

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

IN THE MATTER OF THE VERIFIED PETITION OF )  
INDIANA MICHIGAN POWER COMPANY FOR )  
APPROVAL OF ALTERNATIVE REGULATORY )  
PLAN FOR DEMAND SIDE MANAGEMENT (DSM) )  
AND ENERGY EFFICIENCY (EE) PROGRAMS FOR )  
2015 AND ASSOCIATED ACCOUNTING AND )  
RATEMAKING MECHANISMS, INCLUDING TIMELY ) CAUSE NO. 44486  
RECOVERY THROUGH I&M'S DSM/EE PROGRAM )  
COST RIDER OF ASSOCIATED COSTS, )  
INCLUDING ALL PROGRAM COSTS, NET LOST )  
REVENUE, SHAREHOLDER INCENTIVES AND )  
CARRYING CHARGES, DEPRECIATION AND )  
OPERATIONS AND MAINTENANCE EXPENSE ON )  
CAPITAL EXPENDITURES. )

PRE-FILED VERIFIED DIRECT TESTIMONY AND EXHIBITS  
OF  
INDIANA MICHIGAN POWER COMPANY

VOLUME 1 OF 3

JON C. WALTER  
DAVID M. ROUSH  
WILLIAM K. CASTLE

**INDIANA MICHIGAN POWER COMPANY**

**CAUSE NO. 44486**

**PRE-FILED VERIFIED DIRECT TESTIMONY**

**OF**

**JON C. WALTER**

**VERIFIED DIRECT TESTIMONY OF JON C. WALTER  
ON BEHALF OF  
INDIANA MICHIGAN POWER COMPANY**

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

2 A. My name is Jon C. Walter. My business address is One Summit Square, P.O.  
3 Box 60, Fort Wayne, Indiana 46801.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am employed by Indiana Michigan Power Company (I&M or Company) as  
6 Manager of Regulatory Support.

7 **Q. Please briefly describe your educational and business experience.**

8 A. I am a 1989 graduate of Purdue University with a Bachelor of Science degree  
9 in Electrical Technology, and am a 1996 graduate of Indiana University with a  
10 Masters of Business Administration degree.

11 I have worked for I&M and AEP for 25 years, and have held several different  
12 roles of increasing responsibility. I began my career as a Station Relay  
13 Engineer in South Bend, Indiana, and have held the following positions,  
14 Distribution Engineering Supervisor, Key Accounts Engineer, National  
15 Accounts Engineer, Customer Design Supervisor, Supervisor Distribution  
16 Systems, Circuit Performance Improvement Manager, Distribution Reliability  
17 & Engineering Manager, and Manager of Distribution Dispatch. I assumed  
18 my current position in November 2009.

19 **Q. What are your responsibilities as I&M's Manager of Regulatory**  
20 **Support?**

1 A. I am responsible for I&M's Demand Side Management / Energy Efficiency  
2 (DSM/EE), gridSMART<sup>®</sup>, and Demand Response strategies and program  
3 implementation. I am also responsible for the implementation and tracking of  
4 I&M's renewable generation portfolio and the preparation of associated  
5 compliance filings.

6 **Q. Have you previously participated in any regulatory proceedings?**

7 A. Yes. I participated in I&M's Summer Preparedness Presentation before this  
8 Commission in May 2010. I have participated in the DSM Coordination  
9 committee (DSMCC) and the Third Party Administrator (TPA) and the  
10 Evaluation, Measurement and Verification (EM&V) Subcommittees regarding  
11 DSM Core Program proceedings. I have also sponsored and filed testimony  
12 in Cause No. 43959, which concerned a previous I&M Three Year DSM Plan,  
13 in two consecutive DSM/EE Program Cost Rider reconciliations in 2011 and  
14 2012, Cause No. 43827 DSM 1 and Cause No. 43827 DSM 2, and in I&M's  
15 2014 DSM Plan, Cause No. 43827 DSM 3. Last, I filed testimony before the  
16 Michigan Public Service Commission on behalf of I&M in its 2010 base rate  
17 case, its Renewable Plan and Reconciliation filings, and its 2014-2015  
18 Energy Optimization Plan filing.

19 **Q. Please summarize the relief sought by I&M in this proceeding.**

20 A. I&M requests Commission approval for I&M to administer and implement a  
21 cost-effective portfolio of DSM/EE programs for the calendar year 2015 (2015  
22 DSM Plan). I&M also requests the Commission approve associated cost

1 recovery through I&M's Demand Side Management (DSM) and Energy  
2 Efficiency (EE) Program Cost Rider (DSM Rider), including recovery of Net  
3 Lost Revenue and Shared Savings.

4 **Q. What is the purpose of your testimony in this proceeding?**

5 A. My testimony presents the proposed 2015 DSM Plan, which as discussed  
6 below, contains offerings to all customer classes, including low income  
7 customers, with many of the same measures offered in the current statewide  
8 Core programs. In particular, my testimony identifies the budget for the 2015  
9 DSM Plan, discusses program implementation and evaluation, discusses the  
10 Company's plans for stakeholder input, and explains the request for cost  
11 recovery.

12 **Q. Please outline the testimony of the other I&M witnesses.**

13 A. I&M's other witnesses discuss the following:

14 1. William K. Castle, Director of Resource Planning and DSM, describes the  
15 economic tests performed on the portfolio of DSM programs set forth in this  
16 filing for 2015 (Program Year (PY) 6) and identifies the energy and demand  
17 savings financial benefits likely to occur as a result of implementing these  
18 programs and the estimates of cost effectiveness of the programs.

19 2. David M. Roush, Director of Regulatory Pricing & Analysis, explains the  
20 Company's proposals with respect to program cost recovery, Net Lost  
21 Revenue recovery and Shared Savings. He also discusses the continued  
22 operation of the DSM/EE Program Cost Rider.

1 **Q. What exhibits are you sponsoring in this proceeding?**

2 A. I am sponsoring the Petitioner's Exhibits JCW-1 through JCW-22.

3 **Q. Were these exhibits prepared or assembled by you or under your**  
4 **direction and supervision?**

5 A. Yes.

6 **Q. Please describe these exhibits.**

7 A. Petitioner's Exhibit JCW-1 sets forth the program descriptions, 2015  
8 Program budgets and forecasted energy and demand savings and related  
9 information for the 2015 DSM Plan.

10 Petitioner's Exhibit JCW-2 is a copy of the 2014-2016 Action Plan prepared by  
11 H. Gil Peach & Associates.

12 Petitioner's Exhibit JCW-3 is a copy of I&M 2008 Market Potential Study, pp.  
13 5-17).

14 Petitioner's Exhibit JCW-4 presents a forecast two year forecast view of  
15 I&M's DSM portfolio for the 2016-2017 time period. Petitioner's Exhibits  
16 JCW-5 through JCW-17 are program descriptions and design plans for each  
17 program contained in the 2015 DSM Plan.

18 Petitioner's Exhibit JCW-18 is a copy of the EM&V report from I&M's Core  
19 Plus evaluation vendor covering the evaluation of program implementation for  
20 2013 Core Plus programs.

21 Petitioner's Exhibit JCW-19 is a copy of I&M's 2013 IRP Table ES-1, p. ES-10  
22 from I&M's 2013 Integrated Resource Plan (IRP).

1 Petitioner's Exhibit JCW-20 shows the forecasted spend and energy savings  
2 for the Core and Core Plus programs in the 2014 DSM Plan approved by the  
3 Commission in Cause No. 43827 DSM 3.

4 Petitioner's Exhibit JCW-21 shows the direct program expenditures and  
5 verified energy savings resulting from implementation of the Core and Core  
6 Plus Programs approved in Cause No. 43959.

