

1 Exhibit No: 650
2 Issue: Demand Side Resources
3 Witness: Cliff McDonald
4 Type of Exhibit: Direct testimony
5 Sponsoring Party: NRDC
6 Cases EO-2015-0240 & 0241
7 Date testimony prepared: Dec. 11, 2015
8
9

10 **BEFORE THE PUBLIC SERVICE COMMISSION**
11 **OF THE STATE OF MISSOURI**
12
13

14 In the Matter of Kansas City Power & Light)
15 Company's Notice of Intent to File an)
16 File No. EO-2015-0240
17 Application for Authority to Establish a Demand-)
18 Side Programs Investment Mechanism)
19

20 In the Matter of KCP&L Greater Missouri)
21 Operations Company's Notice of Intent to File an) File No. EO-2015-0241
22 Application for Authority to Establish a Demand-)
23 Side Programs Investment Mechanism)
24
25

26 **TESTIMONY OF**

27
28 **Cliff McDonald**

29
30 **ON BEHALF OF**

31
32 **Natural Resources Defense Council (NRDC)**
33

34 **December 11, 2015**
35

NRDC Exhibit No. 650
Date 1-12-16 Reporter TW
File No. EO-2015-0240
EO-2015-0241

1

2

3 **Q. Please state your name and business address.**

4 A. Clifford Shawn McDonald, Optimal Energy, Inc., 10600 Route 116, Hinesburg,
5 VT 05461.

6 **Q. On whose behalf are you testifying?**

7 A. I am testifying on behalf of Natural Resources Defense Council (NRDC). All
8 work developing my testimony has been completed by me or under my direction.

9 **Q. How are you employed?**

10 A. I am a consultant at Optimal Energy, Inc., (“Optimal Energy”) a consultancy
11 specializing in energy efficiency and utility planning. Optimal Energy advises numerous
12 parties including utilities, non-utility program administrators, government, and
13 environmental groups.

14 **Q. Tell me about your qualifications and experience?**

15 A. I have 8 years of experience in all aspects of energy efficiency, including facility
16 energy management, policy development and research, integrated resource planning,
17 cost-benefit analysis, and efficiency and renewable program design, implementation and
18 evaluation. I have developed numerous utility efficiency plans, and designed and
19 evaluated utility and non-utility residential, commercial and industrial energy efficiency
20 programs throughout North America.

21 I have also been involved in studies of efficiency potential and economics in
22 many locations, including New York, Delaware, and Vermont. These studies ranged from
23 high level assessments to extremely detailed, bottom-up assessments evaluating
24 thousands of measures among numerous market segments. Recent examples of the latter

1 are analyses of electric and natural gas efficiency and renewable potential along with the
2 development of suggested programs for New York State, on behalf of the New York
3 State Energy Research and Development Authority (NYSERDA).

4 In addition to my work at Optimal, I have contributed to several LEED
5 certification projects, particularly in the area of building energy modeling. I have a B.A.
6 in Physics from Middlebury College.

7 **Q. Have you previously testified before this Commission?**

8 **A.** No. Philip Mosenthal, also from Optimal Energy, has submitted direct and
9 rebuttal testimony in the most recent Ameren IRP docket, EO-2011-0271, and rebuttal
10 testimony in Ameren MEEIA dockets EO-2012-0142 and EO-2015-0055. In addition, he
11 has submitted rebuttal testimony in the KCP&L-GMO MEEIA filing docket, EO-2012-
12 0009. I helped develop Philip's testimony under his direction in the above cases.

13 **Q. Please summarize your Testimony.**

14 **A:** The main purpose of this testimony is to support the non-unanimous stipulation
15 for the KCP&L MEEIA filing. In this stipulation, KCP&L (including GMO) commits to
16 a collaborative process to identify a possible additional 200 GWh of savings that could be
17 captured in 2017 and 2018. A large part of this testimony will be dedicated to
18 demonstrating that these additional savings are both possible and readily achievable. In
19 particular, I will show that KCP&L's energy savings targets in the MEEIA plan are
20 significantly below both the levels identified in the Navigant Potential Study as
21 realistically achievable and the minimum levels called for in the MEEIA rules. Further, I
22 argue that the adjustments that KCP&L made to the potential estimates were unnecessary
23 – higher savings levels are possible as proven in many other jurisdictions.

1 Second, I discuss program ideas that KCP&L could use to increase savings levels.
2 I give examples of some of the many ways that KCP&L could improve program design
3 or add program elements that would allow them to achieve significantly higher than past
4 or proposed savings levels – primarily by increasing participation rates. It is my hope that
5 some of these program design ideas can be used a starting point for discussions during
6 the collaborative process.

7 Finally, I touch upon the proposed throughput disincentive and performance
8 incentive. While we support the throughput disincentive mechanism as outlined in the
9 non-unanimous stipulation, we view it as hopefully a temporary solution until a
10 decoupling mechanism can be fully implemented. A decoupling mechanism would be
11 preferable and lower risk to ratepayers.

