ACEEE Responses to Report Comments from Ameren Missouri and Kansas City Power & Light (KCP&L)

To: Ameren Missouri and KCP&L
From: Maggie Molina and Suzanne Watson, American Council for an Energy-Efficiency Economy (ACEEE)
Date: June 28, 2011

Here we provide responses to Ameren Missouri and Kansas City Power and Light's June 13th comments on our draft report, "Missouri's Energy Efficiency Potential: Opportunities for Economic Growth and Energy Sustainability." We appreciate your review of the report and hope to clarify some points of confusion and address some of your concerns.

We would first like to make clear ACEEE's role and the scope of our project. ACEEE is an independent, non-profit research organization based in Washington, D.C. We conductresearch and policy analysis on energy efficiency at the federal, state, and local policy levels. This study for Missouri is the 10th in a series of studies (called our State Clean Energy Resource Project) to conduct energy efficiency potential analyses at the state-level and to examine policy opportunities. Our focus is on states that have recently shown a commitment to energy efficiency and seek greater in-depth analysis to support the work that the state has already begun. Our funding for this work comes primarily through a national funder, the Department of Energy, and we also seek some additional in-state funding (in Missouri, the Department of Natural Resources) in order to better engage groups in the state. With this diverse fundingpool, we are able to position the report not for one client alone, but rather for the state as a whole.

Our goals are to: (1) gather input from a broad group of stakeholders to understand the unique situation of each state; (2) conduct an energy efficiency potential analysis or meta-review of existing analyses; (3) develop a series of policy options, which are vetted through the stakeholder process, and conduct a policy analysis; (4) develop a draft report for peer review; and then disseminate final report to wide group of stakeholders and the general public through a media release; and (5) conduct follow-up technical assistance support as requested by the state. This is the process we have followed with our Missouri project. We are happy to see many groups engaged and submitting comments on the draft report.

We recognize that the enactment of the Missouri Energy Efficiency Investment Act (passed into law in 2009) was occurring in parallel with ACEEE's study of Missouri's energy efficiency opportunities. ACEEE was actively engaged in the regulatory rulemaking associated with MEEIA and we recognize that this was a significant development for advancing energy efficiency in Missouri. This is a concrete example of a policy change necessary to create a supportive regulatory environment for increased levels of energy efficiency program investment by Missouri's utilities. The full implications and results of this Act are still being determined. ACEEE's study is intended to examine what would be possible in Missouri with this kind of regulatory framework effectively established combined with numerous related utility and non-utility policies and programs.

Next, before addressing your specific comments included in your memo, we want to clarify a few overarching issues, which seem to have caused confusion.

1. Our report does not intend to recommend one overall Energy Efficiency Resource Standard (EERS) to achieve 18% savings in projected electricity use by 2025. Rather, our report presents a policy scenario "vision" to show how *multiple* policy and program strategies (including efforts of utilities, state and local governments, universities, and individual consumers and businesses) could work together to achieve greater levels of energy efficiency. Utility efficiency targets are one of the 10 recommended policies/programs, and as we've seen in other states could in practice be either set by a state legislature, codified by public utility commissions, or established through individual utilities' integrated resource planning (IRP) processes.

2. On pages 25-28 of our report we discuss options for utility energy efficiency program targets, and that the target levels should depend on how inclusive they are of the various policy/program efforts (for example whether efforts to support building energy code improvements and enforcement are included). Our analysis finds that a typical portfolio of programs ("proven" residential, commercial, and industry programs) can ramp up to achieve about 1% savings per year. When additional programs and policies are added (e.g. building energy codes, combined heat and power, a statewide behavioral initiative, and a rural and agricultural initiative), we find that savings could ramp up to 1.9% per year, consistent with the MEEIA rules. We understand that this point was not adequately explained and have made revisions in the report to make these explicit. Ultimately it is up to Missouri, however, to determine target levels and how inclusive they are of multiple program strategies. Our analysis does not prescribe one pathway, but rather describes numerous opportunities that utilities, policymakers, and other program administrators could employ to capture cost-effective efficiency resources.