7 Petitioner's Exhibit JCW-22 details the cumulative Net Lost Energy Savings  
8 forecast for 2015 (PY 6).

9 **Q. How is your testimony organized?**

10 A. My testimony is organized as follows:

- 11 1) Overview of the 2015 DSM Plan;
- 12 2) 2015 DSM Plan Guidelines and Development;
- 13 3) 2015 DSM Program Descriptions;
- 14 4) Consistency with the I&M Integrated Resource Plan;
- 15 5) Portfolio level costs;
- 16 6) Spending Flexibility;
- 17 7) Evaluation, Measurement and Verification (EM&V);
- 18 8) Stakeholder input;
- 19 9) Net Lost Energy Savings; and
- 20 10) Cost Recovery.

21 **1) Overview of the 2015 DSM Plan**

22 **Q. Please summarize I&M's 2015 DSM Plan.**

1 A. The 2015 DSM Plan continues many of the same programs approved by the  
2 Commission in Cause No. 43959 and Cause No. 43827 DSM 3. But, I&M  
3 seeks approval of the plan independent of past offerings for the calendar year  
4 2015 as I&M specific DSM/EE programs. I&M seeks Commission approval to  
5 implement and recover the cost of the following programs:

- 6 • Residential EE Products
- 7 • Residential Low Income Weatherization
- 8 • Schools Energy Education
- 9 • Residential Appliance Recycling
- 10 • Residential New Construction
- 11 • Residential Weatherization
- 12 • Residential Online Audit
- 13 • Residential Home Energy Reports
- 14 • Residential Peak Reduction
- 15 • C&I Prescriptive
- 16 • C&I Custom (a.k.a. C&I Incentives)
- 17 • C&I Audit & Small Business Direct Install (C&I Audit & SBDI)
- 18 • Electric Energy Consumption Optimization (EECO)

19 **Q. Where can the Commission find a description of these programs?**

20 A. Petitioner's Exhibit JCW-1 sets forth the program budgets, energy savings,  
21 demand savings, cost of the conserved energy for each program, and  
22 portfolio level costs. Petitioner's Exhibits JCW-5 through JCW-17 provide the



1 program descriptions, each of which contain the respective program  
2 objectives, implementation plans, and evaluation plans for the thirteen  
3 programs proposed for the 2015 DSM Plan. These program descriptions  
4 were developed with information and detail from the Action Plan, program  
5 designs changes made during historical program implementation and from  
6 direct program implementation experience.

7 **Q. What is the cost effectiveness of the proposed 2015 portfolio?**

8 A. As discussed in more detail and presented by Company witness Castle in  
9 Petitioner's Exhibit WKC-1, I&M's 2015 DSM Plan portfolio is cost effective  
10 with a TRC score of 2.1. As shown in Petitioner's Exhibit JCW-1, the  
11 estimated 2015 DSM Plan energy savings as a % of I&M's Indiana utility gWh  
12 sales is 1.01%. The 2015 DSM Program costs are approximately 1.45 % of  
13 the Company's Indiana utility revenues.

14 **Q. Do all the programs in the 2015 DSM Plan pass the TRC test  
15 individually?**

16 A. Two programs that are not cost effective under the TRC cost test are included  
17 in the cost effective portfolio. These programs include the Low Income  
18 Weatherization Program and the Residential Peak Reduction Program.  
19 Program descriptions, budgets and other details for these two programs are  
20 set forth in Petitioner's Exhibits JCW-5 and JCW-6.

21 Low Income Weatherization Programs are generally accepted in the industry  
22 and by the Commission as not cost effective but authorized in DSM portfolios

1 because the cost of the measures of the program are not affordable for  
2 income qualified customers and provision of weatherization services to  
3 customers whose income is some constrained level above the Federal  
4 Poverty Level is considered to be in the public good. Consistent with such  
5 reasoning, I&M has included this program in its 2015 DSM Plan.

6 Although the Residential Peak Reduction Program does not pass the Total  
7 Resource Cost (TRC) test at a borderline score of 0.95, the program provides  
8 a means for I&M to engage residential customers during peak demand  
9 periods when utility generation, transmission, or distribution systems are  
10 stressed by peak demand. The program compliments a primarily  
11 energy-based portfolio. The program has been successful in that the  
12 originally targeted 9,000 customers participate in the program. EM&V results  
13 indicate that customers are satisfied with the program as well. The program  
14 economics have the potential to improve and its continuation allows I&M to  
15 gain valuable operational insight. The program also provides I&M the ability  
16 to test differing cycling strategies to improve the demand reductions of each  
17 participant, investigate customer behavior response to cycling events,  
18 investigate customer response to utility managed consumption programs, and  
19 to engage with our customers whose homes have the potential for further  
20 efficiency improvements as a result of participation in this program. Finally,  
21 the program serves as a hedge against higher capacity prices, should they

1 materialize. For these reasons, the Residential Peak Reduction Program  
2 remains in I&M's DSM portfolio of program offerings for 2015.

3 **Q. What is the implementation schedule for the 2015 DSM Plan?**

4 A. Commission approval of the 2015 Plan by October 1, 2014 will provide for the  
5 implementation of the 2015 DSM Plan commencing January 1, 2015. There  
6 are program transition issues that make Commission approval of the 2015  
7 DSM Plan by this requested date beneficial. First, statewide Core program  
8 transition issues are being discussed and managed by the Demand Side  
9 Management Coordination Committee (DSMCC). Approval of the 2015 DSM  
10 Plan by the date requested would help minimize customer confusion by  
11 ensuring adequate time to seamlessly transition programs between vendors.  
12 Second, approval of the plan and the associated cost recovery will help  
13 eligible opt-out customers make informed opt-out decisions for their  
14 respective businesses.

15 **2) 2015 DSM Plan Program Guidelines and Development**

16 **Q. Why does the Company seek approval for a one-year DSM Plan?**

17 A. Senate Enrolled Act (SEA) 340 requires the Commission to file a status report  
18 with the General Assembly's regulatory flexibility committee and legislative  
19 council on all energy efficiency programs by August 15, 2014. Among other  
20 things, this report will include methods by which the cost effectiveness and  
21 long term resource value of EE programs may be measured in order to  
22 assess the effect on rates and charges for all customers, as well as methods

1 by which the interests of customers and electricity suppliers may be better  
2 aligned. Governor Pence has also requested the Commission to make  
3 recommendations to assist the administration in formulating DSM/EE policy  
4 for Indiana. The Commission has solicited input on the policy matters through  
5 its General Administrative Order (GAO) 2014-1.

6 I&M has a long-term view of how it would implement DSM/EE in its territory,  
7 but files this one year plan in recognition of the ongoing process and to  
8 provide an opportunity for I&M to take the result of this process into account in  
9 the development of future DSM/EE plans.

10 **Q. How was I&M's 2015 DSM Plan developed?**

11 A. The plan is a 2015 plan based on the I&M system and customer need. I&M's  
12 DSM portfolio is re-positioned to take advantage of portions of the prior  
13 statewide program offerings while capitalizing on the uniqueness of the I&M  
14 territory and customer base. Based on experience with program design and  
15 implementation, I&M developed a plan that rationalizes program offerings for  
16 2015.

17 **Q. Please continue.**

18 A. I&M's 2015 Plan contains offerings to all customer classes, including low  
19 income customers, with many of the same measures offered in the current  
20 statewide Core programs but either packaged differently with other Core Plus  
21 programs or modified in program design to reflect a move toward key internal

1 tenets of DSM that I&M has developed over the past several years of DSM  
2 experience.

3 The key tenets that are reflected in the 2015 DSM Plan include:

- 4 • Partner with, and streamline the number of, program  
5 implementation vendors;
- 6 • Optimize the number of programs offered;
- 7 • Provide a valued, cost effective, mix of electro-technologies for I&M  
8 customers with a focus to improve acceptance of longer life  
9 measures;
- 10 • Utilize a “close follower”<sup>1</sup> approach to offering incentives for  
11 potential market transformative electro-technologies;
- 12 • Operate cost effective programs but at a level that provides near  
13 term relative value for I&M’s customers; and
- 14 • Develop and offer DSM programming based on the uniqueness of  
15 I&M.