12 **MEEIA Plan Savings Targets**

13 **Q: How have the savings targets changed from the original plan to the stipulation?**

14 **A:** The savings targets in the stipulation are lower than they were in the original
15 MEEIA plan. The table below shows the savings targets in the original MEEIA II plan
16 versus the stipulated agreement. As seen, total savings for GMO and KCP&L are 21%
17 and 15% lower than they were under the original MEEIA plan. The annual savings under
18 the stipulation comes out to about 0.7% of sales per year for GMO and 0.8% of sales for
19 KCP&L, compared to 0.9% under the original MEEIA plan.

kWh	GMO	KCP&L
Original MEEIA Targets	232,357,748	234,412,844
Stipulation Targets	184,549,652	198,097,872
Difference	47,808,096	36,314,972
% difference	21%	15%

20

1 **Q: Do you agree to these lower savings targets?**

2 A: Yes, I agree to the targets in the stipulation for two reasons. First, the savings are
3 lower mainly due to a shift in spending from CFLs to LEDs, and from other programs to
4 the multi-family low income program. Although these changes increase the cost per kWh
5 saved, I believe they will also make a more robust and well rounded efficiency program
6 with lower free ridership rates.

7 Secondly, in the stipulation KCP&L and GMO agree to a collaborative process
8 with a goal to potentially identify and pursue an additional 200 GWh of savings. These
9 additional savings would go well beyond the amount lost between the MEEIA plan and
10 the stipulation, and would create significant additional benefits for Missouri electric
11 consumers. The rest of this section is focused on demonstrating that this level of
12 additional savings is eminently achievable. NRDC looks forward to working with
13 KCP&L/GMO and other parties to identify specific ways to increase the savings and
14 achieve this additional 200 GWh.

15

16 **Q: What are the savings targets that are proposed in the Non-unanimous Stipulation?**

17 A: The table below shows KCP&L-MO and KCP&L-GMO's proposed savings as a
18 percent of load from their 2016-2018 efficiency activities, as well as the annual average
19 savings found in the realistic achievable potential (RAP) and maximum achievable
20 potential (MAP) in KCP&L's potential study.

Annual Savings	GMO	KCP&L
Stipulation	0.74%	0.79%
RAP Average Annual	1.45%	1.38%
MAP Average Annual	1.84%	1.89%

21

1 As seen, the savings levels in the KCP&L stipulation are 50% of the levels
 2 identified in the Potential Study as realistically achievable (RAP), and 40% of the levels
 3 identified as maximally achievable (MAP). This demonstrates that there is significant
 4 room for KCP&L to expand its programs to capture additional cost-effective energy
 5 savings from efficiency.

6 **Q: Is there real world evidence that the savings levels identified in the potential study**
 7 **are indeed achievable?**

8 **A:** Yes. Other jurisdictions have been long achieving savings levels that meet and
 9 exceed the levels identified as “maximally” achievable by the Navigant Potential Study,
 10 and many more exceed the savings levels proposed in KCP&L’s MEEIA Plan Non-
 11 Unanimous Stipulation. As noted in the table below, the savings target in the stipulation
 12 is equal to or lower than the savings achieved in 2014 by 20 of the 50 states. Since the
 13 table represents statewide averages and many states have public or cooperative utilities
 14 that do little or no DSM, these figures are generally significantly lower than the best
 15 performing utilities within each state.

16 **Savings as a % of load by state in 2014¹**

1	Rhode Island	3.51%
2	Massachusetts	2.50%
3	Vermont	1.85%
4	California	1.58%
5	Arizona	1.57%
6	Hawaii	1.53%
7	Michigan	1.35%
8	Connecticut	1.32%
9	Maryland	1.29%
10	Oregon	1.27%

¹ Gilleo, Annie, et al. The 2015 State Energy Efficiency Scorecard. ACEEE. October 2015.

11	Minnesota	1.22%
12	Maine	1.21%
13	Iowa	1.17%
14	Illinois	1.08%
15	Ohio	1.05%
16	Washington	1.02%
17	New York	0.92%
18	Colorado	0.88%
19	Wisconsin	0.76%
20	Indiana	0.74%

1

2 Many states have continued to increase their savings levels. For example, in 2014,

3 Massachusetts and Rhode Island saved 2.5% and 3.51% of load, respectively.^{2,3} In other

4 words, these States, last year, achieved between 3.4 and 4.7 times more savings than

5 KCP&L initially commits to in its Stipulation. Both of these States plan to continue

6 aggressive efficiency efforts in the 2016-2018 timeframe, despite facing similar

7 constraints imposed by new and even more aggressive codes and standards than

8 Missouri. Further, these States have a longer and deeper history of efficiency programs

9 than Missouri and are therefore more likely to run into problems with diminishing

10 returns. Finally, a 2014 ACEEE meta-study looked at 45 potential studies from around

11 the country and found no correlation between potential and geography⁴. This contributes

12 further evidence that KCP&L is capable of ramping up program activity to the levels in

13 leading states, as well as to the RAP and MAP scenarios identified in their potential

14 study.

15 **Q: What reasons does KCP&L give for the lower savings estimates proposed in the**

16 **MEEIA plan as compared to their potential study?**

² MA 4th Quarter 2014 Program Administrator's Data

³ RI 2014 4th Quarter Report

⁴ Neubauer, Max. *Cracking the TEAPOT: Technical, Economic, and Achievable Energy Efficiency Potential Studies*. ACEEE, August 2014.

