

Exhibit No.: _____
Issue(s): Response to Staff's Direct
Testimony of John Rogers/
Response to Ameren Missouri's
Direct Testimony of Rick Voytas
Witness/Type of Exhibit: Marke/Corrected Surrebuttal
Sponsoring Party: Public Counsel
Case No.: EO-2012-0142

CORRECTED SURREBUTTAL TESTIMONY
OF
GEOFF MARKE

Submitted on Behalf of
the Office of the Public Counsel

**UNION ELECTRIC COMPANY D/B/A
AMEREN MISSOURI'S**

Case No. EO-2012-0142

December 31, 2014

TABLE OF CONTENTS

Testimony	Page
Introduction	1
Response to Ameren Missouri's Rebuttal Testimony of Rick Voytas	2
• OPC's application of market effects	5
• OPC's estimate of the rebound effect	12
• Ameren Missouri's literature on rebound effects	13
• Clarification on the spillover estimate	17
• OPC's stakeholder participation	20
• Long-term implications if Commission rules against Ameren Missouri	21
Response to Staff's Rebuttal Testimony of John Rogers	24
• The total resource cost (TRC) test as a preferred test	25
• The utility performance incentive in the net shared benefits calculation	27
• Impact on rates	31
• Objections to OPC's testimony	34

CORRECTED SURREBUTTAL TESTIMONY

OF

GEOFF MARKE

UNION ELECTRIC COMPANY

d/b/a Ameren Missouri

CASE NO. EO-2012-0142

1 **I. INTRODUCTION**

2 **Q. Please state your name, title and business address.**

3 A. Dr. Geoffrey Marke, Economist, Office of the Public Counsel (“OPC” or “Public Counsel”),
4 P.O. Box 2230, Jefferson City, Missouri 65102.

5 **Q. Are you the same Dr. Marke who filed rebuttal testimony in EO-2012-0142?**

6 A. I am.

7 **Q. What is the purpose of your rebuttal testimony?**

8 A. The purpose of this testimony is to respond to the rebuttal testimony of Union Electric
9 Company d/b/a Ameren Missouri (“Ameren Missouri”) witness Rick Voytas and the rebuttal
10 testimony of the Missouri Public Service Commission’s Staff (“Staff”) witness John Rogers.

11 **Q. Has Public Counsel’s analysis changed since the submitted direct testimony?**

12 A. It has not. Public Counsel continues to recommend the following to the Commission regarding
13 the appropriate net-to-gross (NTG) ratio and energy savings for Ameren Missouri’s PY2013
14 EM&V results:

- 1 • Adopting Staff’s original Change Request which calls for the elimination of market
- 2 effects and accepting the auditor’s estimates of participant spillover for the
- 3 LightSavers Program.
- 4 • Accepting the evaluator’s estimates for non-participant spillover.
- 5 • Rejecting Ameren Missouri’s downward adjustment of free ridership.
- 6 • Including a conservative 9% downward adjustment to the NTG ratio for the
- 7 LightSavers Program to account for direct rebound effects.
- 8 • Calculating the net shared benefits through the use of the total resource cost test (TRC)
- 9 and including the utility performance incentive as a direct cost within that calculation.

10 **II. Response to Ameren Missouri’s Rebuttal Testimony of Rick Voytas**

11 **Q. What is your overall response to the rebuttal testimony filed by Ameren Missouri**

12 **Witness Rick Voytas?**

13 A. Mr. Voytas’ rebuttal testimony continues to misstate objections I raised in the original
14 Response to Change Request and, now, from my direct testimony. Mr. Voytas’ direct
15 testimony also attempts to frame OPC’s objections as antithetical to energy efficiency. To
16 summarize, Mr. Voytas states:

17 **What Mr. Marke is asking the Commission to do is to basically proclaim the**
18 **benefits originally expected from MEEIA were way off.** *In fact, Mr. Marke*
19 *appears to believe these programs provide only marginal savings, which are*
20 *washed-out by Rebound Effects and do not, therefore, have any market*
21 *transformative effect (emphasis added).¹*

22 ¹ Voytas Rebuttal, p. 15, 1-5.

1 **Q. Are you questioning utility sponsored energy efficiency in general?**

2 A. No.

3 **Q. Instead, are you claiming that benefits originally expected from Ameren Missouri’s**
 4 **MEEIA program were “way off?”**

5 A. Yes. To be clear, everyone: Staff, Ameren Missouri, Cadmus, the auditor, and OPC are all
 6 claiming that the benefits originally expected from Ameren Missouri’s MEEIA PY2013 are
 7 “way off.” What was originally expected and agreed to in 2012 and what is being claimed in
 8 2013 cannot be characterized as only marginal savings and nothing OPC has offered thus far
 9 fails to recognize the substantial savings all can agree occurred. Table 1(below) shows how
 10 the 2013 savings estimates from *all parties* for the LightSavers program exceeded the original
 11 PSC approved target.

12 **Table 1: Comparison of LightSavers Net Savings Estimates to Approved PSC Target**

Program	PSC Approved Target	Net Savings Cadmus	Net Savings Auditor 1	Net Savings OPC
LightSavers MWh savings	121,258	279,127	196,470	168,416
% of Target Achieved	100%	230%	162%	139%
Unique NTG ratio input	n/a	(+) Market effects	(-) Market effects	(-) Market effects (+) Rebound effect

13
 14 Table 1 (above) shows that OPC’s estimates, the lowest listed, still have Ameren Missouri
 15 achieving 139% of its PSC approved target. In its first year results, all parties agree that

1 Ameren Missouri's LightSavers program exceeded the Commission approved savings target.
2 This result is a huge success; it need not be further inflated.

3 Yet today, 139% success is criticized as both an unworkable estimate and as a cynical attack
4 on utility-sponsored energy efficiency in general. Moreover, the company implies that if such
5 a scenario were to be approved by the Commission, Ameren Missouri would have to revisit its
6 future IRP and MEEIA assumptions. Instead, Ameren suggests only a finding of 230%
7 success is reasonable or accurate. OPC has provided ample evidence to support its assertion
8 that the estimated savings and subsequent net shared benefits are grossly overstated. I will
9 now respond to each of Mr. Voytas' objections raised in his rebuttal testimony in turn.

10 **Q. Please give an outline of the issues you will discuss.**

11 **A.** The outline of issues to which I respond include:

- 12 • OPC's application of market effects
 - 13 • OPC's estimate of the rebound effect
 - 14 • Ameren Missouri's literature on rebound effects
 - 15 • Clarification on the spillover estimate
 - 16 • OPC's stakeholder participation
 - 17 • Long-term implications if Commission rules against Ameren Missouri
- 18
19
20
21

1 **OPC's application of market effects**

2 **Q. Mr. Voytas questions the validity of your application of market effects. Please respond.**

3 Mr. Voytas' objections to the evidence I have provided to refute Ameren Missouri's claim that
4 the LightSavers program is entitled to market effects savings that go above and beyond what
5 can reasonably be attributed to efforts in PY2013 are well documented. Now, in his rebuttal
6 testimony, Mr. Voytas' defense of Ameren's claim that the LightSavers Program is entitled to
7 market effects savings rests on framing OPC as contrarian and antagonistic to energy
8 efficiency programs:

9 *As I noted in my direct testimony, Mr. Marke's opposition to the market*
10 *transformative effect of energy efficiency programming (i.e. Market Effects)*
11 *is essentially a criticism of doing energy efficiency programs in the first*
12 *place.²*

13 This assertion is completely unfounded. Instead, OPC offers merely that Ameren Missouri
14 never should have included market effects for the LightSavers program because Ameren relies
15 too heavily on fomenting conversions to CFLs in 2013. This is a very limited point, but one
16 with a substantial impact in this case only because of Ameren Missouri's over-reliance on
17 CFL conversion to attribute savings to the LightSavers Program. In fact, a source Mr. Voytas
18 cites for positive support of his position provides the underpinning for OPC's critique. The
19 2013 NMR Group report on market transformation emphasizes the importance of framing a
20 market transformation program with Everett Rogers' *diffusion of innovation*³ curve, which is
21 based on the microeconomics of supplier behavior, wherein programs adopt a strategy that
22 increases competition in the field, and that strategy leads to increased availability and diversity

² Voytas Rebuttal, p. 14, 11-15.