16 **Q. How does the H. Gil Peach & Associates Action Plan discussed in the**  
17 **previous plan filing, Cause No. 43827 DSM 3, factor into the 2015 DSM**  
18 **Plan?**

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<sup>1</sup> In this context, close follower is meant to describe a process where I&M will look to offer incentives on electro-technologies that have moved beyond an initial market introduction phase where the customer cost to acquire has dropped due to market forces thereby making the measure cost effective from a TRC viewpoint.

1 A. During the latter part of 2012 and the early stages of 2013, I&M engaged H.  
2 Gil Peach & Associates (Consultant) to develop an Action Plan for the years  
3 2014 through 2016 period. A copy of the Action Plan is provided as  
4 Petitioner's Exhibit JCW-2. This Action Plan was developed based on the  
5 Third Party Administrator Core Program structure and energy savings goals  
6 that existed prior to enactment of SEA 340. Therefore, in developing the 2015  
7 DSM Plan I&M looked to the Action Plan, but optimized it to:

- 8 • Reflect SEA 340;
- 9 • Reflect I&M's experience with the existing program offerings;
- 10 • Improve cost effectiveness and program design; and
- 11 • Reflect factors unique to I&M.

12 **Q. What did I&M change to adapt for the basic tenets listed above?**

13 A. The specific 2015 program parameters are explained throughout my  
14 testimony and exhibits, but in general, I&M streamlined the number of  
15 programs and program implementation vendors. The 2015 DSM Plan  
16 provides a cost-effective mix of electro-technologies for I&M customers. The  
17 plan focuses on improving customer acceptance of longer life measures and  
18 operates the programs at a level that provides near term relative value for our  
19 customers.

20 **Q. What makes I&M unique in its offering of DSM Programs?**

21 A. I&M is unique from a customer perspective and a utility system perspective.  
22 For example, I&M operates in two state jurisdictions, Indiana and Michigan,

1 and offers DSM programs in both states. Taking factors unique to I&M into  
2 account facilitates cost effective DSM program planning and implementation  
3 that can create both near term and long term value for I&M's customers.

4 **Q. Please explain.**

5 A. Common programming offers consistency for I&M customers and the ability to  
6 leverage cost where I&M can utilize support staff to provide common  
7 programming based on the uniqueness of I&M and its customers. Common  
8 programming is also prudent from the perspective that I&M's northern Indiana  
9 customers share common geography, climate, and culture as I&M's Michigan  
10 customers (e.g. the South Bend/Elkhart and southwest Michigan are typically  
11 described as "Michiana", intended to describe a common border and common  
12 characteristics). This commonality can impact the content of DSM  
13 programming. This is especially the case with air conditioners, which are  
14 predominantly called upon in this area to operate approximately four months  
15 out of the year. I&M system peaks are typically set in late summer months  
16 such as July but there is a sizable portion of all electric heat and heat pump  
17 only customers. Furthermore, the manufacturing base in I&M's service area  
18 predominantly centers around the metals industry and process heat  
19 applications (Petitioner's Exhibit JCW-3, I&M 2008 Market Potential Study,  
20 pp. 5-17).

21 Additionally, I&M is both an operating company of American Electric Power  
22 (AEP) and a member of the PJM Interconnection, L.L.C. (PJM) a regional

1 transmission organization (RTO) approved by the Federal Energy Regulatory  
2 Commission (FERC). As is the case with our integrated resource planning,  
3 the DSM/EE planning uses avoided cost parameters determined and set  
4 through energy and capacity markets in the PJM system, and from I&M's  
5 position as a net generation utility, meaning that I&M's generation resources  
6 currently exceed I&M customer load requirements. I&M's supply side  
7 resources include the two units at the D.C. Cook Nuclear Facility and the two  
8 coal-fired units at the Rockport Station. I&M has also invested in home-grown  
9 wind generation and is committed to its hydro-power facilities. Overall, I&M is  
10 committed to a diverse generation fleet. As further discussed below DSM is  
11 an important aspect in the diversity of I&M's IRP.

12 **Q. Does the 2015 DSM Plan permit industrial customer opt out?**

13 A. Yes. Industrial customers will be able to opt out in accordance with SEA 340.  
14 The procedures for the opt out will adhere to those being addressed by the  
15 Commission in Cause No. 44441.

16 **Q. Please discuss Petitioner's Exhibit JCW-4.**

17 A. Petitioner's Exhibit JCW-4 provides a forecast for I&M's 2016 and 2017 DSM  
18 portfolio of programs. While I&M is not presenting plans for 2016 and 2017 for  
19 Commission approval at this time, the forecast provides a snapshot of  
20 program energy savings and costs that are expected for this portfolio of  
21 program offerings in those years. I&M will request Commission approval for  
22 DSM plans covering those years in future filings.



1 **3. 2015 DSM PROGRAM DESCRIPTIONS**

2 **Q. How did I&M adapt its 2015 DSM Plan offering to account for the**  
3 **management of the 2014 TPA Core Program offerings?**

4 A. I&M's reviewed the existing Core programs to determine which programs or  
5 part of programs still make sense for I&M customers. As a result, the DSM  
6 portfolio has been re-positioned where statewide Core programs offered in  
7 2014 under the Third Party Administrator will continue to be offered by I&M in  
8 2015 either on a standalone basis or as part of other programs. Some Core  
9 Plus programs have also changed as well but many will continue at the same  
10 level, size, and scope as offered in 2014. While the 2015 DSM Plan is a new  
11 plan I&M is offering to implement regardless of past offerings, I provide Table  
12 1 below comparing the existing offerings to the new 2015 Plan for ease of  
13 reference for those familiar with the past offerings.

**TABLE 1**

<b>2014 DSM Program</b>	<b>2015 Program Status</b>
<b>Residential Lighting (Core)</b>	<b>Merged into Residential EE Products Program</b>
<b>Home Energy Audit (Core)</b>	<b>Merged into Residential Weatherization Program</b>
<b>Income Qualified Weatherization (Core)</b>	<b>Continues as Low Income Weatherization Program standalone under I&amp;M administration</b>
<b>Energy Efficient Schools (Education &amp; Audits) (Core)</b>	<b>Education &amp; take home kit portion continues as Schools Energy Education Program standalone under I&amp;M administration; Audit portion merged into C&amp;I Audit &amp; SBDI Program</b>
<b>C&amp;I Prescriptive (Core)</b>	<b>Continues as C&amp;I Prescriptive Program standalone under I&amp;M administration</b>
<b>Residential Appliance Recycling</b>	<b>Continues as standalone program under I&amp;M administration</b>
<b>Residential Online Audit</b>	<b>Continues as standalone program under I&amp;M administration</b>
<b>Residential Home Energy Reports</b>	<b>Continues as standalone program under I&amp;M administration</b>
<b>Residential New Construction</b>	<b>Continues as standalone program under I&amp;M administration</b>
<b>Residential Weatherization</b>	<b>Continues as standalone program under I&amp;M administration</b>
<b>Residential Peak Reduction</b>	<b>Continues as standalone program under I&amp;M administration</b>
<b>Residential EE Products</b>	<b>Continues as standalone program under I&amp;M administration</b>
<b>C&amp;I Custom</b>	<b>Continues as standalone program under I&amp;M administration</b>
<b>C&amp;I Retro Commissioning Lite</b>	<b>Combined into C&amp;I Custom (Incentives) Program</b>
<b>C&amp;I HVAC &amp; Refrigeration</b>	<b>Program discontinued in 2015 portfolio</b>
<b>C&amp;I Audit &amp; SBDI</b>	<b>Continues as standalone program under I&amp;M administration</b>
<b>Renewables &amp; Demonstrations</b>	<b>Program discontinued in 2015 portfolio</b>
<b>Electric Energy Consumption Optimization (EECO) Program</b>	<b>Continues as standalone program under I&amp;M administration</b>

- 1 Q. How has the structure of existing programs changed for the 2015 DSM  
2 Plan?