1 A: KCP&L gives three main reasons for the lower savings:

- 2 1. New federal appliance standards increase baseline and reduce savings
- 3 2. Realized savings are lower than planned savings due to fatigued market segments
- 4 3. Declining market value of energy (lower avoided costs)⁵

5 I do not believe that any of these reasons prevent KCP&L from significantly ramping up
6 program activity. NRDC will work with KCP&L in the collaborative process to
7 determine which specific areas may be impacted by these factors.

8 **Q. How will codes and standards impact KCP&L's ability to deliver efficiency savings?**

9 A. Energy efficiency program administrators must constantly be aware of changing
10 codes and standards in their jurisdictions. As the code cycle progresses, the baseline case
11 can become more efficient, potentially eroding some of the savings a program
12 administrator has claimed in the past. If the program administrators are not able to raise
13 qualifying minimum efficiency levels, some existing measure savings may be eliminated.
14 However, in the past, equipment efficiency has increased at roughly the same or higher
15 rates as codes and standards, thus maintaining the same levels of available savings. As an
16 example, as EISA (Energy Independence and Security Act of 2007) has begun phasing
17 out traditional incandescent lightbulbs, LEDs have become significantly cheaper and
18 more efficient. Thus, code tends to follow the market towards higher efficiency, and
19 savings from efficiency have not historically dropped due to more stringent codes and
20 standards.

⁵ GMO 2016 MEEIA Plan. Section F.

1 More importantly, all known codes and standards were already included in the
2 Navigant Potential Study. In section 2.24 of the study, Navigant explicitly says that the
3 baseline and efficient annual energy consumption has been adjusted for all known future
4 codes. Measures explicitly called out as being affected are:

- 5 • Residential Central Air Conditioners and Heat Pumps
- 6 • Residential Room Air Conditioners and Heat Pumps
- 7 • Residential Hot Water Heaters
- 8 • Residential Refrigerators and Freezers
- 9 • Residential Dishwashers
- 10 • Residential Clothes Washers and Dryers
- 11 • Residential and Commercial Screw In Bulbs
- 12 • Commercial Linear Fluorescents

13 These measures encompass all the measures mentioned in KCP&L's MEEIA plan
14 as reasons for constrained savings. Therefore, the RAP and MAP estimates in the
15 potential study already accounted for all known future standards. By further reducing
16 EnerNOC's RAP and MAP estimates based on these standards, KCP&L is double-
17 counting their impact on the achievable cost effective efficiency available in its service
18 territory.

19 **Q. What does KCP&L say about the impact of fatigued market segments on achievable**
20 **efficiency potential?**

21 **A.** In the MEEIA plan, KCP&L states that, "Market conditions in the Company's
22 service territory have led to an exhaustion of a large portion of the low hanging fruit

1 among a particular subset of early-adopting customers.’⁶ KCP&L goes on to discuss
2 ways in which its programs are adapting to this exhaustion. These include shifting from
3 CFLs to LEDs, and introducing new approaches such as strategic energy management,
4 block bidding, residential behavioral programs, and an increased focus on residential
5 interactive thermostats.

6 **Q. Do you agree that market fatigue is a limiting factor for achieving efficiency**
7 **savings?**

8 A. While I applaud KCP&L on its efforts to expand its programs to achieve deeper
9 non-lighting savings, I do not agree that KCP&L is close to a point where market
10 saturation is a limiting factor in achieving energy savings. KCP&L-GMO has been
11 running significant efficiency programs for only 35 months, while KCP&L-MO’s
12 programs have only been running for 18 months. This compares to states such as
13 California, Massachusetts, Vermont, and Rhode Island that have been running efficiency
14 programs for decades at significantly higher savings levels, and have only seen their
15 savings increase over time. Finally, both Rhode Island and Massachusetts were able to
16 ramp up savings from around 1% to over 2% with no nominal increase in cost per kWh,
17 showing that there were no issues with market saturation even when achieving savings of
18 over 2% of sales.

19 Finally, the potential study uses conservative acceptance curves, assuming a
20 maximum penetration rate of approximately 70-80% for measures with a one year
21 payback. In this way, the potential study already takes into account market saturation of

⁶ GMO Plan p. 43; KCP&L Plan, p. 37.

1 measures. In the MEEIA plan, by contrast, KCP&L estimates that only 32% of business
2 customers will have participated *at all* in an energy efficiency program. This equates to
3 far less than 32% of any given technology being replaced, since participants do not
4 typically replace all of their equipment in one interaction with the efficiency program. In
5 short, the level of efficiency proposed in the MEEIA plan will not result in problems with
6 market saturation.

