of measures will be multiplied by the deemed savings values to determine the program savings. At the end of third year of implementation cycle, the evaluator will be expected to complete a full impact evaluation of all programs. This will include any necessary measurement to determine adjusted savings values for each measure. One of the lessons learned in previous evaluations is that not every evaluation activity needs to occur every year. In the recent evaluations, Cadmus specifically suggested not repeating many of the tasks in PY3 that were completed in PY2 due to the high likelihood of identical results. For example, lighting loggers for residential customers only need to be installed for one year as it is unlikely that the results would vary from year to year. Other activities, such as onsite metering for Business Custom projects, will be installed on a sampling of customers throughout the three year program cycle.

The most significant change to the EMV process will be assuming net savings equal gross savings, as mentioned in Section 3.4. This will produce a more understandable and simpler EMV process and also provide more portfolio dollars to use on customer incentives, implementation, and portfolio design expenses.

Results from recent evaluations show that ex ante and ex post savings values have been very similar:

Table 3.25 Residential Savings Comparison

Program	Ex ante Savings	Ex post Savings	Difference
Lighting & Appliance	68,658	75,548	10.0%
Multifamily Income Qualified	5,201	4,626	-11.1%
Refrigerator Recycling	551	646	17.2%
Residential Total	**74,410**	**80,820**	**8.61%**

The table above does not include HVAC CheckMe! because it did not undergo an impact evaluation after PY2 due to limited activity.

For the Business Programs, we have even smaller differences.

Table 3.26 Commercial Savings Comparisons

Program	Ex ante Savings	Ex post Savings	Difference
Custom	52,347	51,624	-1.4%
Standard	12,893	14,049	9.0%
New Construction	4,809	4,769	-0.8%
Retro-Commissioning	1,558	1,249	-19.8%
Business Total	**71,607**	**71,691**	**0.1%**

The results from the impact evaluation of the proposed programs will be used to update the TRM for the next three-year cycle if a statewide TRM has not been developed, but will not be used to recalculate verified savings retroactively. Table 3.27 shows the evaluation activities that are anticipated to be completed after PY2 for the Residential impact evaluation.

Table 3.27 EMV Activities

	Site visits	Metering	Engineering Estimate/ Analysis	Participant Surveys
Lighting	✓	✓	✓	✓
Energy Efficient Products			✓	✓
HVAC	✓	✓	✓	✓
Refrigerator Recycling			✓	✓
Home Energy Performance			✓	✓
Energy Star ® New Homes			✓	✓
Low Income	✓	✓	✓	✓
Custom	✓	✓	✓	✓
Standard	✓			✓
New Construction	✓	✓	✓	✓
Retro-Commissioning	✓	✓	✓	✓

In addition to the above, the Low Income program evaluation will include an analysis of the impact of the program on customer bill payment including bad debt, arrearages, and disconnections.

Process evaluations will be conducted for all programs all three years. Participant, trade ally, and stakeholder surveys are anticipated to be completed for every program, every year for the process evaluation.

Some of these activities occur at or near the end of a program year, such as process evaluation surveys. However, other activities such as site visits and metering occur throughout the year. For example, metering on air conditioning units needs to be in place during the cooling season and cannot wait until the end of the program year.

Ameren Missouri continues to require the independent third party evaluators to meet current best practice standards. The program evaluations have and will continue to follow International Performance Measurement and Verification Protocols.

Final evaluation plans will not be developed until after an evaluator is hired. Consequently, evaluation activities may change from those listed in the above tables depending upon the evaluator's recommendation.

The evaluations will include at least the following elements:

- Process evaluations and recommendations for improvement
- Impact evaluations including lifetime and annual gross and net demand savings and energy savings and a calculation of the cost effectiveness.

As is required by the Commission's MEEIA regulations, Ameren Missouri will require its evaluators to provide the Stakeholders with a copy of draft and the final EMV report at the same time as they are provided to Ameren Missouri.