1 A. As discussed below, four programs have undergone structural design  
2 changes for 2015. These programs include:

- 3 • Residential EE Products Program
- 4 • Energy Efficient Schools Program
- 5 • Residential Weatherization Program
- 6 • C&I Custom (a.k.a. C&I Incentives) Program.

7 **Q. Please describe the Residential EE Products Program.**

8 A. The Residential EE Products Program is a program that the Commission  
9 authorized funding to implement for 2014, the parameters of which are shown  
10 in Petitioner's Exhibit JCW-7. The program implemented in 2014 has been  
11 modified through implementation vendor discussion from the original Action  
12 Plan design and contains rebates for the following measures:

- 13 • Efficient air conditioners and heat pumps
- 14 • Electrically commutated furnace motors
- 15 • Ductless heat pumps
- 16 • Heat Pump Water Heaters
- 17 • Variable speed pool pumps
- 18 • Efficient ceiling fans
- 19 • Programmable thermostats.

20 Rebates for these measures are delivered through a variety of market  
21 channels, dependent upon the delivery channel appropriate to the technology  
22 and its associated market structure. For example, some measures are

1 rebated through a point-of-sale channel while others are rebated through  
2 industry distributors (trade allies) and contractors.

3 For 2015, I&M proposes that the Residential EE Products Program will offer  
4 residential lighting measures as well as the above measures included in the  
5 2014 program design. Put another way, the Residential Lighting Program that  
6 operates today will be merged into the Residential EE Products Program to  
7 operate as one program. Residential lighting, such as Compact Fluorescent  
8 Light bulbs (CFLs), specialty bulbs, and light-emitting diode bulbs (LEDs), are  
9 still planned for point-of-sale rebate delivery but will fold in as a component of  
10 the Residential EE Products Program. This change streamlines the DSM  
11 Plan by organizing the array of residential electro-technologies into one  
12 program offering. It also helps achieve a near term balance between the short  
13 lived CFLs and the other longer life electro-technology measures contained in  
14 the program. Finally, this structural change is intended to position the  
15 program to evolve into longer life efficiency measures, such as LEDs, for the  
16 residential home efficiency sector.

17 **Q. Please describe the proposed Schools Energy Education Program.**

18 A. The Schools Energy Education Program parameters are included in  
19 Petitioner's Exhibit JCW-8. It is similar to the program that operates today as  
20 a statewide Core program, but without the school audit and prescriptive  
21 measure installation portion of the program. This modification is being made  
22 to eliminate the overlap of these program components with the existing Core

1 Plus C&I Audit program. The C&I Audit program can adequately serve any  
2 schools that desire an audit of their facility. The C&I Audit program provides  
3 rebates for common prescriptive efficiency measures. These rebates will be  
4 available to school facilities in the same way that they are available to other  
5 qualifying program participants.

6 **Q. Please discuss the design of the Residential Weatherization Program.**

7 A. For 2015, I&M proposes to combine the walk through audit available in 2014  
8 through the Core Home Energy Audit (HEA) Program into the existing I&M  
9 Residential Weatherization Program. This program provides a no cost walk  
10 through audit. Combining this HEA program element with the existing  
11 Weatherization Program components will help the cost effectiveness of the  
12 overall program. A complete review of the program parameters can be  
13 reviewed in Petitioner's Exhibit JCW-9. I&M envisions this expanded  
14 Residential Weatherization Program serving as the basis to engage  
15 customers in the development of a long term home efficiency plan with a  
16 focus on long life measure installations. This program will also serve as a  
17 referral channel for the Residential EE Products Program.

18 **Q. Please describe the design of the proposed 2015 C&I Custom Program.**

19 A. I&M's C&I Custom Program provides incentives for non-prescriptive,  
20 non-deemable (variable operating characteristics) C&I sector measures and  
21 projects. The program supports projects that require a customized, more  
22 complex engineering analysis to determine the level of energy savings truly

1       attributable to a project in a variable, or changing, operating environment.  
2       While the Custom Program had good success in 2013 and has continued to  
3       grow its pipeline of eligible projects in 2014, there is some overlap between  
4       this program and the custom portion of the C&I Retro Commissioning Lite  
5       Program. In an effort to help avoid future customer and trade ally confusion  
6       over which program is appropriate for their project, I&M plans to combine  
7       these programs for 2015 into one program offering. The Retro  
8       Commissioning Lite component will be separately identified within the  
9       combined program to insure that this market segment is adequately served.  
10      The specific parameters of the program can be reviewed in Petitioner's  
11      Exhibit JCW-10. By combining the custom nature of both programs into one  
12      program, we can use one implementation vendor to serve all potential custom  
13      projects and avoid unnecessary duplication of support and implementation  
14      staff that would otherwise exist with two separate program offerings.

15   **Q.   Please describe the proposed 2015 Electric Energy Consumption**  
16   **Optimization (EECO) Program.**

17   A.   The plan is to expand the EECO program previously approved by the  
18   Commission in Cause 43827 DSM 3. The parameters of the program are  
19   described in Petitioner's Exhibit JCW-11.

20   **Q.   Is the proposed implementation of the EECO technology greater than**  
21   **previously projected for 2015?**

1 A. Yes and for good cause. I&M plans to expand the application of the EECO  
2 technology by twenty five (25) additional Indiana circuits for 2015 operation.  
3 I&M previously discussed implementing the technology on fifteen circuits for  
4 2015, in Cause No. 43827 DSM 3 filing. After successful implementation in  
5 2014, I&M is more confident in the positive results of the program and  
6 proposes to increase the implementation to pursue additional cost effective  
7 energy savings.

8 **Q. What are you relying upon to propose an expanded role for the EECO**  
9 **Program in I&M's 2015 Plan?**

10 A. The Commission approved the EECO Program in Cause No. 43827 DSM 3.  
11 I&M is operating the original nine (9) "pilot" circuits in 2014. Initial results for  
12 energy savings on the pilot circuits are positive. Table 2 below reflects a  
13 snapshot of the evaluated energy savings measured by I&M's Core Plus  
14 EM&V vendor for two months of pilot testing operation during late 2013 (Pilot  
15 Draft EM&V Report).

Table 2

*Table 3-1. Typical Weekday CVR Factors Estimated Using Results from Regression Analysis of Pilot Testing Data, by Circuit / Phase*

<i>Circuit ID</i>	<i>Station</i>	<i>Circuit</i>	<i>Phase</i>	<i>Average Daily kWh @ 124.5 Volts</i>	<i>Average Daily kWh @ 121.5 Volts</i>	<i>% Savings</i>	<i>Estimated Daily CVR Factor</i>
4933525	Hacienda	Hartford	A	22,181.62	21,678.24	2.27%	0.9418
	"	"	B	21,776.59	21,265.16	2.35%	0.9746
	"	"	C	22,052.25	21,698.63	1.60%	0.6655
4933526	Hacienda	Wheelock	A	19,426.30	18,773.22	3.36%	1.3952
	"	"	B	20,880.30	20,239.81	3.07%	1.2730
	"	"	C	19,408.67	18,670.21	3.80%	1.5790
4933527	Hacienda	Schwartz	A	30,343.21	29,809.34	1.76%	0.7302
	"	"	B	31,590.74	30,725.48	2.74%	1.1367
	"	"	C	28,706.64	28,196.05	1.78%	0.7381

1 An energy savings within the expected range is occurring. This is evidenced  
2 in the table column “% Savings” for the Hacienda Wheelock circuit at an  
3 energy savings level of up to 3.8% per phase of the three phase circuit.  
4 Internal review of 2014 EECO operation confirms similar results as those  
5 shown above. I&M is working with its EM&V vendor to evaluate 2014 results  
6 and those results will be provided upon completion of that review in I&M’s next  
7 plan filing as available.