³ Rogers, E.M. (1995) *Diffusion of Innovations*, New York: Free Press.

1 of products. Rogers' curve has been recommended as a central framework for impact
2 evaluation studies of energy efficiency products conducted by the US Department of Energy⁴
3 and has been promoted within the energy efficiency community.⁵ Rogers' categorizes five
4 groups of product adopters and identifies market transformation through the percentages of
5 people in each category:

6 **2.5% Innovators** – Innovators play “a gatekeeper role” in the social system
7 of adopters. They are the first people in a social system to adopt the
8 innovation. Innovators tend to be “venturesome,” technologically savvy, and
9 able to cope with uncertainty.

10 **13.5% Early Adopters** – “Early adopters put their stamp of approval on a
11 new idea by adopting it, explains Rogers. Unlike innovators, early adopters
12 enjoy a fair degree of respect among their peers and the general public. If they
13 embrace a new technology, many others will likely follow suit because they
14 have decreased uncertainty about the innovation.

15 **34% Early majority** – Individuals in the early majority look to early
16 adopters for leadership regarding innovation but also may deliberate for some
17 time before embracing a new technology; they constitute a numerically large
18 group. Once an early majority member adopts a technology, other early
19 majority members in their social network are likely to follow.

20 **34% Late majority** – Rogers describes late majority members as skeptics.
21 Another numerically large group, they often decide to adopt an innovation
22 due to peer pressure or because of some economic or other necessity to do so.

⁴ US DOE (2007) Impact Evaluation Framework for Technology Deployment Programs.

http://www1.eere.energy.gov/analysis/pdfs/impact_framework_tech_deploy_2007_main.pdf

⁵ Vine, et al. (2006) An Inside Look at the U.S. Department of Energy Impact Evaluation Framework for Deployment Programs. ACEEE. http://aceee.org/files/proceedings/2006/data/papers/SS06_Panel12_Paper12.pdf

1 **16% Laggards** – According to Rogers, “Laggards are the last in a social
2 system to adopt an innovation.” They tend to look toward the past for
3 guidance on their actions and remain suspicious not only of change, but also
4 “of change agents [i.e., individuals promoting increased adoption of the
5 innovation].” They may have very rational and logical reasons for resisting an
6 innovation and must be very sure “that the new idea will not fail before they
7 can adopt.”⁶

8 Ameren Missouri’s 2010 and 2013 lighting saturation study results provide some additional
9 context for Rogers’ curve as it applies to the LightSavers program. As seen in tables 2⁷ & 3⁸
10 adapted from information in Cadmus’ LightSavers evaluation, the following saturations were
11 identified in 2010 and 2013:

12 **Table 2: Installed Saturation (All Sockets)**

	2010	2013
Incandescent	61%	55%
CFL	16%	23%
Linear Fluorescent	10%	10%
Halogen	9%	9%
LED	1%	1%

13 **Table 3: Installed Saturation (weighted)**

	2010	2013
Incandescent	60%	
CFL	20.8%	30.2%
Linear Fluorescent	7.7%	
Halogen	1.4%	
LED	0.7%	

14
15
16
17

⁶ NMR Group (2013) A Review of Effective Practices for the Planning, Design, Implementation, and Evaluation of Market Transformation Efforts p. 16.

http://www.calmac.org/publications/FINAL_NMR_MT_Practices_Report_20131125.pdf

⁷ Cadmus (2014) Ameren Missouri LightSavers Impact and Process Evaluation: Program Year 2013. P. 33.

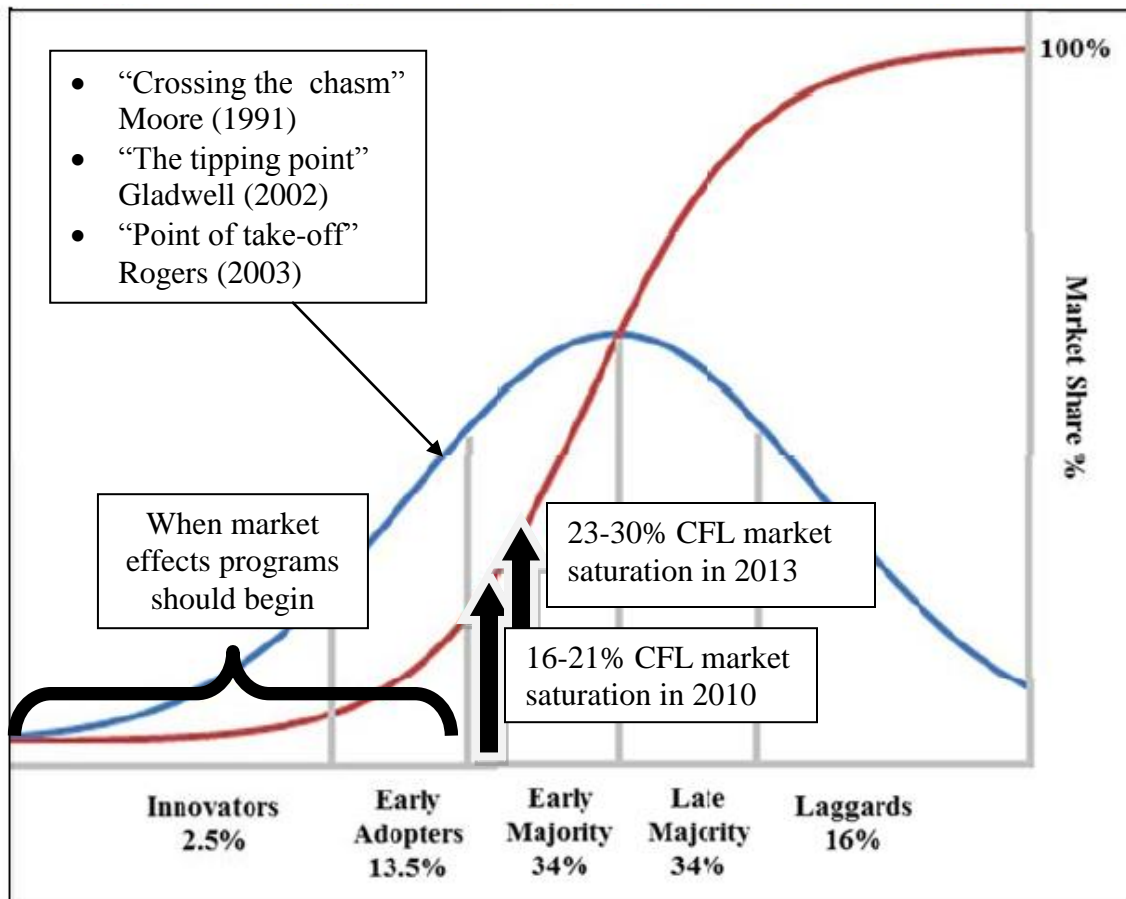
⁸ Ibid.