As a result of the TRM and the reduced scope of the impact evaluation, the evaluation budget has been reduced. The evaluation budget for the previous three year portfolio was 5% of the program budget. For this three-year portfolio, the annual evaluation budgets will be 2%, 2%, and 5% respectively, which are at or below the 5% budget limits.

Another consideration in the evaluation involves the provision in the Commission's MEEIA regulations requiring the Commission to hire an independent contractor to audit and report on the EMV activities of the electric utilities and their evaluation contractors. The Company's evaluation contractors will be expected to fully cooperate with the Commission's auditor. Ameren Missouri's plan includes allowances for these additional tasks in its anticipated evaluation budget. In order for the Company to adequately prepare its RFP for EMV services it is important to understand specific scope of work associated with the Commission's auditor. In order to facilitate a smooth process, Ameren Missouri recommends the Commission adopt the following scope of work and schedule.

- Issue RFP for auditor services within 30 days after MEEIA approval
- Auditor should review and agree to evaluation plans in the 1st quarter of 2013
- Auditor should review final annual evaluation reports
- Auditor should submit draft and final reports to all parties in the case simultaneously. The draft report should be available 15 days after the final report of the utility EMV contractor and the final reports should be available 45 days after the final report of the utility EMV contractor.

The following schedule is an estimate of the evaluation activity timeline. All dates are subject to change based upon the timing associated with the approval of the proposed plan.

Table 3.28 EMV Schedule

Task	Due Date
Issue Evaluation RFP	8/1/2012
Hire Evaluation Contractor(s)	10/1/2012
Create Evaluation Plan	1/1/2013
PY1 Process Evaluation Draft Report	3/30/2014
PY1 Process Evaluation Final Report	4/30/2014
Evaluation Audit Report	6/15/2014
PY2 Evaluation Draft Report	3/30/2015
PY2 Evaluation Final Report	4/30/2015
Evaluation Audit Report	6/15/2015
PY3 Evaluation Draft Report	3/30/2016
PY3 Evaluation Final Report	4/30/2016
Evaluation Audit Report	6/15/2016

3.12 Considerations for Implementation

Integration with Natural Gas

Ameren Missouri has incorporated the ability to offer dual fuel energy savings into its portfolio by including a Home Energy Performance (HEP) Pilot Program. The purpose of this program will be to offer dual fuel measures (measures for saving natural gas and electricity) to customers in attempts to learn more about the market acceptance of such a program and the implementation nuances that exist. A relatively small budget has been allocated to this program with hopes to target Ameren Missouri dual fuel customers at first. Ameren Missouri will synchronize incentives from both its electric and natural gas energy efficiency programs.

The HEP program will be a stepping stone for learning about a program that is difficult to implement. Many regions across the country have found hardships in implementing this program cost-effectively. This mainly stems from the high cost of a full-scale home energy audit (blower door test and other thermal testing) and having no savings attributable to the audit. Furthermore, these programs have had difficulty in achieving high levels of follow-up installations from the audit. Given these ambiguities and uncertainties, Ameren Missouri is still attempting to learn more about these programs and take proactive steps to offer this type of program to its combination customers.

Low Income Programs

Planning for the evolution of Ameren Missouri's low income program was a vital part of the MEEIA strategy. Traditionally, low income energy efficiency programs have been created to provide energy saving assistance at low or no cost to qualified low income customers who would otherwise be unlikely to participate in DSM programs. The strategy should address critical needs of customers such as: limited capital budgets, limited education, language barriers, and receptiveness to the programming.

During the Cycle 1 implementation, ARRA provided the low income housing market with unprecedented amounts of weatherization and energy retrofit funds. As a result, Ameren Missouri sought and found a niche in the multi-family market where the federal stimulus dollars were not overwhelming the potential effect of Ameren Missouri funding. As the ARRA funds are set to diminish and fade out, part of the MEEIA strategy will be to continue to focus on the multi-family market in the early years but re-evaluate moving into the single-family housing market in the later years of MEEIA to continue the work begun by the ARRA funded actions.

The low income program development team designed the following list of core concepts to use as a basis for the program:

- Offer all measures at no cost to the participants.