8 **Q Please discuss the implementation plans for the 2015 DSM EECO**  
9 **Program.**

10 A. I&M is in the planning and design phase of the twenty five (25) additional  
11 EECO circuits for 2015 operation. Construction is planned to begin during the



1           third quarter of 2014. The preliminary construction schedule is provided in  
 2           Table 3 below:

**Table 3**

Indiana EECO 2014 Core 1 - (4 Circuits)										
Phase	Start	Finish	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015
Planning	28-Apr-14	18-Jul-14								
Procurement	12-May-14	24-Oct-14								
Engineering	2-Jun-14	26-Sep-14								
Construction & Commissioning	4-Aug-14	2-Jan-15								
Indiana EECO 2014 Core 2 - (5 Circuits)										
Planning	28-Apr-14	18-Jul-14								
Procurement	19-May-14	28-Nov-14								
Engineering	23-Jun-14	26-Sep-14								
Construction & Commissioning	4-Aug-14	27-Sep-15								
Indiana EECO 2014 Core 3 (5 Circuits)										
Planning	19-May-14	29-Aug-14								
Procurement	19-May-14	19-Dec-14								
Engineering	7-Jul-14	26-Sep-14								
Construction & Commissioning	4-Aug-14	27-Mar-15								
Indiana EECO 2014 Core 4 - (5 Circuits)										
Planning	28-Apr-14	18-Jul-14								
Procurement	19-May-14	19-Dec-14								
Engineering	4-Aug-14	19-Nov-14								
Construction & Commissioning	1-Sep-14	27-Mar-15								
Indiana EECO 2014 Core 5 - (6 Circuits)										
Planning	19-May-14	29-Aug-14								
Procurement	2-Jun-14	30-Jan-15								
Engineering	4-Aug-14	19-Nov-14								
Construction & Commissioning	6-Oct-14	30-Apr-15								

3           The table shows a phased construction schedule for the twenty five (25)  
 4           EECO circuits where subsets of circuits will have differing in-service dates  
 5           beginning in the fourth quarter of 2014 with final completion of all circuits by  
 6           the second quarter of 2015. I&M expects to begin EECO circuit operation,  
 7           and reporting of energy savings, subsequent to achieving each circuit's  
 8           respective in-service date, which is when each circuit has been fully  
 9           constructed, tested, and determined available for operation.

10   **Q. Please provide an overview of plans in 2015 for the Residential**  
 11   **Appliance Recycling Program, Residential New Construction Program,**

1       **Residential Home Energy Reports and Residential Online Audit**  
2       **Program.**

3    A.    Details for these programs are found in Petitioner’s Exhibit JCW-12  
4       (Residential Appliance Recycling Program), Petitioner’s Exhibit JCW-13  
5       (Residential New Construction Program), Petitioner’s Exhibit JCW-14  
6       (Residential Home Energy Reports) and Petitioner’s Exhibit JCW-15  
7       (Residential Online Audit). These residential programs are operating  
8       successfully today and will continue in the same form in 2015.

9    **Q.    Please provide an overview of plans in 2015 for the C&I Audit & SBDI**  
10       **Program and C&I Prescriptive Program.**

11   A.    Details for these programs are found in Petitioner’s Exhibit JCW-16 (C&I Audit  
12       & SBDI Program) and Petitioner’s Exhibit JCW-17 (C&I Prescriptive  
13       Program). The C&I Audit & SBDI program is in process of being offered to  
14       customers today and will be offered in its same form in 2015. The C&I  
15       Prescriptive Program is operating today as a statewide Core program and will  
16       be transitioned in 2015 to an I&M administered program.

17   **Q.    Table 1 above indicates that the 2015 DSM Plan does not include the**  
18       **C&I HVAC & Refrigeration Program. Please explain why I&M decided**  
19       **not to include the C&I HVAC & Refrigeration Program in the 2015 DSM**  
20       **Plan.**

21   A.    The C&I HVAC & Refrigeration Program has been offered for nearly two years  
22       with no participation. I&M’s implementation vendor for this program

1 successfully operates similar HVAC unit tune up programs for utilities in other  
2 states. The vendor has struggled with this program in I&M's service area due  
3 to the age of existing HVAC units found in-service in the I&M territory, which  
4 creates energy savings baselines complications and program cost  
5 effectiveness issues. The limited cooling season in the I&M service territory is  
6 another complicating factor. Successful programs in other states depend  
7 upon longer cooling seasons to generate adequate energy savings benefits.  
8 The continued lack of customer interest in this program combined with the  
9 little or no avoided cost benefits to justify the cost of the program dictate that it  
10 is prudent to stop offering this program.

11 **Q. Table 1 above also indicates that the 2015 DSM Plan does not include**  
12 **the Renewables and Demonstration Program. Please explain why the**  
13 **Renewable & Demonstrations Program is not included in I&M's 2015**  
14 **DSM Plan.**

15 A. The Renewable and Demonstration Program funds technology demonstration  
16 projects and incentivizes photovoltaic, solar hot water, ground source heat  
17 pumps and LED streetlights to promote interest in energy efficiency. The  
18 Commission authorized I&M to continue it as part of the 2014 DSM Plan. I&M  
19 first received approval to offer this program in Cause No 43959. While it was  
20 part of a cost-effective portfolio of programs, the individual program did not  
21 pass the TRC test.

1 During the three years that I&M has offered the program, participants have  
2 shown interest in the technologies rebated and I&M has learned much about  
3 the technologies offered in this program. However, the technologies  
4 significantly rebated through this program are costly and as a result have very  
5 low cost effectiveness scores.

6 For example, while more efficient than air source heat pumps, geothermal  
7 units have been in the market for several years but their installation cost is  
8 much higher. Even when the current federal income tax credit is factored in,  
9 the level of incentive required to make customer simple payback less than 20  
10 years is significant. As a result, cost effectiveness is low (see 2013 EM&V  
11 cost effectiveness results presented Petitioner's Exhibit JCW-18 for this  
12 program). The same is true for residential solar panel installations beyond the  
13 utility meter. Cost effectiveness is low due to the current market price to  
14 acquire the technology.

15 While it is helpful to customers to offer rebates for these technologies, given  
16 current cost effectiveness results and current market conditions for  
17 installation of these types of technologies beyond the utility meter, as a matter  
18 of benefit and cost to I&M customers, it is appropriate to discontinue this  
19 program. I&M has, and will continue to pursue other more cost effective  
20 renewable energy options outside of the context of this filing.

21 **4. Consistency with the I&M Integrated Resource Plan**

22 **Q. Is I&M's 2015 DSM Plan consistent with the I&M 2013 IRP?**

1 A. Yes. I&M's 2013 IRP utilizes cost effective DSM as a resource to help offset  
2 the need for future generation (Petitioner's EXHIBIT JCW-19 IRP, Table  
3 ES-1). I&M's 2015 DSM Plan provides for a level of programs that is  
4 achievable and consistent with the level of DSM factored into I&M's forecast  
5 of energy sales that was utilized in IRP determinations. As shown in  
6 Petitioner's Exhibit JCW-1 (2015 Demand Savings column), I&M's 2015 Plan  
7 provides for approximately 31.03 MW of demand reduction. As shown in  
8 Petitioner's Exhibit JCW-19, IRP Table ES-1, p. ES-10 shows an additional 33  
9 MW demand DSM demand reduction in 2015 from 2014 (92 MW minus 59  
10 MW). The IRP discussion regarding DSM (IRP, p. 76) reflects issues and  
11 concern with how much lighting measures dominate previous year energy  
12 savings and how federal codes and standards are expected to impact future  
13 savings achievement levels. Since these issues factor into the level of  
14 achievable DSM contained in the 2013 IRP, the level and scope of I&M's 2015  
15 DSM Plan reflects these same concerns as well through realistic expectations  
16 of the energy savings yield of some programs (e.g. residential lighting) and a  
17 focus on more long lived measures as reflected in the Residential EE  
18 Products Program.