1 The two tables (above), based on 164 to 172 homes⁹ surveyed by Cadmus, show that overall
2 CFL adoption rate had increased over three years in the Ameren Missouri's service territory
3 by 7% when measured for all available sockets and 10% when it was weighted for only
4 sockets that could accommodate a CFL.¹⁰ Figure 1 (below) shows where Ameren Missouri's
5 ratepayers were in 2010 and in 2013 in relation to Rogers' diffusion of innovation curve, with
6 arrows pointing to the locations on the curve indicating market saturation levels. I have
7 included a bracket indicating where a program that intends to cause market effects should
8 begin.

⁹ Ibid, p. 32; The LightSavers Report by Cadmus indicates that 172 Ameren households were surveyed but only 164 "sites" were utilized in the weighted estimates.

¹⁰ Referred to as a MSB (medium screw-base socket) as a socket that can hold a standard CFL.

Figure 1: Rogers' Diffusion of Innovation Curve with Ameren Missouri market saturation data



1

2

3

4

5

6

7

It is important to note, that according to Rogers' curve, by 2010, the Ameren Missouri service territory had already surpassed the initial market acceptance barriers seen at the Innovators and Early Adopters stages—the “market effects” stages. Those two stages represent 16% of the market. The point of departure from early adopters to early majority is generally seen as crucial for whether there will be continued adoption of a product or idea. This jump between groups has been referred to by Geoffrey Moore as “crossing the chasm,”¹¹ by Malcom

¹¹ Moore, G. (1991) *Crossing the Chasm*. New York: Harper Business Books. 1991.

1 Gladwell as “the tipping point”¹² and by Everett Rogers as “the point of take-off.”¹³ Again,
2 according to 2010 saturation data, 21% of available sockets contained CFLs. To put that into
3 context with Rogers’ curve, CFL adoption had already surpassed the “tipping point” by 5% in
4 2010—three years before the results at issue here. There was an additional two years of CFL
5 adoption before Ameren Missouri’s LightSavers program began. Recognizing levels of
6 product acceptance and awareness is important if market effects savings are to be claimed
7 legitimately. As stated by the NMR Group:

8 *Taking the Innovation Adoption Curve into Account:*

9 *Focus on early adopters in opening markets for innovative products, including*
10 *energy efficiency products. This strategy ties closely to Rogers’ observation*
11 *that individuals tend to look toward early adopters (but not innovators) for the*
12 *stamp of approval before adopting an innovation: If a program can get early*
13 *adopters to embrace the energy-efficient product or service, then it is likely*
14 *that early majority adopters will soon follow.*¹⁴

15 Applying Rogers’ diffusion of innovation curve, the initial barrier of market acceptance for
16 Ameren Missouri’s service territory had already been overcome by 2010, suggesting that
17 naturally-occurring adoption by the early majority would be much more likely to follow. This
18 also suggests that the initial market barriers traditionally associated with justification for
19 market effects attribution cannot be claimed here. Again, this should not be surprising given
20 all of the mitigating factors that can claim attribution for CFL adoption prior to 2013.

¹² Gladwell, M. (2002). *The Tipping Point*. New York: Back Bay Books.

¹³ Rogers, E. (2003) *Diffusion of Innovations Fifth Edition*. New York: New York Free Press, 2003.

¹⁴ NMR Group (2013) A Review of Effective Practices for the Planning, Design, Implementation, and Evaluation of Market Transformation Efforts p. 23-24.

http://www.calmac.org/publications/FINAL_NMR_MT_Practices_Report_20131125.pdf

1 **Q. Mr. Voytas believes that you are using leakage data from Arkansas as a substitute for**
2 **primary data. Please comment.**

3 A. Mr. Voytas makes this assertion at the end of his rebuttal testimony when he states:

4 *Mr. Marke believes that Arkansas' estimates of residential lighting leakage*
5 *should be used in place of primary market research on Ameren Missouri's*
6 *customers simply because the Arkansas leakage estimates yield lower kWh*
7 *savings.¹⁵*

8 I have never made such a claim. The SWEPCO (Arkansas) example was included to provide a
9 recent example of the great importance of establishing what we count and how we classify
10 items when evaluating energy efficiency programs. In Arkansas, the question of leakage was a
11 material concern because it was a first-year lighting program implemented adjacent to service
12 territories that have never implemented an upstream lighting program. This should also have
13 been a material concern in Missouri as Ameren Missouri rolled out its first-year upstream
14 lighting program in a service territory adjacent to multiple service territories that have never
15 implemented an upstream lighting program; a situation which makes Ameren Missouri's
16 program similarly susceptible to leakage.

17 Although I believe the leakage estimates are likely underreported by the evaluator given the
18 difference in reported leakage in both Arkansas and Illinois during the same time frame
19 compared to Ameren Missouri, I have made no recommendation that Arkansas leakage
20 estimates should be adopted as a proxy here.

21

22

¹⁵ Voytas Rebuttal, p. 14, 19-22.

1 **OPC's estimate of the rebound effect**

2 **Q. Mr. Voytas believes OPC's rebound effect calculation is arbitrary and inappropriate.**
3 **Please respond.**

4 A. That a rebound effect occurs is not seriously debated. My direct testimony includes citations
5 to a plethora of studies that have investigated and verified this phenomenon. This is an
6 important issue that is receiving greater attention today in light of the implications of certain
7 carbon emissions policy choices. Moreover, the 9% downward adjustment to the LightSavers
8 program is not an arbitrary estimate. This figure falls well within the range of reasonableness
9 taken specifically from the most conservative studies OPC could find which suggest that
10 energy efficiency estimates need to be adjusted by approximately 20% for a rebound effect.

11 These studies, listed in OPC's direct testimony and again in the rebuttal testimony of Ameren
12 Missouri witness Rick Voytas stress that energy efficiency efforts are still essential even if
13 savings estimates are overstated. OPC agrees that energy efficiency efforts are essential, but
14 also believes that given the reliance on ratepayer funding associated with energy-efficiency
15 programs, it is paramount that the projected reductions in energy usage from energy efficiency
16 investments are accurate.

17 **Q. Please continue.**

18 A. Again, that a rebound effect occurs is not seriously debated. Even the articles that Mr. Voytas
19 cites in an attempt to criticize my assertions agree with me on this point, as I will explain later.
20 What is up for debate in any given program is the relative size of the rebound effect. Public
21 Counsel concludes that the rebound effect estimate is likely small at the program level.
22 Supporting this conclusion, our estimates 1) do not include an indirect rebound effect, 2) are
23 only applied to one of the eleven programs, and 3) suggest only a 9% conservative reduction
24 in claimed savings. A 9% direct rebound effect represents keeping a bulb on for a little over

1 five minutes more in relation to an hour. Even if Ameren ratepayers are keeping their CFLs
2 “on” 9% longer than they otherwise would have with their inefficient incandescent—the
3 savings associated with the CFL still exist, just at a slightly lower amount.