7 While the residential program participation is estimated at 130% of the customer
8 base over three years, this is largely due to a large behavioral program with a one year
9 measure life. There is significant evidence that even CFLs, one of the most widely
10 promoted measures, could obtain significantly higher penetration. For example, a recent
11 study by Northeast Energy Efficiency Partnerships (NEEP) on lighting in the northeast
12 finds that “the A-line lighting market has not been transformed and many inefficient
13 options still exist for customers.”⁷ The study finds further that old incandescent bulbs still
14 have a 34.7% market share, with relatively in-efficient halogen incandescents claiming an
15 additional 26%. This pattern also holds in the Midwest, as confirmed by an evaluation for
16 Ameren which found that 52% of the sampled retailers continued to sell 100W and/or
17 75W incandescent bulbs at the end of 2014, even though EISA phased them out in 2012
18 and 2013, respectively. The Ameren evaluation study also estimates the 2014 CFL
19 saturation rate at 31%.⁸ The study’s results imply that the residential baseline in the 2016-
20 2018 period will most likely consist of a mixture of halogen and standard incandescent
21 lamps, rather than only halogens or CFLs as KCP&L is assuming. The lower baseline,

⁷ Northeast Residential Lighting Strategy: 2014-2015 Update. December 2014. Page 4.

⁸ Cadmus. Ameren Missouri Lighting Impact and Process Evaluation: Program Year 2014. Page 43.

1 then, will increase the cost-effectiveness of CFLs and LEDs as well as the efficiency
2 potential from lighting programs.

3 **Q. Describe the impact of lower avoided costs on KCP&L's efficiency portfolio.**

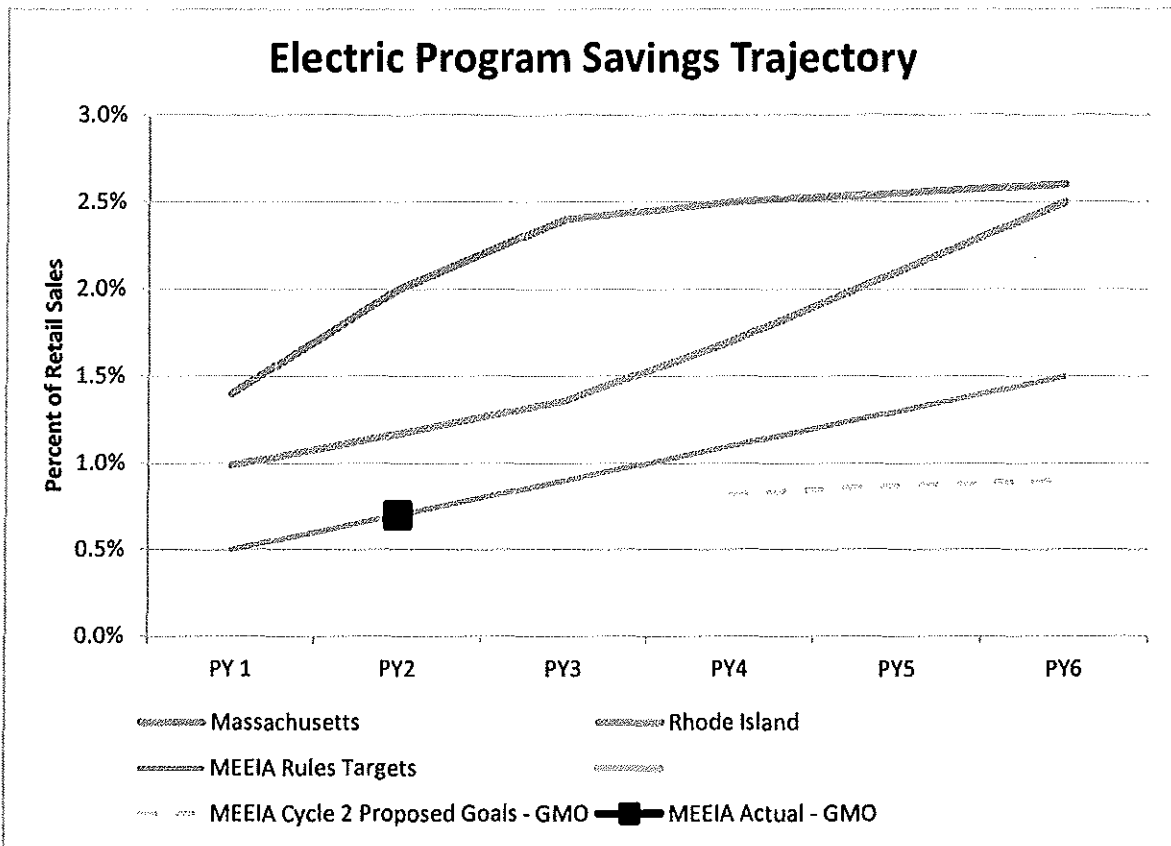
4 A. KCP&L states that lower projected avoided costs in the 2016-2018 time period
5 result in significantly lower savings, as it is no longer able to promote marginally cost-
6 effective measures. However, lower avoided costs only impact the savings available from
7 the least cost-effective measures being promoted and, thus, the least likely to have any
8 significant penetration or contribution to KCP&L's overall portfolio. Although KCP&L
9 has not shown exactly how it did this analysis, these measures had the lowest rated
10 penetration in the potential study, and are the least likely part of available potential to be
11 captured by efficiency programs.