- Work with associations such as Housing and Urban Development, Public Housing, Weatherization Assistance Programs and Low Income Home Energy Assistance Program to identify eligible participants.
- Enforce education as a major component.
- Include program offerings to renters since these target populations are vastly underserved.
- Ensure inclusion of rural and urban areas in the service territories

The planning team explored a variety of options for the program design, but the essential question was how to best utilize a limited budget: is it better to reach a small number of customers with deep, high-impact measures; or reach a large number of customers with more easily-deployed, lower-impact measures? Table 3.29 below illustrates four options that were explored, from constructing a new home with renewable energy sources and Energy Star standards to create near net-zero energy consumption to a quick retrofit consisting of a single-pass audit with easily implemented measures.

Table 3.29 Analysis of Ameren Missouri Low Income Program Options

3 year Totals for Cycle 2	New, Near Net-Zero home	Deep Retrofit	Hybrid of Deep and Quick	Quick Retrofit
	Deep Savings	⟵	⟶	Broad Savings
Budget	**$11.4 million**	**$11.4 million**	**$11.4 million**	**$11.4 million**
First-year-kWh Savings	2,622,000	7,554,399	15,588,967	24,886,780
Utility $/ first-year-kWh	$4.33	$1.51	$0.73	$0.46
TRC	0.23	0.41	0.70	1.04
Number of homes	138	6,455	17,305	29,875
Utility $/ home	$82,609	$1,766	$659	$382
Annual bill savings/ home (Elec + Gas = Total)	$1,146 + $0 = **$1,146**	$68 + $22 = **$90**	$50 + $4 = **$54**	$46 + $0 = **$46**

The ultimate goal of this program is to help participants understand their electric usage so that they will be able to proactively manage their own electric bills. The development team sorted through the four main options and considered the pros and cons of each. Further analysis and research will continue to shape how the program addresses the needs of the low income segment. Ameren Missouri plans to continue its Multi-family

Income Qualified program as it has been highly successful and continues to grow. The Company will continue to explore opportunities to better serve low income and hard-to-reach customer segments.

Coordination with State Administered Programs

The DNR has the responsibility of managing and implementing government sponsored DSM programs within the State of Missouri. This includes DSM programs with funding sourced from both the state and federal level (i.e. distribution of ARRA funds within Missouri).

The Ameren Missouri team has been working with the DNR in an attempt to integrate the DSM portfolios of both entities. Peer exchanges, telephone conversations, and emails have been used between the Ameren Missouri and the DNR DSM Implementation teams in an effort to:

- Identify the use of funds to promote DSM by both the government and the utilities
- Reduce the duplication of effort associated with promoting DSM
- Work in a manner that optimizes the co-existence of government and utility DSM programs to maximize the associated efficiency gains

Other DSM program coordination with DNR involves $1.5 million that Ameren Missouri contributes in support of the DNR Low Income weatherization program.

3.13 Legislation Impacts

EISA's Impact

As mentioned in Section 3.2, EISA will have a significant impact on the residential lighting energy savings. There is still ambiguity on what the new residential lighting baseline technology will be and at what cost it will be offered. Several manufacturers are offering products that are compliant with the EISA legislative mandates and mimic the light quality and functionality of incandescent bulbs. Currently, a majority of these bulbs utilize halogen technology. However, in the future, there will be new halogen infrared reflective coated bulbs that will fill the gap between EISA standards and CFLs. It is reasonable to assume that EISA compliant bulbs will become the new lighting baseline. Currently, these new halogen bulbs are predicted to enter the market at competitive prices with CFLs, and as the manufacturing begins to refine itself, prices will likely drop equal to or below CFL prices. The customer will have multiple lighting options, of which, CFLs will likely remain the most cost-effective energy efficient solution. While LEDs have significant potential to transform the residential lighting landscape, it will take time for the manufacturing processes to refine themselves enough to lower the cost to market acceptable rates.