4 OPC has been clear that acknowledging the presence of the rebound effect does not imply
5 that utility-sponsored energy efficiency programs are not the least-cost resource moving
6 forward. Reprinted below is our conclusion from direct testimony:

7 **The presence of a rebound effect should not detract from the value of**
8 **promoting energy efficiency as a least-cost resource moving forward.**

9 Clearly energy savings are occurring, but it is important that those savings
10 are not overstated, especially when Ameren Missouri is rewarded with
11 additional financial compensation for estimated energy savings achieved
12 (emphasis added).¹⁶

13 **Ameren Missouri’s literature on rebound effects**

14 **Q. Mr. Voytas cites a number of studies to discredit the rebound effect. Please explain what**
15 **these studies actually say.**

16 A. In total, Mr. Voytas references four different publications to attempt to discredit the inclusion
17 of the rebound effect into the NTG ratio for the LightSavers program: 1) The American
18 Council for an Energy-Efficient Economy (ACEEE), 2) National Resource Defense Council
19 (NRDC), 3) Uniformed Methods Project (UMP) / NMR Group Study, and 4) Gillingham’s
20 article in *Nature*. Three of the four studies (OPC did not cite the NRDC report) were also
21 included in our direct testimony.

22

¹⁶ Marke Direct p. 16, 8-11.

1 **Q. What does ACEEE have to say about the rebound effect?**

2 A. The same thing it said when I quoted it in my direct testimony—that the rebound effect should
3 be included. Mr. Voytas offers a block quote from a blog post by ACEEE’s Executive
4 Director Steven Nadel. Mr. Nadel’s blog post responds to a report released by the
5 Breakthrough Institute in October in which the Institute alleges that the rebound effect is
6 actually *much larger* than what most other research has found. Mr. Voytas simply includes a
7 large quote without any context. He also omits the opening of that blog post where Mr. Nadel
8 states:

9 ACEEE wrote a paper on the rebound effect in 2012, concluding that both
10 direct and indirect rebound effects exist, but they tend to be modest.
11 **Overall, we found that rebound may average about 20%**, meaning that
12 80% of the savings from energy efficiency programs and policies register in
13 terms of reduced energy use, while the 20% rebound contributes to increased
14 consumer amenities (for example, more comfortable homes) as well as to a
15 larger economy (emphasis added).¹⁷

16 The 2012 ACEEE paper referenced above by Mr. Voytas is the same paper that I quoted in
17 my direct testimony. The blog post cited by Mr. Voytas reinforces my argument. Moreover,
18 instead of suggesting a 20% reduction for rebound effects, which ACEEE believes likely
19 occurs, OPC calls for a modest 9% reduction.

20 **Q. What does the NRDC have to say about the rebound effect?**

21 A. The paper authored by David Goldstein of the NRDC is the most anti-rebound effect paper
22 that I came across during my investigation. Goldstein’s argument is best understood within the

¹⁷ Nadel, S. (2014) The Rebound Effect-Mountain or Molehill? ACEEE <http://www.aceee.org/blog/2014/10/rebound-effect-mountain-or-molehill>

1 context of a larger debate taking place within the environmental community. Goldstein's
2 views represent one view (that rebound effects occur, but should not be a concern for
3 environmental purposes) shared by some in the environmental community. The Breakthrough
4 Institute (the basis for the paper's response) represents the other view (that rebound effects
5 cannot be ignored) within that same community. For its part, OPC elected not to include
6 references to either party in its direct testimony as both strayed too far from a reasonable
7 dialogue. That being said, even under his anti-rebound effects posture, Goldstein concedes
8 that a small rebound effect occurs, though he did not provide any range.¹⁸

9 **Q. What does the Uniformed Methods Project report say about the rebound effect?**

10 A. The Uniformed Methods Project recommends use of the rebound effect. Mr. Voytas cites the
11 same passage I quoted in my direct testimony where the Uniformed Methods Project
12 acknowledges the presence of a rebound effect. Like the ACEEE blog post above, he simply
13 inserts a large block quote without the proper context or without signaling the conclusion
14 drawn by the quote.¹⁹

15 According to the Uniform Methods Project, EM&V work should include consideration for
16 rebound effect estimates. This is also consistent with the academic and institutional literature I
17 cited in my direct testimony.

18 Interestingly, although the Uniformed Methods Project calls for evaluation of rebound effects,
19 it is altogether silent on recommending that free ridership estimates stray from using primary
20 data in favor of secondary data on consumer preferences. A modest rebound effect adjustment
21 is more appropriate and consistent with accepted research and practices than is Ameren

¹⁸ Goldstein, D. et al. (2011) Are There Rebound Effects from Energy Efficiency?—An Analysis of Empirical Data, Internal Consistency, and Solutions. Electricity Policy.com <http://switchboard.nrdc.org/blogs/dgoldstein/Rebound-5-7-2011-FINAL.pdf>.

¹⁹ Dimetrosky, S. et al. (2014) Chapter 6: Residential Lighting Evaluation Protocol. National Renewable Energy Laboratory. http://www.nrel.gov/extranet/ump/pdfs/20140514_ump_res_lighting_draft.pdf.

1 Missouri's proposed free ridership adjustment, which uses a single unsubstantiated white
2 paper as the basis for additional energy savings.

3 **Q. What does the Gillingham's article in *Nature* have to say about the rebound effect?**

4 A. That the rebound effect is real, but is too small to reverse trends in energy efficiency policy.
5 When the implementation of an energy efficiency measure not only erodes all savings but
6 actually produces more emissions, it is called "backfire." In the context of the lighting
7 example this would be the equivalent of OPC claiming the promotion of CFLs did more
8 collective harm than good. OPC is in no way making that assertion. Moreover, Mr. Voytas
9 again mis-frames Gillingham's thesis stating:

10 *By way of example, one article specifically relied upon by Mr. Marke is*
11 *authored by a scholar that supports conclusion [sic] that is 180 degrees*
12 *opposite of what Mr. Marke recommends. . . . Yes, I agree with Gillingham.*
13 *There is insufficient support to presume that savings should be reversed,*
14 *discounted, or otherwise pared down by virtue of any theoretical abstract*
15 *factor such as the one that Mr. Marke presents.²⁰*

16 As quoted from my direct testimony and reprinted here so there is no continued confusion,
17 Gillingham gives estimated "pared down" savings that are exactly in line with the estimate
18 that I have proposed for the LightSavers program when factoring in the rebound effect in
19 claimed energy savings:

20 Because people respond more strongly to price than to efficiency cues when
21 deciding how much energy to use, these numbers are overestimates. **The**
22 **direct rebound effect for efficiency alone should be nearer the low end**

²⁰ Voytas Rebuttal, p. 13, 13-15 & p. 15, 3-5.

1 **of this range, or around 5-10%.** Money saved through efficiency can also
2 be spent on another product, such as a new phone, causing an ‘indirect’
3 rebound effect if extra energy is needed to manufacture and use the
4 additional item. **Assessments of household spending indicate that 5-15%**
5 **of energy efficiency savings are displaced in this way** (emphasis added
6 here and in direct testimony).²¹

7 Gillingham estimated a range for the direct and indirect rebound effect occurring at 10-25%.
8 Far from being a 180 degree opposite conclusion from OPC’s position, Gillingham is in
9 general agreement with our view on the rebound effect. That it is real, it is small, and its
10 presence should not detract from the value of promoting energy efficiency as a least-cost
11 resource moving forward. Overall, Gillingham would suggest a much larger downward
12 adjustment than what OPC has suggested.