3. Our study is not based solely on the KEMA study results. We conducted a meta review of several studies, including both the Global Energy Partners study completed for Ameren Missouri, the KEMA study, and several studies included in a meta-review prepared by the Energy Center of Wisconsin (including studies for Wisconsin, Iowa, Ontario, and Kansas). It is important to realize that results can vary from one study to the next because of specific methodology and assumptions, and examining multiple studies exposes these differences. When one study has multiple scenarios of achievable potential, for example, this shows how analysts' various assumptions in their methodology directly affect the results. For example, an efficiency potential analysis by the Electric Power Research Institute (EPRI)[1] includes multiple scenarios with different assumptions and the results vary by a factor of two for the 2020 results, depending on the assumptions. We understand that EPRI is revising this study and will be adding another scenario with some new assumptions about emerging technologies and other items that will increase the spread of savings among the different scenarios. The Ameren study methodology includes an approach (the 1-year and 3-year payback approach) that is rarely seen in potential studies and as a result it leads to more conservative estimates relative to other studies and relative to what a variety of utilities and states are achieving in practice. The prime issue is not Missouri data or not, but how the data are employed. By looking at a range of studies, including the Ameren study, we are not as dependent on this key methodological assumption.

[1]EPRI Electric Power Research Institute. 2009. "Assessment of Achievable Potential from Energy Efficiency and Demand Response Programs in the U.S. (2010 – 2030)." EPRI, Palo Alto, CA: 2009. 1016987.

Next, we address specific comments that you made in your memo and individual comments in the report documents. We attempt to group similar comments together and provide common answers to these.

Memo Comments

1. *Ameren/KCP&L Comment*: The basis for ACEEE's recommended EERS annual load reductions is primarily the KEMA Missouri Statewide DSM Potential Study, issued on March 4, 2011 and revised multiple times, with the last revision issued on April 14, 2011.

   ACEEE Response: This is not true. We did not base our policy analysis on any one report, but rather we conducted a meta-review of several state and regional energy efficiency potential studies, as shown in Figure 15 on pg. 21 of the report. Based on this meta-review, we believe that electricity savings of 0.8% - 1% per year are readily achievable in Missouri over the next 10 years. Also the studies we examined did not appear to include measures like Combined Heat and Power (CHP) measures nor behavioral programs such as home energy feedback reports. These present additional opportunities for savings, which we included in our analysis.

2. *Ameren/KCP&L Comment*: Compare/contrast the KEMA Missouri DSM Potential study with the Ameren Missouri study; based on primary market research using 4,000 sample points for appliance saturation, customer usage characteristics of electric devices in the home, and customer thinking about energy efficiency and factors that contribute to their willingness to participate in utility sponsored energy efficiency programs. ACEEE chose to reject the results of this Missouri-specific study and accept the results of a study of questionable validity.

   ACEEE Response: We did include the Ameren Missouri study prepared by Global Energy Partners in our meta review, and therefore did not reject the results. As discussed above, the Ameren study results, however, were on the conservative end relative to other studies due to the methodology employed.

3. *Ameren/KCP&L Comment*: The ACEEE report uses large numbers to make a case for the size and benefit of the energy efficiency resource in Missouri. Yet, a closer review of the numbers cited by ACEEE reveals biases and raises questions. For example, in Table ES-2, ACEEE describes the economic impacts from energy efficiency. By 2025, Missouri's investment in energy efficiency could result in the creation of 9,492 new jobs. In aggregate, those jobs contribute $265 million in wages. $265 million divided by 9,492 jobs equates to an average annual wage of $27,918 in 2009 dollars.That would put the average job 40% below Missouri's 2009 median income of $45,229[2].

   ACEEE Response: The macro-economic analysis provides an estimate of *net* economic impacts in the energy efficiency policy scenario compared to a business-as-usual scenario. It is inaccurate to make calculations with the individual delta values to draw conclusions about the aggregate results. Rather, consider the following as a better method to understand the wages analysis.

[2] www.census.gov/prod/2010pubs/acsbr09-2.pdf

First, Ameren references the wrong set of metrics. The 2025 impacts (i.e., wages in millionsof 2009 dollars divided by jobs) should be compared to the average *wages* in 2025 (also in 2009 dollars), but not the *median income*, as Ameren presents. Moody's analytics suggests 2,994,228 jobs in 2025 for the reference case in Missouri. Total wages are projected to be $164,386 million (in 2009 dollars). Thus the average annual wages in 2025 is $54,901 in the reference case.