12 In addition, these adjustments are asymmetric. KCP&L eliminated measures that
13 no longer pass the TRC due to lower avoided costs, but does not appear to have evaluated
14 any new measures whose costs have declined and that may now be cost-effective, or for
15 which performance has improved. Finally, although the market price of electricity has
16 resulted in a reduction of avoided costs, new environmental requirements may increase
17 avoided costs. For example, in a letter to Attorney General Chris Koster, the Missouri
18 utilities have estimated that the final version of EPA's Clean Power Plan could cost \$6
19 billion to implement between now and 2030. This, if correct, significantly increases the
20 value of efficiency which is the cheapest way to comply with the Clean Power Plan and
21 could reduce the cost of compliance to zero.

1 **Q. Given that you think KCP&L's savings targets in the 2016-2018 MEEIA plan are**
2 **too low, what would be reasonable targets?**

3 A. The minimum savings targets in the MEEIA rules provide a reasonable ramp rate
4 for KCP&L's DSM programs. These rules require 0.5% annual savings as a percent of
5 load in 2013, with a ramp up of an additional 0.2% per year until reaching 1.9% savings
6 in 2020. MEEIA rules state that "[t]he commission shall use the greater of the annual
7 realistic achievable energy savings and demand savings as determined through the
8 utility's market potential study or the following incremental annual demand-side savings
9 goals." The savings goals in the MEEIA rules are similar to those identified in the
10 Navigant Potential Study. The potential study's RAP scenario gives savings estimates of
11 1.3%, 1.4%, and 1.6% in 2016, 2017, and 2018. The floor from the MEEIA rules calls for
12 1.1%, 1.3%, and 1.5% in 2016, 2017, and 2018.

13 Either of these savings levels is eminently reasonable and achievable. While the
14 targets in stipulation plus a potential 200 GWh identified during the collaborative process
15 will not bring actual savings quite up to the level of these MEEIA targets, they would be
16 a good start and would continue the momentum that the MEEIA phase I has started.



1
2
3
4
5
6
7
8
9
10
11
12

The above graph shows the ramp-up rates of various programs from other jurisdictions. The red and blue lines show the planned ramp-up rates of Massachusetts and Rhode Island, respectively, during recent program expansions. These lines begin at the first program year of significant program expansion in each state requiring additional savings beyond an already significant baseline – 2009 for Rhode Island, and 2010 for Massachusetts. Although the line shows the savings targets, and not actual results, both states have generally been able to meet or exceed these goals. In 2014, both states exceeded their target, and Rhode Island, as mentioned earlier, significantly over-achieved their goal, capturing 3.4% of load.

The purple line in the graph shows the minimum ramp-up rate from 0.5% in 2013 to 1.5% in 2018, as required by the MEEIA rules. As seen, the ramp-up rate embedded in

1 the MEEIA rules is similar to the ramp-up rate already achieved by these two States.
2 Given that Massachusetts and Rhode Island were beginning from much higher baselines,
3 in theory this ramp-up should be much easier for KCP&L to accomplish.

4 As further evidence that the ramp-up prescribed in the MEEIA rules is achievable,
5 the black dot shows the actual performance of KCP&L-GMO in 2014. As seen, the
6 Company is on track to meet the minimum levels set forth in the MEEIA rules, and there
7 is no reason that KCP&L cannot continue ramping up its programs in accordance with
8 the rules.

9 By contrast, the dashed green line shows KCP&L-GMO's proposed goals for
10 MEEIA cycle 2. KCP&L-MO's goals are similar, but slightly lower. As seen, even
11 though KCP&L's goals continue to ramp up slightly, they fall significantly short of both
12 the ramp up required by the MEEIA rules and the ramp up rates that have been proven
13 possible in other jurisdictions. Given all this, the addition of 200 GWh, as mentioned in
14 the Stipulation, is eminently reasonable and would show substantial progress toward
15 KCP&L moving toward achievement of all cost-effective efficiency.

16 **Specific Program Improvements**

17 **Q. Now that you've established that KCP&L's 2016-2018 savings targets are**
18 **significantly lower than the available potential, do you have any specific**
19 **recommendations on how KCP&L can modify its efficiency portfolio to achieve the**
20 **potential?**

21 **A:** Yes, there are many ways KCP&L can modify its efficiency portfolio to capture
22 deeper energy savings. It is KCP&L's responsibility to fully explore best practices and
23 design and propose leading programs, and I do not attempt to exhaustively analyze all

1 aspects of their programs nor list all things that could be improved upon. That said, I
2 briefly discuss some examples of program opportunities which include, but are not
3 limited to:

- 4 • New Homes Program
- 5 • Expanded low-income program
- 6 • LED street lighting program
- 7 • Upstream program
- 8 • C&I custom program improvements
- 9 • Residential measure bundling and streamlined delivery
- 10 • Commercial measure bundling and streamlined delivery
- 11 • Deep energy retrofits

12 **Q. How would a New Homes Program generate additional savings?**

13 A: The GMO MEEIA plan states that “GMO prudently recommended to freeze the
14 Multi-Family Rebate Program and ENERGY STAR® New Homes Program when they
15 were determined to not be cost effective due to low level of participation.” However,
16 these are important programs making long-lasting upgrades, and will result in significant
17 lost opportunities if not in place. In fact, the GMO New Homes program only had one
18 participant in 2013, not nearly enough to determine it to be not cost-effective. The proper
19 response to this finding is not to end the program, but rather to find ways to increase
20 participation and otherwise make it more cost-effective.