13 **Clarification on the spillover estimate**

14 **Q. Mr. Voytas suggests that OPC revised its spillover estimate to yield a lower energy**
15 **savings estimate when OPC filed a correction in its direct testimony. Please respond.**

16 A. Mr. Voytas asserts such a claim when he states:

17 *Yes. Mr. Marke completely reversed his recommendation made in his*
18 *October 6th Testimony, where he stated on page 64, line 10, “[a]dditionally,*
19 *Cadmus/ADM spillover estimates should be utilized to calculate the overall*
20 *net-to-gross ratio for the portfolio.” Mr. Marke provides no rationale for*

²¹ Quoted in the direct testimony of Marke, p. 10, 6-13. Gillingham, K. et al. (2013) The rebound effect is overplayed. *Nature*, 493: 475-576. <http://www.ourenergypolicy.org/wp-content/uploads/2013/12/rebound.pdf>

1 *the switch in position—such as the reasons why the Commission’s Auditor’s*
2 *approach is more robust than that of Cadmus/ADM.*²²

3 Public Counsel found this error in its Response to Change Request when drafting our direct
4 testimony and corrected it. Ameren Missouri, in contrast, has made the same error at each
5 stage in this process. In short, Public Counsel wanted to clarify that the evaluator and the
6 auditor disagreed on participant spillover for one program—LightSavers. The difference
7 between the two results is large. Table 4 is the NTG ratio differences as listed in the auditor’s
8 LightSavers report:

9 **Table 4: LightSavers NTG ratio of Evaluator and Auditor (Dimetrosky estimate)**

Results	Evaluator	Auditor	Difference
1.0 – FR	0.76	0.76	-
1.0 – FR + PSO	1.04	0.84	0.20
1.0 – FR + PSO + NPSO	1.05	0.87	0.18
1.0 – FR + PSO + NPSO + ME	1.25	0.94	0.29

- 10 • FR = free ridership
11 • PSO = participant spillover
12 • NPSO = non-participant spillover
13 • ME = market effects

14 Confusion between the reports centers on the PSO and NPSO designations listed in the table.
15 The auditor refers to PSO as participant spillover and NPSO as nonparticipant spillover. The
16 evaluator (Cadmus) refers to PSO as nonparticipant “like” spillover and NPSO as
17 nonparticipant “unlike” spillover. This is the only program where the evaluator does this.
18 Because of the differences in categorizing these inputs, there was a need to correct and clarify
19 the disputed outcomes.

²² Voytas p. 5, 18-23 & p. 6, 1-2.

1 Ameren Missouri for its part made this mistake when it submitted its Response to Change
2 Request by failing to correct for the difference in disputed participant spillover (or
3 nonparticipant “like” spillover) and instead stated it was only seeking changes in free ridership
4 estimates and to provide overall support for market effects:

5 *Specifically, Ameren Missouri seeks that the Reports be changed to correct*
6 *the inaccurate measure (overstatement) of free ridership through the use of*
7 *general survey questions, and also request that the Report acknowledge the*
8 *importance of market effects.*²³

9 This is repeated in the direct testimony of Richard A. Voytas submitted with the Change
10 Request on July 3, 2014:

11 *Ameren Missouri specifically asks the Commission to revise estimates of free*
12 *ridership for these programs and adjust the energy savings achieved in 2013*
13 *based on a more in-depth approach supported by extensive market research*
14 *as proposed by Ameren Missouri. . . . Ameren Missouri will not, at this time,*
15 *ask the Commission to revise the NTG ratios for market effects for those*
16 *2013 DSM programs where data for market effects was not available*
17 *therefore not quantified.*²⁴

18 The mistake is again repeated in the direct testimony of Richard A. Voytas submitted on Oct.
19 22nd 2014:

20 *The Auditor agreed with the EM&V Evaluator’s impact assessments with*
21 *two exceptions, both related to the residential EM&V report. The first*
22 *exception had to do with the input data used to estimate market effects for*

²³ EO-2012-0142 item no. 166 Ameren Missouri application for approval of change request p. 2.

²⁴ EO-2012-0142 item no. 167 Ameren Missouri Direct Testimony of Richard A. Voytas p. 2, 6-9, 12-15.

1 *the company's LightSavers program. The second had to do with the*
2 *assumptions used to assign estimates of non-participant spillover to the*
3 *residential energy efficiency programs. Staff agreed with the assessment of*
4 *the Auditor with one exception—Staff recommended that the quantification*
5 *of market effects be removed in its entirety from the calculation of net*
6 *savings for the LightSavers program.*²⁵

7 In all of these examples Ameren Missouri failed to acknowledge that one of larger contested
8 issues in the LightSavers estimates between the evaluator and auditor reports are the
9 participant spillover estimates. As evidenced by Ameren Missouri's response to my
10 correction, it still has not recognized its error.

11 Perhaps most importantly, the corrections that were made in my direct testimony did not
12 impact my conclusions with respect to energy savings and net shared benefits actually
13 attributable to Ameren's PY2013 MEEIA program.

14 **OPC stakeholder participation**

15 **Q. Mr. Voytas suggests throughout his rebuttal that OPC's objections are really objections**
16 **to utility-sponsored energy efficiency in general. Please respond.**

17 A. As the Commission is well aware, OPC has been an active and eager participant in the
18 ongoing promotion and dialogue of energy efficiency, not just in Ameren Missouri's service
19 territory but throughout the state. Public Counsel has provided a number of suggestions for
20 joint delivery of energy efficiency programs, sharing of costs, and has even proposed new
21 measures and programs, including potential market transformation programs in other contexts
22 and matters before the Commission.

²⁵ EO-2012-0142 item no. 212. Ameren Missouri Direct Testimony of Richard A. Voytas p. 4, 9-16.

1 Far from being a cynical contrarian, OPC has been an active participant in the adoption of
2 energy efficiency as a least-cost resource. Put simply, a cost-effective energy efficiency
3 program ultimately will help save ratepayers money. The issue here, is ensuring the incentive
4 payments Ameren Missouri receives from ratepayers are based on real savings actually
5 attributable to Ameren's work.

6 **Long-term implications if Commission rules against Ameren Missouri**

7 **Q. Mr. Voytas suggests that Ameren Missouri will have to readjust its savings targets**
8 **downward if any of Public Counsel's recommendations are adopted, thus, effectively**
9 **"killing" future energy savings. Please respond.**

10 A. Ameren Missouri adjusted its energy savings targets down from their initial MEEIA cycle 1
11 filing long before any testimony was submitted by OPC over this EM&V.