But we should not divide the *net* change in jobs into the *net* change in wages and salaries. Rather, we should: (1) add the net jobs to the base case jobs to yield total jobs of 3,003,720; (2) add the net wages to the base case wages to yield total wages of $164,650 million (2009$); and (3) then divide the new total wages by the new total jobs. This gives us a new average wage of $54,815. This value is about 0.16% less than the reference case.However, the net energy bill savings from energy efficiencyreduces the cost of living in 2025 for Missourians by about $1,032 million (again in 2009 dollars). To find a new equivalent wage, we would add the savings into the total wages and salaries so that the now 3,003,720 jobs in 2025 would have a wage equivalent of $165,683 million. This provides us with the correct new average wage of $55,159 which is about 0.5% higher than the reference case.

4. *Ameren/KCP&L Comment*: We are not aware of any plans by Missouri DNR to quantify or evaluate energy savings from DSM programs funded by the Stimulus Recovery Funds or ARRA. This is in contrast to the standard that Missouri electric utilities are held to in regards to accountability for both cost and savings of programs. ACEEE indicates that the ARRA budget administered by DNR is approximately $226 million. If one makes the assumption that the dollars were spent to achieve energy savings, the ensuing metric of the first cost of the DNR energy efficiency program is $226 million/ 240 GWH = $0.94/kwh. Compare/contrast this metric to the average first cost of a DSM program in the typical utility portfolio of $0.20/kwh.

   ACEEE Response: Your assumptions in the above calculations are incomplete. The annual savings estimate provided by DNR and included in our report (240 GWh) is their savings estimate for a set of about eight state-run programs that represent only about $42 million of the total ARRA budget for the state. These are *estimates* of projected savings based on calculations of measures implemented. We understand that the Missouri DNR will report some savings estimates to the U.S. DOE as projects are completed, but is not planning to do an evaluation of their programs.

5. *Ameren/KCP&L Comment*: ACEEE submits that aggressive energy efficiency portfolios can increase savings by larger increments year after year. Just the opposite is true. Incremental savings attributable to energy efficiency measures decrease over time.

   ACEEE Response: We are unaware of research documenting how incremental savings from efficiency programs decrease over time. We have documented several cases of utility efficiency programs achieving increasing levels of incremental savings over time. For example:
   - In Iowa, investor-owned utilities achieved incremental electricity savings of 0.38% in 2002, ramping up to 0.84% incremental savings by 2007 from energy efficiency

programs.[3] And more recently, the two major IOUs in Iowa achieved incremental electricity savings of about 1.25% in 2009.[4]

- Minnesota's utilities have consistently offered comprehensive suites of customer energy efficiency programs for over 20 years. Over the past several years, Minnesota utilities have achieved increasing levels of electricity savings: In 2006, incremental electricity savings were 0.6% of sales; followed by 0.68% in 2007; 0.87% in 2008; and 0.95% in 2009.[5]
- In Colorado, incremental savings statewide ramped up from 0.12% in 2006 to 0.39% in 2008.[6] And the largest utility alone (Public Service of Colorado) achieved 0.8% incremental electricity savings in 2008 and increased to 0.9% savings in 2009.[7]

6. *Ameren/KCP&L Comment:* ACEEE states that based upon several efficiency potential studies for Missouri and the Midwest, savings of 0.8% - 1% per year will be readily available over the next 10 years through proven programs, and that emerging technologies will continue to offer new opportunities for program savings that recent studies have not evaluated. The adoption of an energy efficiency standard with the assumption that some unknown, breakthrough technology will emerge is a risky strategy that could prove costly to Missouri residents as well as commercial and industrial entities operating in Missouri.

   ACEEE Response: Several leading states are already achieving incremental, net savings of 1.2% - 2% with current technologies and practices (see Sciortino et al 2011).[8] Efficiency potential studies examine the range of technologies available to achieve energy efficiency savings. The studies we examined in the meta review from Missouri and the Mid-West identified savings of 0.8% to 1% per year achievable over the next 10 years *using existing technologies*. Our point is that emerging technologies and practices, which are not always included studies, will offer additional but un-quantified savings opportunities.

7. *Ameren/KCP&L Comment:* ACEEE states that leading states are already meeting 2% of their overall electricity needs. This does not accurately portray the facts. ACEEE's 2010 State Scorecard shows that only five states are meeting 1% or more load reductions.[9]

   ACEEE Response: See our comment above. Nine leading states have already achieved net, incremental savings of 1.2% - 2% in one year. This is from a study that was just released recently and is therefore a more recent source than the one you cited. States are demonstrating a clear ability to rise to meet the challenges posed by efficiency targets.