21 Further, new homes programs often include envelope upgrades and other
22 measures that save gas or oil in addition to electricity. It should be ensured that all fuel
23 benefits are included when calculating the cost effectiveness of the program. This

1 approach might allow the program to continue to expand and generate significant savings
2 for KCP&L customers. We encourage KCP&L to use this as an opportunity to partner
3 with Missouri's gas and water utilities to run integrated programs or find other ways to
4 make the program cost effective as opposed to simply eliminating it. For example, if gas
5 benefits are not allowed to be counted in the TRC, the program's eligibility requirements
6 could be altered to only include customers with heat pumps or electric resistance heat.

7 **Q: How could an LED street lighting program generate additional savings for**
8 **KCP&L?**

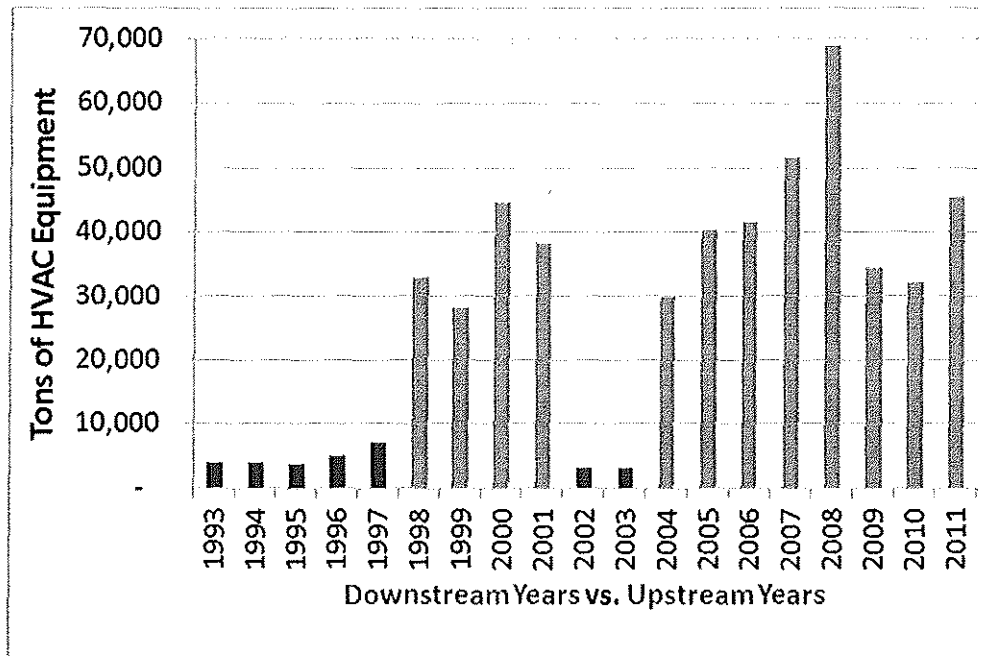
9 Although KCP&L makes brief mention of potentially considering a future LED
10 street lighting program, it does not appear to have investigated this seriously, and there is
11 no street lighting program or initiative included in the proposed MEEIA goals. Despite
12 potential barriers and disincentives, such as regulatory lag causing a delay in the cost
13 recovery of utility-owned street lights, there are significant cost-effective savings
14 available from more efficient street lights. The MEEIA plan is the place for KCP&L to
15 develop and propose creative mechanisms to overcome any regulatory lag or other
16 perceived disincentives. KCP&L could follow successful models elsewhere, such as
17 Vermont, where efficiency programs have addressed utility-owned streetlights in ways
18 that solved any stranded asset concerns of the utilities and ensured it was in the utilities'
19 best interests to move forward and pursue the most cost-effective street lighting solutions.

20
21 **Q: How could upstream initiatives generate additional savings for KCP&L?**

22 **A:** Upstream programs have been shown to significantly increase program
23 participation and savings. Upstream programs involve working directly with

1 manufacturers, distributors and retailers to promote high efficiency equipment, including
2 giving incentives to the manufacturers and distributors rather than the end users. In this
3 way, customers do not need to take any proactive activity to participate in the program:
4 they just see the discounted products on the store shelves and may not even realize that
5 they have just participated in an efficiency program. Further, since retail markups are
6 usually based on a percentage of wholesale prices, by lowering the wholesale price of the
7 product upstream incentives can leverage lower program costs to make the same
8 difference in retail prices. In addition, these upstream market actors are best situated to
9 promote high-efficiency products to their customers and are necessarily involved at the
10 appropriate time for time-dependent installations such as replacement-on-failure. Recent
11 efforts in Massachusetts, California and New Brunswick moving standard rebates for
12 lighting and HVAC measures completely upstream, where distributors are provided an
13 incentive based on wholesale incremental costs for each unit they sell, have been very
14 successful. For example, the graph below plots a Southern California HVAC program as
15 it moved from downstream to upstream, back to downstream, and then back to upstream.⁹

⁹ Daniel Cornejo, Energy Solutions



1
2
3
4
5
6
7
8
9
10
11
12
13

As seen, participation is an order of magnitude higher during upstream years. Further, in Massachusetts after only a few months of an upstream lighting program, administrators captured far more savings for the upstream products (high performance T8 and LED lamps) than they were capturing with downstream rebates, and at a lower utility cost. In addition, experience has shown that once manufacturers and distributors agree to participate, these programs have a dramatic effect in terms of transforming markets quickly. This is because they can sell the high efficiency products at the same customer cost as lower-efficiency products, thereby only stocking and promoting high-efficiency equipment.