12 For its Cycle II programs, Ameren Missouri's potential study utilized the YouGov "take-rate"
13 downward adjustment on all of its survey respondent's answers to create an artificially lower
14 savings target. Although Ameren Missouri has not formally submitted its Cycle II application,
15 Ameren Missouri's triennial IRP reflects the results of this downward adjustment. It also
16 shows that as of October 1st, when the triennial IRP was submitted, the overall budget for
17 MEEIA programs for 2016, 2017 and 2018 are all lower than what was expended during the
18 first cycle. Note that this lower overall energy efficiency budget runs contrary to projected
19 industry practice as seen in Utility Dive's 2014 annual report, which surveyed over 500 U.S.
20 utilities and found that 83% are planning on growing their energy efficiency programs over
21 the next five years.²⁶

²⁶ Utility Dive (2014) The State of Electric Utility. Annual Report. p. 5.
https://s3.amazonaws.com/dive_assets/rfpsys/2014_utility_dive_survey.pdf

1 Ameren Missouri's trepidation over future energy efficiency programs was also expressed
2 publicly before OPC introduced the rebound effect into this discussion, at the Statewide
3 Collaborative on October 21st and reprinted in the St. Louis Post Dispatch:

4 "We think utility energy efficiency programs are great," Richard Voytas,
5 Ameren's energy efficiency manager, said at a state conference last week.
6 "We think the business model that we have in the state of Missouri, the
7 regulatory framework, is right on. And we've got a team dedicated to
8 getting everything that we can. **But we also know that past performance**
9 **when it comes to energy efficiency is not indicative of future**
10 **performance**" (emphasis added).²⁷

11 Ameren Missouri has already filed lower energy savings and a lower budget in its triennial
12 IRP for program years 2016, 2017 and 2018 compared to their Cycle 1 programs. This was
13 known and publicly stated before Public Counsel raised objections in the results of the
14 PY2013 EM&V. To suggest that if the Commission does not side with Ameren Missouri on
15 its PY2013 results, Ameren will be forced to reevaluate entirely its energy efficiency
16 programs moving forward is disingenuous given what has already been filed.

17 **Q. Any concluding comments regarding Mr. Voytas' rebuttal testimony.**

18 A. In January of 2012, the United States Department of Energy (US DOE) released the 2010 U.S.
19 Lighting Market Characterization study. This was the second longitudinal report released by
20 the US DOE's Solid State Lighting Program which provided summary estimates of the
21 installed stock, energy use, and lumen production of all lamps operating in the U.S. The study
22 had three primary objectives. To determine:

²⁷ Barker, J. (2014) Despite big savings, Ameren still cautious on energy efficiency investment. St. Louis Post Dispatch. Oct. 26, 2014. http://www.stltoday.com/business/local/despite-big-savings-ameren-still-cautious-on-energy-efficiency-investment/article_f2113f4e-2056-583c-b654-bd864f64ed8e.html

- 1 • How many of each lighting technology are installed in the U.S. in 2010, and where
- 2 are they installed?
- 3 • How much energy is consumed by light sources in the U.S. in 2010?
- 4 • How have the U.S. lighting market characteristics changed over the past decade?²⁸

5 In response to the final objective, the US DOE concluded that there were two observable
6 trends in 2010:

- 7 • Increased demand for light. The total number of lamps installed in U.S.
8 stationary applications grew from just under 7 billion in 2001 to over 8
9 billion in 2010. The vast majority of the growth occurred in the
10 residential sector, primarily due to the increase in number of households
11 and the rise in the number of sockets per household, from 43 in 2001 to
12 51 in 2010.
- 13 • Push towards higher efficacy lighting. **Investment in more energy**
14 **efficient technologies, federal and state-level lighting regulations,**
15 **and public awareness campaigns have been effective in shifting the**
16 **market towards more energy efficient lighting technologies.** Across
17 all sectors the lighting stock has become more efficient, with the average
18 system efficacy of installed lighting increasing from 45 lumens per Watt
19 in 2001 to 58 lumens per Watt in 2010. **This rise in efficacy is largely**
20 **due to two major technology shifts; the move from incandescent to**
21 **compact fluorescent lamps (CFLs) in the residential sector,** and the

²⁸ US DOE (2012)2010 U.S. Lighting Market Characterization. p. 1.
<http://apps1.eere.energy.gov/buildings/publications/pdfs/ssl/2010-lmc-final-jan-2012.pdf>

1 move from T12 to T8 and T5 fluorescent lamps in the commercial and
2 industrial sectors (emphasis added).²⁹

3 To summarize, in discussing the U.S. lighting market in 2010 the U.S. DOE concluded that
4 lighting demand has increased while simultaneously the lighting stock has become more
5 efficient. Both federal efficiency standards and public awareness campaigns already were
6 credited for the increase in market penetration. This report represents results that were three
7 years before Ameren Missouri's LightSavers program. These results are also consistent with
8 the conclusions drawn earlier in this testimony over Ameren Missouri's 2010 lighting
9 saturation study and Rogers' diffusion of innovation curve that suggests that the tipping point
10 for CFLs was met in 2010.

11 **III. Response to Staff's Rebuttal Testimony of John Rogers**

12 **Q. What is your overall response to the rebuttal testimony filed by Staff witness John**
13 **Rogers?**

14 A. Although Staff points out sections of the MEEIA rules that support the calculation of the
15 utility performance incentive into the net shared benefits and references California as a
16 state that adheres to this practice, Staff has elected to maintain their joint settlement
17 position. OPC believes Staff has underestimated the impact their joint position stance will
18 have on ratepayers and on the future of energy efficiency efforts in Missouri.

19 **Q. Please give an outline of the issues you will discuss.**

20 A. The outline of issues that I respond to include:

- 21 • The total resource cost (TRC) test as a preferred test

²⁹ Ibid, p. xiii.

- 1 • The utility performance incentive in the net shared benefits calculation
- 2 • Impact on rates
- 3 • Objections to OPC's testimony

4 **The total resource cost (TRC) test as a preferred test**

5 **Q. Please describe Mr. Rogers' position on whether the TRC should be utilized for**
6 **calculating the net shared benefits.**

7 A. Mr. Rogers is not in favor of using the TRC to calculate the net shared benefits. To support
8 this position he points out that both the MEEIA statute and the MEEIA rules list the TRC
9 as *a* preferred test and not *the* preferred test as was previously indicated in OPC's earlier
10 testimony. He then goes on to list the other preferred tests that are included in the MEEIA
11 rules as well as restate the definition of annual net shared benefits which does not state any
12 specific cost-effective test within the definition.

13 **Q. Please respond.**

14 A. Mr. Rogers is correct in stating that the TRC is a preferred cost effectiveness test; however,
15 there is no additional test mentioned in either the MEEIA statute or rules that is also given
16 the designation of "preferred test." In fact, table 5 includes a breakdown of how the
17 different cost effectiveness tests appear in the MEEIA statute as well as the applicable
18 MEEIA rules in 4 CSR 240-3.163, 4 CSR 240-3.164, 4 CSR 240-20.093, and 4 CSR 240-
19 20.094.

1 **Table 5: Breakdown of cost effective tests as appearing in MEEIA statute and rules**

	Total Resource	Utility	Societal	Non-Participant	Participant
SB 376 (MEEIA Statute)	Yes	No	No	No	No
4 CSR 240-3.163	Yes	No	No	No	No
4 CSR 240-3.164	Yes	Yes	Yes	Yes	Yes
4 CSR 240-20.093	Yes	No	No	No	No
4 CSR 240-20.094	Yes	No	No	No	No

2
3 Only 4 CSR 240-3.164 contains language that includes calculations of cost effective tests
4 in addition to the TRC, but even in that section, the other five tests are clearly listed as
5 secondary tests to the TRC. The rules specifically state:

6 **The total resource cost test** and a detailed description of the utility's
7 avoided cost calculations and all assumptions used in the calculation. To
8 the extent that the portfolio of programs fails to meet the TRC test, the
9 utility shall examine whether the failure persists if it considers a
10 reasonable range of uncertainty in the assumptions used to calculate
11 avoided costs; (emphasis added)³⁰

12 And then the rules list the other four cost effective tests as secondary considerations in:

13 **The utility shall also include** calculations for the utility cost test, the
14 participant test, the non-participant test, and the societal cost test
15 (emphasis added)³¹

16 The statute, rules and actions taken by all parties to date have utilized the TRC test.
17 Abandoning what has been, until now, accepted practice will only result in overstating
18 Ameren Missouri's energy savings. Moreover, abandoning the TRC ignores that it is:

³⁰ 4 CSR 240-3.164: 2 (B) 1

³¹ 4 CSR 240-3.164: 2 (B) 2

- 1 - Singled out in the MEEIA statute;
- 2 - Labeled a preferred test in the MEEIA statute;
- 3 - Included in all four relevant MEEIA chapter rules;
- 4 - Never given secondary treatment to another cost effective test.