19 **5. Portfolio Level Costs**

20 **Q Please discuss the portfolio level costs contained in I&M's 2015 DSM**  
21 **Plan.**

1 A. There are certain indirect costs that support activity across all programs. The  
2 annual level of these costs included in the 2015 DSM Plan are set forth in  
3 Petitioner's Exhibit JCW-1. The Indirect Program portfolio level costs are  
4 summarized in Petitioner's Exhibit JCW-1 and include the following:

- 5 • Information Technology & Systems
- 6 • Staff Development & Memberships
- 7 • Potential Studies
- 8 • Marketing & Customer Awareness
- 9 • Planning & Analytic Support
- 10 • New Program Development
- 11 • Budgeting & Accounting Support

12 **Q. Is the 2015 DSM Plan budget consistent with actual program**  
13 **experience?**

14 A. Yes. Petitioner's Exhibit JCW-20 presents the forecasted 2014 DSM Plan  
15 program spend and energy savings approved by the Commission in Cause  
16 No. 43827 DSM 3. This provides the basis for 2014 program implementation  
17 where I&M adjusted the program budget and savings outlook for programs  
18 from those provided in the Action Plan which was developed to meet the  
19 Cause No. 42693 energy savings goals. In developing the 2015 plan, these  
20 approved 2014 levels served as the planning starting point but I&M further  
21 modified program designs to reflect actual implementation parameters and  
22 cost. For example, the Action Plan Residential Lighting Program design

1 assumed only LED measure offerings and no CFLs. As a result, the program  
2 incentive costs were much more costly because the cost of LEDs are higher  
3 than the cost of standard CFLs. For 2015, I&M has changed this assumption  
4 to reflect a move toward incenting more LED measures but still relying upon  
5 CFL contributions as well in order to offer a mix of lighting technologies to  
6 customers but strike a balance in cost of the program.

7 **Q. What did I&M learn from its historical program experience that supports**  
8 **the estimate of its 2015 DSM Plan budget?**

9 A. Petitioner's Exhibit JCW-21 provides program and portfolio verified energy  
10 savings results and actual program expenditure levels for the 2010-2013 time  
11 period covered by the portfolio of programs authorized for implementation by  
12 the Commission in Cause No. 43959. In general, I&M learned that markets  
13 need time to react to program offerings. While uptake for some programs  
14 were immediate, such as the up-stream Residential Lighting Program, other  
15 programs simply took time to experience the level of uptake required to cost  
16 effectively deliver the programs. While I&M gained valuable experience on a  
17 multitude of other fronts, experience gained from short term promotions is an  
18 important consideration. In 2013, for the C&I Custom, C&I Retro  
19 Commissioning Lite, Residential Appliance Recycling and Residential Online  
20 Audit programs, I&M used limited short-term promotions combined with a  
21 focused outreach effort to help drive participation. While the cost of Core Plus  
22 program promotions was moderately greater than originally estimated, these

1 additional costs were managed cost effectively within individual program  
2 budgets approved by the Commission.

3 The Residential Appliance Recycling Program experienced improved  
4 participation from an incentive increase from \$30 per participant to \$40 (33%  
5 incentive level increase). I&M had previously worked with its implementation  
6 vendor to maximize other avenues to garner increased participation, such as  
7 specific marketing and outreach efforts, and one time media events, to  
8 improve customer participation before settling upon an incentive increase.

9 The incentive increase was recommended by the program implementation  
10 vendor as an effective means to improve participation to the extent that the  
11 increase helped improve the value of time spent for the customer to  
12 participate in the program.

13 The Residential Online Audit Program experienced a significantly higher level  
14 of savings (12 GWh Ex Ante, or Reported Gross savings) than prior year  
15 performance. Direct mail campaigns raised program awareness and a short  
16 term promotion consisting of a single LED light inclusion in the participant kit  
17 for two months at the end of the program year helped to cost effectively  
18 augment program success by driving participation levels higher. The  
19 inclusion of the LED in the participant kit not only helped spur participation but  
20 it allowed I&M to introduce and investigate the potential for LED bulbs as a  
21 market transforming technology in the residential sector. Initial EM&V results



1 from I&M's Core Plus evaluation vendor indicate positive response to the LED  
2 promotion from I&M's customers.

3 The C&I Custom and Retro Commissioning Lite programs were both able to  
4 realize significantly higher participation rates in part due to a buildup of  
5 program awareness in the marketplace (e.g. project leads development) and  
6 through limited short term promotions and focused outreach efforts. While  
7 both programs had a mix of small and large projects, the C&I Custom program  
8 benefited from a single large project that yielded 13 GWh in savings. While  
9 the short term promotions proved effective in spurring participation and  
10 project completions, the promotional incentive increase was limited to 20% (6  
11 cents per kWh vs 5 cents per kWh). Both programs had appropriate  
12 promotional controls in place and were managed within authorized program  
13 budgets.

14 Last, the statewide C&I Prescriptive Program significantly exceeded planned  
15 energy savings goals through a double rebate promotion (up to a 200%  
16 incentive increase for certain program measures) during 2013. The impact of  
17 this promotion was significantly more costly than original planned incentive  
18 levels as described in detail in Cause No. 43959 S1 where the Commission  
19 authorized I&M to utilize unencumbered funds to offset the budget overrun  
20 created by the promotion. The verified energy savings experienced in this  
21 program total 86.3 verified GWh.

1 Experience with these four programs and the resulting improved participation  
2 and customer response is invaluable for I&M. Accordingly, I&M used this  
3 experience to develop an approach and program designs contained in the  
4 2015 DSM Plan where program cost and associated customer incentive  
5 levels are duly considered and managed for near term customer value and  
6 cost effectiveness.

7 **6. Spending Flexibility**

8 **Q. Is I&M asking for Commission approval of spending flexibility?**

9 A. Yes. I&M respectfully asks that the Commission grant I&M the ability to spend  
10 up to and including 10% above the costs set forth in this filing for its proposed  
11 2015 DSM Program. This flexibility will help provide for the continuation of a  
12 program that is projected to exceed the yearly program budget. I&M also  
13 seeks Commission approval to transfer up to 25% of unencumbered program  
14 costs between programs in the same customer class. The ability to transfer  
15 unencumbered funds will allow I&M to better achieve DSM savings within the  
16 overall authorized budget because it will provide additional funds if a  
17 particular program is realizing better results. I&M will discuss the Company's  
18 use of this spending flexibility with stakeholders as part of the Advisory Board  
19 process discussed below.

20 **7. Evaluation, Measurement and Verification (EM&V)**

21 **Q. Do EM&V results to date support the DSM Plan?**

1 A. Yes. Petitioner's Exhibit JCW-21 shows the verified energy savings resulting  
2 from implementation of the Core and Core Plus Programs approved in Cause  
3 No. 43959. The verified energy savings were identified through the EM&V  
4 process. Consistent with past practice, I&M used the most current evaluated  
5 results to inform program design for 2015 to the extent practicable. For  
6 example, I&M utilized the evaluated deemed savings provided by its EM&V  
7 vendor for programs implemented in 2013, in the design of the 2015  
8 Residential Online Audit Program level of energy savings, participation, and  
9 program cost. EM&V results for 2013 Core Plus program implementation is  
10 presented in Petitioner's Exhibit JCW-18.