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[3] http://www.state.ia.us/government/com/util/docs/misc/EE/EE_GA_Jan2009.pdf
[4] Sciortino et al. 2011. ACEEE. http://aceee.org/research-report/u112
[5] http://www.state.mn.us/mn/externalDocs/Commerce/CIP_Energy_and_CO2_Savings_Report_2011_032411051159_CIP_CO2_Report_2011.pdf; and Sciortino et al. 2011. ACEEE. http://aceee.org/research-report/u112
[6] See Molina et al 2010 (ACEEE State Energy Efficiency Scorecard)
[7] Sciortino et al. 2011. ACEEE. http://aceee.org/research-report/u112
[8] http://aceee.org/research-report/u112
[9] www.aceee.org/sector/state-policy/scorecard

8. *Ameren/KCP&L Comment:*The fact is that the words "all cost effective" appear one time in MEEIA and are obscured in a subparagraph of the bill.

   ACEEE Response: Thank you for this clarification. We have addressed this in the report language.

9. *Ameren/KCP&L Comment:* ACEEE advocates for an energy efficiency resource standard without assessing the financial impacts to the residents of Missouri. While it is true that 26 states have EERS requirements, it is also true that most EERS states have other limits, such asrate caps, that act as safety valves. Those limits effectively preclude the standards from ever being met. Illinois is a good example. Illinois IOUs have steep, inclining savings mandates, but due to a 2% cumulative rate cap, their EE programs will peak at around 0.8% annual load reductions in 2012 and obtain less and less in each year thereafter.

   ACEEE Response: First, we do assess the financial impacts of energy efficiency to the residents of Missouri in our cost-benefit and macro-economic analysis. Further, in our recent review of state progress toward achieving EERS targets, only three states (NC, IL, and TX) have cost caps. According to that research, Illinois is the only state that will likely run up against their cost cap, and they are actively working to address this issue. A few other states have opportunities to petition for lower targets (e.g. MN and OH), however we are not aware of efforts to do so.

Individuals Comments in Report

10. *Ameren p. vii:* ACEEE's Dan York spent considerable time from November 2009 through June 2010 facilitating, along with Rich Sedano from RAP and Peter Cappers from LBNL, discussions for Ameren Missouri DSM stakeholders on issues pertaining to the regulatory framework required to move Missouri forward on investments in energy efficiency. This report would have been much more complete and factual had ACEEE chosen to include regulatory framework issues and the lack of resolution to any of those issues in this report.

    ACEEE Response: We agree that our report could include more specific recommendations on the regulatory framework issues. We look forward to discussing this point during our call and better understanding your specific recommendations on how to improve the current regulatory framework. We can see adding some additional language to that effect to our final report, although development of a comprehensive regulatory proposal in response to recent decisions goes beyond the scope of this analytical work. We do intend to comment on the continued need to create a strong and supporting regulatory environment that aligns utility financial interests with energy savings through utility customer energy efficiency programs.

11. *Comments on stakeholder process:*
Ameren p. 3: (There were a few inserted comments that Ameren was not invited to the "stakeholder meetings" listed in the report; also there was a question about who we met with at Ameren.)
KCP&L p. 2: ACEEE met with KCP&L once and informed KCP&L staff about this study. KCP&L was not engaged beyond this initial meeting.

    ACEEE Response: To clarify, the three meetings in the bulleted list on page 3 were not stakeholder meetings, but rather various conferences/meetings hosted by Missouri-based organizations. We were invited to give presentations at those meetings and did so in order to better engage as many Missouri interested parties as possible. Our ACEEE stakeholder meetings were intentionally one-on-one and held over many months. We met with Steve Kidwell at Ameren last April, and last July we met with Allen Dennis, Carol Sivils, and Joe O'Donnell at KCP&L (originally the meeting was set up to include Chuck Caisley, Kevin Bryant and Mike Deggendorf as well, but something came up at the last minute so they could not attend). Also we met with Ed Hedge and Bill Menge at KCP&L.