5 The TRC should not be deviated from without good cause. To this point, no good cause has
6 been listed by either Ameren Missouri or by Staff, and the desire to inflate Ameren
7 Missouri's performance incentive should not be considered good cause.

8 **The utility performance incentive in the net shared benefits calculation**

9 **Q. Please comment on Mr. Rogers' interpretation of annual net shared benefits.**

10 A. Mr. Rogers cites the annual net shared benefits definition which states:

11 Annual net shared benefits means the utility's avoided costs measured and
12 documented through evaluation, measurement, and verification (EM&V)
13 reports for approved demand-side programs less the sum of the programs'
14 costs including design, administration, delivery, **end-use measures,**
15 **incentives,** EM&V, utility market potential studies, and technical resource
16 manual on an annual basis; (emphasis added)³²

17 He then states that "incentives," within the definitions context, include rebates to customers
18 for energy efficiency efforts. As explained in my rebuttal testimony, this interpretation
19 constitutes a double-counting of inputs as the customer rebate and an end-use measure are
20 then effectively the same item. It is clear from the rules that "end-use measures" and
21 "incentives" receive separate treatment, are not interchangeable, and must be treated
22 distinctly. When calculating the total net benefits attributable to Ameren Missouri's energy
23 efficiency efforts, all applicable costs—including the performance incentive—as defined

³² 4 CSR 240-3.163 (1) (A)

1 above, also must be considered. Failing to do this ignores a material cost that ratepayers
2 will inevitably pay on their electric bills following the conclusion of this cycle. It also
3 ignores best practice literature regarding the use of utility performance incentives for
4 energy efficiency programs (to be discussed below).

5 **Q. Does Mr. Rogers provide any other factors for the Commission to consider?**

6 A. Yes. Mr. Rogers points out that Chapter 22 rules governing the integrated resource
7 planning process include a specific provision which requires utilities to calculate their
8 demand-side management estimates with and without a utility financial incentive included
9 in their 20-year planning horizon. Mr. Rogers' rebuttal testimony states:

10 Q. Do any of the MEEIA rules require the utility to include financial
11 incentives for its demand-side programs when analyzing alternative
12 resource plans during the utility's electric utility planning?

13 A. Yes. 4 CSR 240-20.093(3)(A)2. requires that demand-side
14 program plans are included in the electric utility's preferred plan or have
15 been analyzed through the integration process required by 4 CSR 240-
16 22.060 to determine the impact of the demand-side programs and program
17 plans on the net present value of revenue requirements of the electric
18 utility. Further, 4 CSR 240-22.060(4)(C) requires that the utility provide:

19 (C) **The analysis of economic impact of alternative**
20 **resource plans, calculated with and without utility**
21 **financial incentives for demand-side resources,** shall
22 provide comparative estimates for each year of the planning
23 horizon (emphasis added).³³

24 According to these rules Ameren Missouri is required to forecast its IRP plans with
25 estimates that include and exclude a utility performance incentive. This is an example of

³³ Rogers, Rebuttal p. 7, 23-33.

1 another section of the Commission’s rules that treat the performance incentive as a
2 calculated input for demand-side resources. This further supports the explanation in my
3 previous testimony that the utility’s performance incentive should be included as a cost.

4 **Q. Are there other factors Mr. Rogers asks the Commission to consider?**

5 A. Yes. Mr. Rogers cites California as a state that factors in the utility performance incentive
6 as a cost realized by ratepayers in determining the annual net shared benefits. He
7 specifically cites to the US EPA’s 2007 report *Aligning Utility Incentives with Investment*
8 *in Energy Efficiency*, which references California as a case study example.

9 According to the EPA, the utility performance incentive is a necessary component in
10 determining the net shared benefits when properly accounting for accurate investment in
11 energy efficiency. This is illustrated in table 6 which is reprinted and modified from the
12 2007 report.

13 **Table 6: Reprint of Pros and Cons of Utility Performance Incentive Mechanisms**

Table 6-7. Pros and Cons of Utility Performance Incentive Mechanisms	
Pros	<ul style="list-style-type: none">• Provide positive incentives for utility investment in energy efficiency programs.• Policy-makers can influence the types of program investments and the manner in which they are implemented through the design of specific performance features.
Cons	<ul style="list-style-type: none">• Typically requires post-implementation evaluation, which entails the same issues as cited with respect to fixed-cost recovery mechanisms.• Mechanisms without performance targets can reward utilities simply for spending, as opposed to realizing savings.• Mechanisms without penalty provisions send mixed signals regarding the importance of performance.• Incentives will raise the total program costs borne by customers and reduce the net benefit that they otherwise would capture.



1 The EPA clearly believes that a utility's performance incentive reduces the net shared
2 benefits that can be claimed. The final bullet point under "Cons" specifically states:

3 **Incentives will raise the total program costs borne by customers and**
4 **reduce the net benefits that they otherwise would capture** (emphasis
5 added).³⁴

6 The Commission's rules state that the utility performance incentive needs to be factored
7 into the IRP process. The definition of annual net shared benefits contains an input
8 specifically titled "incentives" which is clearly different than customer end-use measures
9 (rebates). And finally, ratepayers will most certainly realize the utility performance
10 incentive as a cost on their monthly bills. The argument for why Ameren Missouri's net
11 shared benefits calculation should ignore best practices, Commission rules, and what is
12 ultimately realized on a ratepayer's bill is not well supported.

13 **Q. Do any other authoritative sources agree with your conclusions?**

14 A. Yes. ACEEE has stated that the performance incentive should be included as a cost
15 component for delivering energy efficiency resources, as the incentive is equivalent to a
16 rate of return that a utility would earn for a supply-side investment.³⁵ In a 2014 national
17 review of energy efficiency programs, ACEEE states:

18 The second general category is performance incentives, which are either
19 utility shareholder incentives or performance management fees for non-
20 utility program administrators. Both are typically established as a way to
21 encourage greater levels of efficiency, and typically they are earned only if

³⁴ EPA (2007) Aligning Utility Incentives with Investment in Energy Efficiency. 6-12.
<http://www.epa.gov/cleanenergy/documents/suca/incentives.pdf>

³⁵ Molina, M. (2014) The Best Value for America's Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs. ACEEE report Number U1402. P. 4.
<http://www.aceee.org/sites/default/files/publications/researchreports/u1402.pdf>

1 certain thresholds of energy savings are met or exceeded. **While utilities**
2 **earn the incentives for good performance and may not perceive them**
3 **as a direct cost of efficiency programs, ratepayers foot the bill for**
4 **performance incentives, so they need to be accounted for in**
5 **calculating the overall cost of delivering energy efficiency resources.**

6 Not all jurisdictions, however, adopt performance incentives: currently 28
7 states have them in place for at least one major utility (Downs et al. 2013).