Ameren Missouri's service territory has only recently been subjected to full-scale utility efficiency programs, so the market is still in the early stages of being transformed. For this reason, Ameren Missouri continues to promote CFLs in the plan, with the number of bulbs installed decreasing annually to appropriately reflect with corresponding EISA phase-out provisions. Furthermore, two levels of savings for CFLs were incorporated into the modeling process, one savings level being Pre-EISA (witnessing full savings as identified in current markets) and another Post-EISA (where savings are relative to EISA standards as the baseline), implemented according to the EISA schedule. Ameren Missouri is also increasing the contribution of LED bulbs in each program year in preparation of the EISA impacts and the cost declines that have been witnessed in the LED industry. By incorporating these reductions into the portfolio, Ameren Missouri reflects a reasonable estimate of the achievable energy savings related to CFLs.

Impact of Legislation on Business Lighting

The Energy Policy and Conservation Act of 2005 (EPACT) influences T12 lamps by increasing the efficiency requirements of the ballast used to drive the lighting fixture. Conventional ballasts used electro-magnetic technology to emit light. However, with the new standard set by EPACT, these magnetic ballasts no longer comply with the minimum efficiency standards, and therefore, new ballasts must be all electronic. These rules took effect July 1, 2010.

T12's generally operate on magnetic ballasts, but, these lights can also operate on electronic ballasts. New, compliant electronic ballasts exist for T12 lamps and are available at most lighting retailers/distributors.

The second major piece of legislation affecting T12's is the 2009 DOE Rulemaking, which has new efficiency requirements that will begin to cause a phase-out of many general service fluorescent lamps including T12 and some less efficient T8 lamps beginning July 2012. Specifically, the lamps affected by this ruling include:

- Majority of 4ft T12 and 2ft T12 (both 34 W and 40 W ES)
- 700 series T8 4ft and 2ft U-lamps
- All 96T12 75 W & many F96T12/ES 60 W except 800/SPX
- 700 series F96T8HO
- Exemptions
    - Specialty high CRI lamps
    - 96T12 HO Cold Temperature Lamps

Given these events, Ameren Missouri has eliminated all measures with T12 as a baseline from its portfolio. Furthermore, PY 2 EMV results indicate a large number of lighting measures were efficient fluorescent lighting (T8 or T5) replacing High Intensity Discharge (HID). Furthermore, the DSM Potential study highlights opportunity within this specific measure category. Therefore, Ameren Missouri has taken a logical approach to address the standards issues surrounding Business lighting.

Customer Tax Credits

The MEEIA law states that customers of electric corporations who have received state tax credits under Sections 135.350 to 135.362, RSMo, (Low Income Housing Tax Credits) or under Sections 253.545 to 253.561, RSMo, (Historic Tax Credits) shall not be eligible for participation in any demand-side program offered by an electrical corporation if the program offers a monetary incentive to customers.

Ameren Missouri's Business Energy Efficiency program is subject to this requirement and complies with it. The Program requires customers to disclose on program application forms whether they have received either Low Income Housing Tax Credits or Historic Tax Credits. The forms clearly state that customers who have received any of the credits are ineligible to participate in the program pursuant to MEEIA. This goes beyond an acknowledgement; customers have to take action to disclose by marking the appropriate box on the form. The form requires a signature. The Ameren Missouri Residential Energy Efficiency program has one program in which customers might also be eligible for tax credits - the Multi-Family Income Qualified program. However, this Residential program is not subject to the requirement because the program does not offer a monetary incentive to customers. The program provides for select appliances (e.g., air conditioners, dehumidifiers, etc.) to be changed out for more efficient appliances in kind, with no corresponding monetary incentive payment.

The MEEIA rules require that the electric utility maintain a database of participants of all demand side programs offered by the utility, when such programs offer a monetary incentive to the customer. Ameren Missouri's implementation contractors maintain databases of program participants including, but not limited to, the name of the participant, the service property address and the date of and amount of the monetary incentive received. The exception to these data collection protocols is the residential Lighting Program which does not provide rebates directly to customers and therefore no customer information is available. The information will be maintained according to the rule requirements and is available upon request of the Commission and/or Staff.

Ameren Missouri Expert/Witness: Richard Voytas