    At all of these meetings we shared our proposed list of Missouri specific policy options to include in our report as well as an electric and gas reference case forecast asking for feedback either in person or at a later time. We also asked for any additional people we should speak with as part of the interview process and we added names as we went along. It is also important to be aware that we did not intentionally try to meet with all representatives of each company/organization but as broad a set of representatives as we could reach given the realities of our staff and resources.

12. *Ameren p. 3*: We do not see where the Ameren Missouri DSM Potential study results have been used in the ACEEE report.

    ACEEE Response: The Ameren Missouri (Global Energy Partners) study is included in our meta review and shown in Figure 15 on pg. 21 of the draft report. Based on that meta-review we find that savings levels ramping up to 1% per year are achievable with proven utility programs for residential, commercial, and industrial customers.

13. *Ameren p.4*: ACEEE implies that they know how to capture the energy efficiency resource in its entirety. This is a bold claim. (in reference to a description of our “policy analysis” approach):

    ACEEE Response: We do not understand why you interpret this description to be a bold claim, however we have edited this section in the revised report to perhaps better explain what we mean: that the “policy scenario” approach *complements* the typical efficiency potential assessment of individual technology measures. Our aim is to shift the analysis from individual technology opportunities to specific, actionable policy opportunities.

14. *Ameren p. 14:* If DSM leadership at Ameren Missouri was not contacted by ACEEE for this report, it shows since there is no mention of Ameren Missouri DSM innovation. I would have cited the Ameren Missouri MFIQ, CFL social distribution and Energy Advisor website at cutting edge DSM innovation in DSM program implementation.

    ACEEE Response: We are aware that Ameren Missouri has had a rapidly growing portfolio of energy efficiency programs in recent years, as noted on page. 10: "Ameren Missouri significantly increased its commitment to energy efficiency in recent years. The utility reported efficiency program expenditures of about $3 million in 2008 and a sevenfold increase to a 2009 annual program budget of $21.5 million (CEE 2010b)."We do not go into depth on the current program offerings and program designs of individual utilities, but welcome the additional information and will point readers to more detailed information on these programs (on the Web or other materials you wish to provide?).

15. *Comments on avoided costs assumptions:*
    Ameren p. 16: What about rising costs of environmental compliance, fuel, transport, borrowing of capital, etc? These would push up both avoided costs and rates.
    KCP&L p. 15: Had commented to MO PUC staff that we were of the opinion that avoided costs were high. KEMA used summer on-peak avoided energy prices that were higher thatn $100 a MWhr. In comparison, the SPP KCPL nodal price, for 2010 Summer on-peak averaged $47.20 per MWh.

    ACEEE Response: We agree that the future costs highlighted by Ameren will likely increase utilities' avoided costs. For our report, we felt that using avoided costs assumptions provided and supported by the Missouri Public Service Commission was the most practical route. However, as noted in the report, we feel the PSC's assumptions of avoided costs remaining flat at 5 cents/kWh throughout the study period are conservative. If we were to examine a more likely scenario of rising avoided costs (such as our recent Arkansas analysis which estimated 5 cents/kWh avoided cost rising to 10 cents/kWh in 2025), energy efficiency becomes even more cost-effective as a utility resource.

16. *Ameren p. 19:* To the unknowledgeable reader, this bar chart shows that Ameren Missouri's estimates of energy efficiency economic potential are lower than every study cited on the chart. First, it is incorrect – Ameren MO study shows EP = 16.6% in 2030, 15.9% in 2020. The data point shows it less than 15%. Also, ACEEE fails to note that the Ameren Missouri study is premised on the fact that naturally occurring energy efficiency and known changes to appliance and building codes and standards are incorporated into the baseline sales forecast. We know with 100% certainty that the KEMA study's economic potential includes both naturally occurring energy efficiency and excludes all known future appliance and building codes and standards. Therefore, this is truly an apples-to-oranges comparison of economic potentials that ACEEE attempts to exploit to build a case for aggressive EERS. (Also separate comment from Ameren about the statement that economic potential estimates are less time-dependent than achievable potential and could be compared as a "snap shot" of what is cost-effective under current technology assumptions): Incorrect: All estimates of economic potential are highly dependent on the start and stop dates of the study. ACEEE is completely off base with this comment.