8 **We have chosen to include performance incentives as a cost**
9 **component of delivering energy efficiency resources because they are**
10 **a direct way to encourage efficiency performance, and they are**
11 **equivalent to a rate of return that utilities would earn on a supply-side**
12 **investment** (emphasis added).³⁶

13 **Impact on rates**

14 **Q. Mr. Rogers believes that if the Commission rules in favor of OPC it will only have a**
15 **small impact on rates for consumers. Please respond.**

16 A. I disagree with Mr. Rogers, and apparently, so does Mr. Voytas. There are a number of
17 outstanding issues which will lead to overstating earned energy savings and thus impacting
18 ratepayers' bills as follows:

- 19 • The inclusion of market effects for CFLs in 2013. The joint position of Staff and Ameren
20 Missouri:
- 21 ○ Allows market effects to be utilized again without prior stakeholder agreement in
22 PY2014 and PY2015.
 - 23 ○ Will impact other utilities' MEEIA EM&V results.

³⁶ Ibid.

- 1 ○ Would be a clear outlier to any utility-sponsored energy efficiency programs in the
2 United States to date.
- 3 • A downward adjustment and utilization of “take rate” methodology for free ridership based
4 on YouGov data. The joint position of Staff and Ameren Missouri:
- 5 ○ Allows this methodology to be utilized again in PY2014 and PY2015.
6 ○ Impacts Ameren Missouri’s potential study results and ultimately ratepayer’s bills
7 for MEEIA cycle II.
8 ○ Will impact other utilities future potential study results.
- 9 • Omitting the utility performance incentive from the net shared benefits calculation. The
10 joint position of Staff and Ameren Missouri:
- 11 ○ Increases the utility performance incentive amount and overstates energy savings.
12 ○ Allows this to be unaccounted for again in PY2014 and PY2015.
13 ○ Will impact results from other utilities’ MEEIA EM&V results.
- 14 • Utilizing the utility cost test instead of the total resource cost test in determining net shared
15 benefits. The joint position of Staff and Ameren Missouri:
- 16 ○ Increases the utility performance incentive amount and overstates energy savings.
17 ○ For the residential programs alone in PY2013 there was approximately \$8 million
18 difference.
19 ○ Allows it to be utilized again in PY2014 and PY2015.
20 ○ Will impact results from other utilities’ MEEIA EM&V results.
- 21 • Not recognizing the rebound effect. The joint position of Staff and Ameren Missouri:
- 22 ○ Runs counter to findings from the International Risk Governance Council, The U.S.
23 Energy Information Administration, the World Bank, the Uniformed Methods
24 Project, ACEEE, among others.
25 ○ Would perpetuate a distortion of energy savings by ignoring a recognized
26 phenomenon that accompanies the adoption of energy efficiency.

1 **Q. Please continue.**

2 Mr. Rogers suggests that the impact on ratepayers roughly amounts to an increase of \$0.52
3 a year for two years. This amount is not based on OPC's estimates. This estimate is based
4 on the difference between Staff's original position and Staff's new joint settlement position
5 a difference of 59,459 MWh of additional savings for Ameren Missouri.

6 OPC has accepted Staff's original position and asked to include a conservative 9%
7 downward adjustment for a direct rebound effect for the LightSavers program. This
8 amounts to an additional 20,097 MWh reduction in claimed savings for a total reduction of
9 110,534 MWh from the evaluator's estimate and then a new total net benefit amount of
10 \$75,521,822.

11 Assuming that Ameren Missouri would reach their 100% target and produce a 5.03%
12 return from the overall net benefits, the difference between the joint position and OPC's
13 estimate above for PY2013 would be as follows:

14 $5.03\%^{37}$ of \$75,521,822 = \$3,798,747 (OPC's position)
15 $6.19\%^{38}$ of \$129,925,000 = \$8,042,357 (Joint position estimate)

16 That amount underscores the financial impact on ratepayers. The calculation of the joint
17 position's net shared benefits has been incorrectly stated because the utility cost test has
18 been used instead of the total resource test. Additionally, the costs associated with the
19 utility performance incentive have been omitted from the net benefits amount. The
20 omission of these two required steps severely understated the actual amount at stake for
21 ratepayers which are now reflected in OPC's testimony. Failing to account for these steps

³⁷ Represents 100% of target achieved

³⁸ Represents 130+% of target achieved

1 also increases the likelihood that these results are to be repeated in PY2014, PY2015 and
2 for other utilities in future MEEIA cases.

3 Moreover, it is important to note that any amount of money taken from the ratepayer when
4 it should not be is too much. Bureaucratic convenience is no safe harbor or rationale for
5 acceding to an inflated performance incentive.

6 **Objections to OPC's testimony**

7 **Q. Mr. Rogers believes OPC's recommendations should be omitted because its testimony**
8 **to date has not provided a methodology for verifiable energy and demand savings as a**
9 **result of a performed EM&V. Please respond.**

10 A. It is true that OPC has not performed a formal EM&V for Ameren's PY2013. EM&V has
11 been performed by Cadmus, ADM and the Commission's independent auditor. Public
12 Counsel seeks to use those numbers and include a conservative reduction for a direct
13 rebound effect for one program, a reduction which falls in the low end of a reasonable
14 range of estimates from a number of sources. There has already been a considerable
15 amount of time and money allocated to EM&V activities for Ameren Missouri's PY2013.
16 The residential evaluation alone has exceeded \$2 million dollars, which is more than the
17 annual costs of four of the seven residential programs.

18 The Office of Public Counsel has a statutory responsibility to represent the interests of the
19 public and utility customers in proceedings before the Missouri Public Service Commission.
20 In this case, that means ensuring the energy savings credited to Ameren Missouri's MEEIA
21 programs are accurate.

22 Regarding a methodology for verifiable energy and demand savings, Public Counsel:

- 1 ○ Supports the methodology and calculations agreed to by both the evaluators and
2 auditor (Dimestrosky) estimates of free ridership.
- 3 ○ Supports the methodology and calculations for the LightSavers program as determined
4 by the auditor for participant spillover and the exclusion of market effects.
- 5 ○ Supports the methodology and calculations for nonparticipant spillover for all other
6 programs as determined by the evaluators (Cadmus & ADM).

7 In addition, I have recommended a 9% downward adjustment to account for a conservative
8 calculation of the rebound effect. This recommendation relies on a plethora of quantitative
9 studies from respected sources from around the world and is much lower than even what the
10 well-regarded ACEEE has identified. Public Counsel has presented the accepted range of
11 rebound effects from these sources and recommended a point on that range for adoption. In
12 contrast, Ameren Missouri could not and did not provide one study that concluded the
13 rebound effect should be zero.

14 Public Counsel continues to recommend the following to the Commission regarding the
15 appropriate net-to-gross (NTG) ratio and energy savings for Ameren Missouri's PY2013
16 EM&V results:

- 17 • Adopting Staff's original Change Request which calls for the elimination of market
18 effects and accepting the auditor's estimates of participant spillover for the
19 LightSavers Program.
- 20 • Accepting the evaluator's estimates for non-participant spillover.
- 21 • Rejecting Ameren Missouri's downward adjustment of free ridership.
- 22 • Including a conservative 9% downward adjustment to the NTG ratio for the
23 LightSavers Program to account for direct rebound effects.

- 1 • Calculating the net shared benefits through the use of the total resource cost test (TRC)
2 and including the utility performance incentive as a direct cost within that calculation.

3 **Q. Does this conclude your testimony?**

4 **A.** Yes it does.