11 **Q. Please discuss EM&V for the 2015 DSM Plan.**

12 A. I&M is committed to an outside EM&V review. I&M has experience with this in  
13 both its Indiana and Michigan jurisdiction and will continue that independent  
14 verification. I&M has developed a consistent process where program design  
15 is informed through evaluation and verified savings are confirmed through  
16 independent means. Further, I&M's evaluation effort is designed to meet all  
17 the evaluation elements required by 170 IAC 4-8-4. As such, the 2015 DSM  
18 Plan provides for a similar level of EM&V as used in prior administration and  
19 implementation efforts and those costs are reflected in the cost of each  
20 program.

21 **8) Stakeholder Input**

22 **Q. What stakeholder input does I&M propose for its 2015 DSM Plan?**

1 A. Similar to the process used to elicit stakeholder input to the I&M 2013  
2 Integrated Resource Plan, I&M proposes an Advisory Board process where  
3 interested stakeholders can provide input to I&M's Indiana DSM  
4 programming. In the IRP stakeholder process, I&M held a series of meetings  
5 to engage stakeholders in the IRP development process and to elicit their  
6 input on future generation resource selection. Based on this, I&M proposes  
7 that I&M solicit stakeholder input into DSM planning and program  
8 implementation via quarterly Advisory Board meetings. I&M can then discuss  
9 and respond to stakeholder input regarding future direction of programs  
10 planned and discuss current and ongoing program implementation progress  
11 so that interested stakeholders can stay informed on I&M DSM program  
12 performance. Ultimately, the programs are utility run programs and should be  
13 the responsibility of the utility, but that effort can be influenced and shaped by  
14 an open dialogue and any input provided by interested stakeholders for I&M  
15 to consider.

16 **Q. How does the proposed Advisory Board differ from the current**  
17 **Oversight Board (OSB) process?**

18 A. Historically, I&M has sought stakeholder input in the development and  
19 implementation of its DSM/EE plans. We formalized the I&M DSM/Energy  
20 Efficiency Program Implementation Oversight Board ("OSB") for purposes of  
21 the two-year program approved on March 17, 2010 in Cause No. 43769. The  
22 current OSB process developed into a more of a governance board for utility

1 programs as opposed to the advisory board model as initially contemplated. It  
2 is appropriate to clarify and better organize this process to ensure the  
3 efficiency for both I&M and stakeholder resources.

4 For example, the current governance board structure will not work in the  
5 context of the multi-state DSM offering model that I&M is pursuing. The  
6 change to utility specific DSM plans allows a company like I&M to manage  
7 common programs between Indiana and Michigan. The Company must  
8 balance the respective DSM requirements of each state to best leverage  
9 internal resources at I&M and AEP. An OSB does not have authority to  
10 collaborate on I&M Michigan programs, which are subject to Michigan rules,  
11 policies, and procedures. The development of the DSM plans tailored to the  
12 uniqueness of each utility territory should be met with the empowerment of  
13 those utilities to implement the programs in a manner chosen by the utility.

14 The Advisory Board will meet at least quarterly and also retain the ability to  
15 hold special meetings when further input is needed. I&M will notify the OUCC  
16 and publish notice of its stakeholder meetings on its website in advance of  
17 any meeting. This approach will provide for interested stakeholder input to  
18 guide best practices and also ensure that lessons learned in Indiana and  
19 elsewhere are not lost or overlooked. I&M respectfully requests the  
20 Commission authorize the Advisory Board process described above in this  
21 evolution of DSM programs in the state of Indiana.

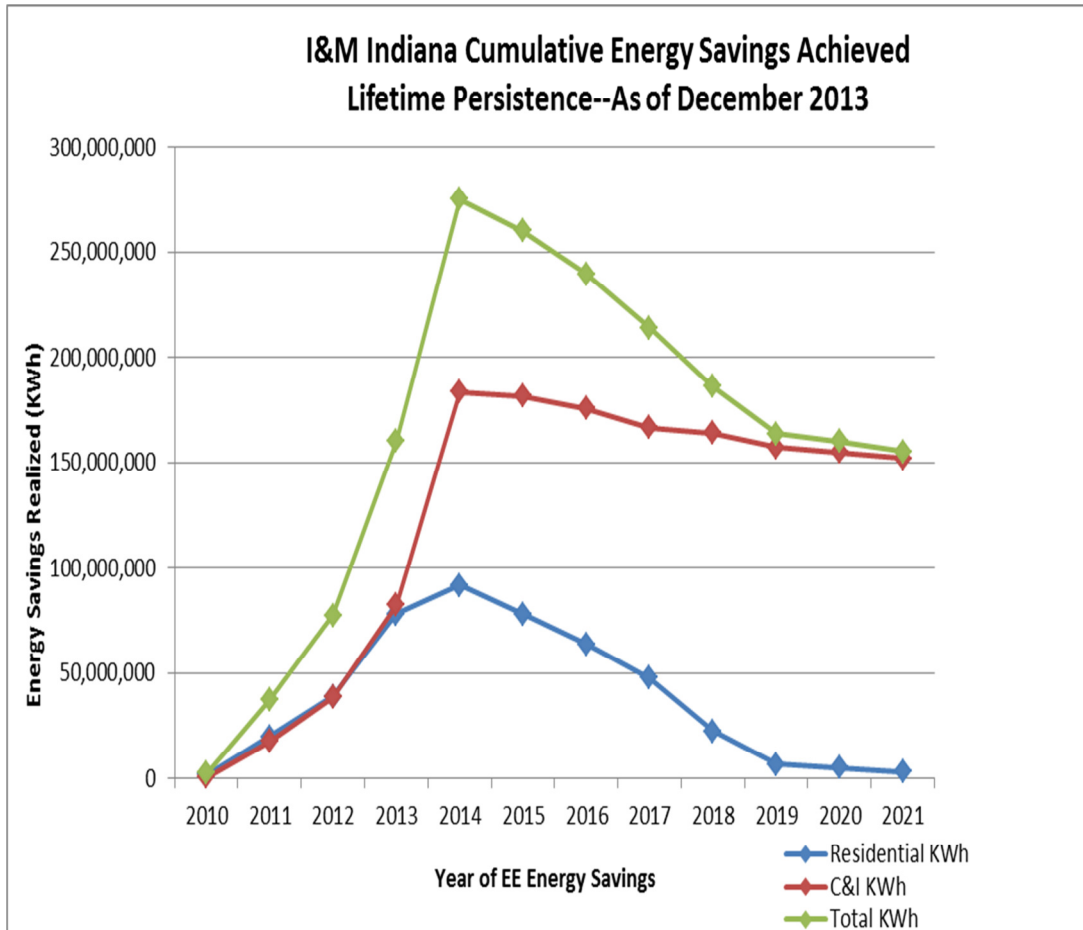
22 **9. NET LOST ENERGY SAVINGS**

1 **Q. Please discuss I&M's 2015 DSM Plan Net Lost Energy Savings forecast.**

2 A. Petitioner's Exhibit JCW-22 provides the Net Lost Energy Savings forecast for  
3 2015 based on the cumulative 2010-2014 DSM program energy savings  
4 since March 31, 2011, the end of the twelve month test year in I&M's last base  
5 rate case Cause No. 44075. Petitioner's Exhibit JCW-22 also provides a  
6 forecast of 2014 Net Lost Energy Savings expected to accrue in 2015 as full  
7 year savings (column 5 of Petitioner's Exhibit JCW-22), and the Net Lost  
8 Energy Savings expected for 2015 program operation (column 3 of  
9 Petitioner's Exhibit JCW-22).

10 The accumulation of Lost Energy Savings is based on measure life  
11 persistence. That is, I&M's forecast for 2015 includes only the 2010-2014 Net  
12 Lost Energy Savings that continues accumulating based on measure life  
13 (install date to end of life date), by month, for measures with useful life  
14 remaining in 2014 and installed by December 31, 2013. This is represented in  
15 Table 4 below where residential sector energy savings begins to drop  
16 dramatically after 2014 due to the dominance of achieved lighting savings  
17 having a shorter five (5) year effective useful life (EUL) and as compared to  
18 the C&I sector savings persisting at higher accumulated savings in outer  
19 years due to the longer life (EUL) of C&I lighting measures. This is also  
20 depicted in Table 4 below.