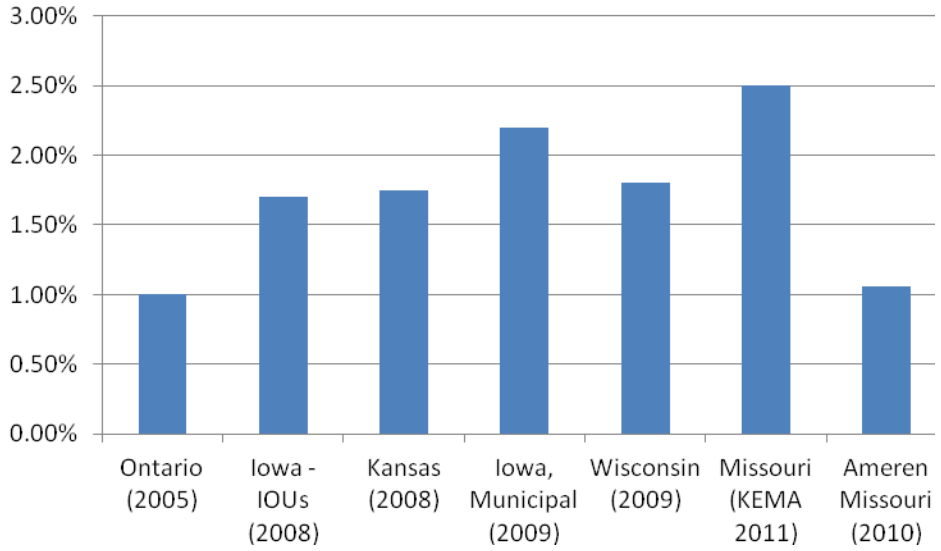
    ACEEE Response: First, the value we present for the Global Energy Partners/ Ameren Missouri study is quoted on pg. 4-1 of Volume 3: *Analysis of Energy Efficiency Potential:* "Economic

potential is an estimate of all cost-effective energy efficiency savings. In 2020, economic potential is 5,475 GWh, which represents 13.6% of total usage in that year."

Second, we agree that comparisons of studies are inevitably "apples to oranges" because there are numerous variations in methodologies, assumptions, etc. However, we still think it is valuable to examine and compare the various study results. We are interested in further clarification about how codes and standards are treated differently in the KEMA and Ameren studies, and can then appropriately account for some of the difference between the results.

We could change this chart to an "annualized" basis, and change the value for the Ameren study to be 15.9% over 15 years, as shown below. While we still maintain that economic potential assessments are less "time dependent" than achievable potential, in that economic potential does not take into account consumer participation rates per year, we understand this that explanation was not straightforward.

Average Annual Economic Potential Results for Electricity Efficiency in Missouri and the Midwest



17. KCP&L p. 39: This report recommends including CHP in a DSM portfolio standard while at the same time recognizes that CHP can be an expensive alternative that is rarely adopted. It is suggested that a more in depth financial analysis be conducted before the State of Missouri adopt this recommendation.

ACEEE Response: With recent low natural gas prices, CHP projects have become more economically viable. But even if projects are economically favorable, CHP projects still face regulatory obstacles, as highlighted in our report. We agree that further economic and policy analysis of CHP would be an appropriate step for Missouri.

18. ACEEE has done an “about face” on the applicability of energy usage behavioral initiatives in a DSM Potential study. ACEEE published a report “Energy Efficiency Resource Potential In The Midwest” in August 2009. Here is what the 2009 ACEEE report states:“Behavior change is especially difficult to model because over time what now might be considered a change in typical behavior might eventually become the norm. The issue is when a behavior change in an innovation, and when it becomes part of the baseline. This issue, too, needs further research.

    *ACEEE Response:*ACEEE has since completed a meta-analysis of feedback programs and also a report on examples of behavior programs called *Visible and Concrete Savings: Case Studies of Effective Behavioral Approaches to Improving Customer Energy Efficiency.*[10] According to this latter report, we have found that making energy use visible, setting measurable goals, marketing relevant benefits, leveraging social norms and networks, promoting competitions and goal setting, and speaking to non-economic motivations all appear to increase energy savings. And the meta-review of feedback programs finds thatthese initiatives, on average, have reduced individual household electricity consumption 4 to 12% across a multi-continent sample and 2 to 11% when we limit the analysis to just studies in the U.S.[11]

[10] http://aceee.org/research-report/e108
[11] http://aceee.org/research-report/e105