While KCP&L does currently have an upstream program for CFLs and certain types of residential LEDs, it could be significantly expanded to encompass other types of lighting, as well as other types of measures such as HVAC and consumer electronics.

1 **Q: How could improvements in the C&I custom program generate additional savings**
2 **for KCP&L?**

3 In my experience working in many jurisdictions, successful commercial custom
4 programs with high customer participation include important enhancements and
5 complementary services focused on providing greater customer service and “hand-
6 holding” or “concierge services” as well as detailed technical assistance. These strategies
7 seem to be missing from KCP&L’s program descriptions. For example, despite
8 marketing efforts such as bill inserts, trade ally education, and email blasts, the program
9 plan in the MEEIA application indicates a primarily reactive approach where KCP&L
10 will simply make available a rebate application and wait for customers to submit them for
11 review. Without more aggressive, proactive efforts to engage with customers initially and
12 help them identify and develop these projects, experience indicates participation will
13 likely reflect a high level of free-ridership and lower than possible participation levels.

14 These additional services include:

- 15 • Active account management for medium and large customers (e.g., customers
16 with annual demand exceeding 200kW or 500 MWh). This includes proactive,
17 customer specific energy efficiency planning and continuous energy
18 improvement strategies designed to reduce the customer’s energy use intensity
19 and provide a single point of engagement with the utility to facilitate customer
20 identification, assess opportunities, and coordinate the process of moving
21 forward with implementation. Account managers would also play a major role
22 in engaging with customers as a marketing strategy. Experience indicates that
23 personal, one-to-one marketing in the medium/large commercial and
24 industrial sector is the most effective way to drive participation.

- 1 • At the customer's request, the provision of tiered energy services starting with
2 on-premises walk-thru energy audits (ASHRAE tier I) at no or low cost to the
3 customer.
- 4 • Provide aggregated whole-building energy data for multi-tenant commercial
5 and multi-family buildings over 50,000 square feet. This would help building
6 managers identify and act on any inefficiencies in energy use.
- 7 • Assist with streamlined delivery, including a single point of contact, of
8 bundled efficiency measures (retro-commissioning, building operator training,
9 common area lighting, audits) for buildings over 50,000 square feet.
- 10 • Provision of detailed technical assistance and feasibility studies (tier II). Many
11 utilities offer these services with an initial customer contribution of 50% of
12 the cost. If the customer follows through with implementation of the resulting
13 recommendations, this contribution is waived and the program covers 100%
14 of the study. This strategy has been quite effective. By requiring an initial
15 commitment of half the cost if the customer does not follow through, it weeds
16 out those customers that are not really serious about making efficiency
17 investments, while at the same time it creates a strong incentive for customers
18 to pursue the measures once they are identified.
- 19 • Turnkey project management services that include energy efficiency project
20 identification, scoping and documentation services such as assisting in filling
21 out program materials, engaging with design professionals and contractors,
22 and generally helping to coordinate the participation and implementation
23 process.
- 24 • Maintaining a group of expert process engineers in various industrial
25 processes. These can be referred to industrial clients to examine their
26 industrial process energy usage for efficiency improvements. There are often
27 many low/no cost process measures that can significantly reduce process
28 related energy expenditures.

29 **Q: How could an employer-based program and measure bundling for streamlined**
30 **residential sector delivery increase savings?**

1 A: A novel marketing approach to increase savings in the residential sector would be
2 to promote the program through employers with a large number of employees. Such
3 companies have immediate access to a significant number of likely homeowners who
4 might be interested in energy efficiency services. In order to achieve deeper per home
5 savings and further economies of scale, various common measures could be bundled into
6 packages. For example, a first tier bundle may include:

- 7 • Sealing the house for air leaks in tandem with a blower-door test
- 8 • Sealing and insulating duct work in unconditioned spaces
- 9 • Replacing all screw-in lamps with LEDs
- 10 • Installing a smart thermostat
- 11 • Installing advanced power strips for the primary entertainment system and
12 home office
- 13 • Installing low-flow showerheads and faucet aerators

14 If the contractor installing the first tier bundle determines that the home is a good
15 candidate for a second tier bundle, he or she could follow up with a second visit to install
16 measures such as:

- 17 • Installing additional wall and ceiling/attic insulation
- 18 • Replacing electric baseboard heaters and central air-conditioner with an air-
19 source heat pump
- 20 • Replacing an electric resistance water heater with a heat pump water heater
- 21 • Replacing an existing refrigerator with an ENERGY STAR-qualified
22 refrigerator

1 The efficiency bundles could even be offered to a company's employees at a
2 discount. Further, as trust in the program provider is an important component of any
3 successful program, it may be advantageous to pursue co-branding opportunities between
4 KCP&L and the large employer. In this way, KCP&L could leverage employee trust in
5 their employer to create additional participation and marketing.

6 **Q. How could streamlined program delivery of bundled measures increase savings for**
7 **large buildings over 50,000 square feet?**

8 A. Large commercial and multi-family buildings can also benefit from the bundling
9 concept, especially with whole building energy data available. Under this concept, the
10 facility would work with a single point of contact at the program administrator, and agree
11 to implement a package of measures consisting of a first tier bundle. These measures may
12 include lighting, an ASHRAE level 1 energy assessment, retro commissioning, and
13 building operator training.

14 Using the insights gained from providing these services, a subsequent second tier
15 bundle would combine both additional services (e.g., audit, technical assistance,
16 contractor selection, incentives/financing assistance) and equipment upgrade measures to
17 develop a bundle specifically suited for that particular building. Further, the bundle
18 would include capital planning support to ensure both planned and unplanned future
19 building improvements incorporate efficiency opportunities. In this way, participants are
20 given a roadmap for how to address such opportunities when they become available.

21 Agreement by the Company to provide such services for the multi-family low-
22 income sector is included in the stipulation and is another reason NRDC signed on to the
23 stipulation.

1 **Q. How could a deep retrofit initiative for all public buildings, universities, and**
2 **hospitals increase savings?**

3 A. The KCP&L MEEIA Cycle 2 plan emphasizes the need for deeper retrofits of
4 residential and commercial facilities, and for the program to move beyond simple lighting
5 measures. I applaud these efforts, and point out that public buildings, universities, and
6 hospitals are particularly good candidates for deep retrofits. These facilities are often both
7 energy intensive and eager to reduce energy use, but do not have the financial or staffing
8 resources to identify and implement retrofit projects. By implementing a deep retrofit
9 initiative that provides significant technical and financial resources to these energy
10 intensive buildings, KCP&L should be able to capture significant energy reductions in
11 these buildings.

12 More generally, KCP&L can modify its incentive structure to further encourage
13 deep retrofits. For example, KCP&L can increase incentive amounts or offer bonus
14 incentives for projects that save at least 20% of total energy usage or that include at least
15 two end uses. This will encourage facilities that are investigating lighting opportunities to
16 look for other opportunities at the same time, thus achieving higher levels of savings.

17 **Demand-Side Incentive Mechanism (DSIM)**

18 **Q. Do you support the DSIM proposal as put forth in the stipulation?**

19
20 A. Yes, I support the DSIM mechanism put forth in the stipulation. However, I
21 believe that it is unnecessarily contentious and imprecise, and hope that it is a temporary
22 solution to the problem of throughput disincentive and that a decoupling mechanism can
23 be implemented as a preferred alternative in the future. A decoupling approach would
24 eliminate the throughput disincentive while avoiding issues regarding how to best

1 calculate and true-up lost revenues from energy efficiency. With decoupling, KCP&L
2 would be allowed to collect revenues determined in the rate case – no more and no less -
3 by a regular adjustment of actual revenues to forecasted revenues between rate cases.
4 This would ensure that KCP&L does not over-collect on its throughput disincentive

5 **Q. What do you recommend the Commission do?**

6 A. The Commission should approve the stipulation, with the understanding that
7 KCP&L/GMO will continue to work with stakeholders to expand their program offerings
8 and increase savings. The tentative target of an additional 200 GWh is highly achievable,
9 and would bring goals much more closely in line with the MEEIA rules, of 1.1%, 1.3%,
10 and 1.5% of load in 2016-2018, respectively. As illustrated in the graph above, these
11 targets are simply an extension of what KCP&L agreed to in the current MEEIA Cycle 1
12 Plan, and represent realistic increases from current program activity. This level of savings
13 would bring significant additional benefits to Missouri ratepayers, and bring Missouri in
14 line with the accomplishments of other states in the region.

15
16 **Q. Does this conclude your testimony?**

17 A. Yes, thank you.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

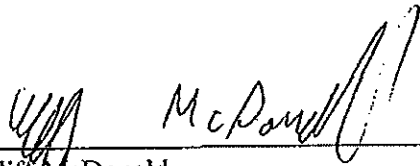
In the Matter of Kansas City Power & Light)
Company's Notice of Intent to File an) File No. EO-2015-0240
Application for Authority to Establish a Demand-)
Side Programs Investment Mechanism)

In the Matter of KCP&L Greater Missouri)
Operations Company's Notice of Intent to File an) File No. EO-2015-0241
Application for Authority to Establish a Demand-)
Side Programs Investment Mechanism)

County of Addison)
State of Vermont)

AFFIDAVIT OF CLIFF MCDONALD

Cliff McDonald, of lawful age, on his oath states: that he has participated in the preparation of direct testimony in question and answer form, consisting of 25 pages to be presented in the above case; that the answers in the following rebuttal testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such answers are true to the best of his knowledge and belief.



Cliff McDonald

11th In witness whereof I have hereunto subscribed my name and affixed my official seal this
day of December, 2015.