**Table 4**



1 In summary, I&M's Net Lost Energy Savings forecast for 2015 accumulates  
 2 lost energy savings only for those measures whose EUL persists in 2014.

3 **10. COST RECOVERY**

4 **Q. What cost recovery is I&M requesting?**

5 A. I&M is requesting cost recovery through the DSM Rider of all program and  
 6 portfolio level costs, including Net Lost Revenue recovery, Shared Savings  
 7 recovery (as presented by Company witness Roush in his Exhibit DMR-3),

1 program related EM&V cost recovery, and EECO Program cost recovery as  
2 discussed below.

3 I&M also requests continued authority to defer the over and under recoveries  
4 of projected DSM/EE Program costs through the DSM Rider pending  
5 reconciliation in subsequent rider periods and approval to defer any costs  
6 incurred in implementing the DSM/EE programs prior to the time the  
7 Commission issues an order authorizing I&M to recognize these costs  
8 through the ratemaking process.

9 The Company's cost recovery proposal is consistent with the cost recovery  
10 currently in place.

11 **Q. How would the cost recovery for the 2015 DSM Plan be implemented?**

12 A. Cost recovery for the 2015 DSM Plan would be approved in this proceeding  
13 but applied in the DSM 4 filing.

14 **Q. Does the Company seek to update and reconcile its DSM Rider factor in  
15 this proceeding?**

16 A. No. In prior years, I&M has combined in one filing its request for approval of  
17 its DSM Plan with its request to reconcile and update the DSM Rider factor.  
18 Because of the changes resulting from the passage of SEA 340 and the need  
19 for the Commission to process DSM filings for all of the investor-owned  
20 utilities in a timely manner, I&M limited its petition in this docket to a request  
21 for approval of the 2015 DSM Plan and costs. As further discussed below,  
22 I&M's plans to file a separate request to update and reconcile its DSM Rider



1 factors on or before September 1, 2014, which request will be filed as Cause  
2 No. 43827 DSM 4 (DSM 4 filing).

3 **Q. You indicated above that I&M plans to file its “DSM 4” proceeding on or**  
4 **before September 1, 2014. Please discuss how the 2015 DSM Program**  
5 **Plan and costs, if approved as presented by I&M in this docket, will be**  
6 **reflected in the DSM 4 filing.**

7 A. As discussed above, I&M plans to update and reconcile its DSM Rider factors  
8 in a separate proceeding to be filed on or before September 1, 2014 in Cause  
9 No. 43827 DSM 4. The DSM 4 filing will request a Commission Order in time  
10 for the proposed DSM Rider factors to become effective for the January 2015  
11 billing cycle (which commences December30, 2014). I&M plans to use the  
12 forecasted 2015 program costs, Net Lost Revenue, and Shared Savings  
13 reflected in the instant proceeding for the DSM 4 filing. If the 2015 DSM Plan  
14 is modified in a manner that causes the forecast of 2015 costs to change, I&M  
15 will file an amended forecast in DSM 4. If a Commission order regarding the  
16 2015 DSM Plan is entered by October 1, 2014, the DSM 4 filing could be  
17 updated as necessary or appropriate so that the new factors may be placed  
18 into effect for the January 2015 billing cycle.

19 **Q. Please discuss the cost recovery for the EECO program.**

20 A. In Cause No. 43827 DSM 3, the Commission authorized I&M to recover the  
21 carrying costs and depreciation expense associated with EECO capital  
22 expenditures, along with ongoing Operation and Maintenance (O&M)

1 expense and related EM&V costs, in the DSM Rider. I&M began over/under  
2 deferral accounting for these appropriate costs for the 2014 pilot circuits  
3 starting in January 2014. This is reasonable and consistent with Commission  
4 approval and the authority requested by I&M for the nine (9) pilot circuits that  
5 had already been place in-service during 2013. In this case, I&M seeks  
6 continued recovery of capital, depreciation and O&M costs through the DSM  
7 Rider.

8 In order to accurately and appropriately recover the EECO capital costs, I&M  
9 also requests authority to begin deferral of the carrying charges and  
10 depreciation expense once each additional circuit is placed in-service. This  
11 would capture the costs incurred for circuits that may be placed in service  
12 prior to issuance of a Commission order in this Cause.

13 Going forward, I&M plans additional circuits each year until the supply of  
14 additional cost effective circuits is depleted. In this Cause I&M also requests  
15 Commission authority to defer for subsequent recovery of the associated  
16 capital costs once the additional circuits are placed in service. Such authority  
17 would allow I&M to recover these appropriate costs upon being placed  
18 in-service and prior to a Commission Order on the plan for those circuits but  
19 still dependent upon and subject to Commission review of the circuit costs  
20 and cost effectiveness.

21 **Q. Does this conclude your pre-filed verified direct testimony?**

22 A. Yes.

**VERIFICATION**

I, Jon C. Walter, Manager of Regulatory Support for Indiana Michigan Power Company, affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.

Dated: May 5, 2014.

Jon C. Walter

A handwritten signature in black ink, appearing to read "Jon C. Walter", written over a horizontal line.

**Indiana Michigan Power Company - Indiana  
Demand Side Management - 2015 1 Year Plan  
2015 DSM Plan**

Exhibit JCW-1

<b>I&amp;M Indiana DSM Direct Program</b>	<b>Program Description</b>	<b>2015 Program Budget</b>	<b>2015 Energy Savings (kWh)</b>	<b>2015 Demand Savings (kW)</b>	<b>Annual Cost of Conserved Energy (cents/kwh)</b>	<b>Lifetime Cost of Conserved Energy (cents/kwh)</b>
Residential EE Products	Rebates for efficient residential lighting & other electro-technologies	\$1,443,278	16,064,742	2,697	\$0.09	\$0.010
Residential Low Income Weatherization	Low Income home weatherization & efficiency	\$1,205,906	1,018,912	109	\$1.18	\$0.087
Schools Energy Education	Energy education for elementary age children with take home kits	\$348,803	1,730,874	215	\$0.20	\$0.034
Residential Appliance Recycling	Rebates for pick up, and recycling of refrigerators and freezers	\$648,693	2,800,000	330	\$0.23	\$0.001
Residential New Construction	Rebates for efficient new home construction	\$492,422	731,022	545	\$0.67	\$0.022
Residential Weatherization	Walk through audit with rebates for home weatherization & efficiency	\$1,757,283	3,425,430	395	\$0.51	\$0.064
Residential Online Audit	Online basic home audit with mailed participant kits	\$676,785	3,865,320	483	\$0.18	\$0.021
Residential Home Energy Reports	Home consumption comparison reports	\$1,448,875	33,000,000	3,762	\$0.04	\$0.079
Residential Peak Reduction	Peak period cycling of residential air conditioners	\$824,835	112,014	5,670	\$7.36	\$0.736
C&I Prescriptive	Rebates for efficient lighting, efficient motors, etc.	\$2,370,144	35,000,000	5,600	\$0.07	\$0.005
C&I Custom	Rebates for custom C&I efficiency improvements (incl building retro-commissioning)	\$2,704,917	24,000,000	5,021	\$0.11	\$0.015
C&I Audit & SBDI	Walk through audits and direct install cost effective measures for small business customers	\$823,042	4,430,770	348	\$0.19	\$0.017
Electric Energy Consumption Optimization (EECO)	Utility distribution voltage control program to optimize & reduce end use consumption	\$1,284,600	27,952,632	5,854	\$0.05	\$0.002
<b>DSM Program Portfolio Total</b>		<b>\$16,029,584</b>	<b>154,131,716</b>	<b>31,029</b>	<b>\$0.10</b>	<b>\$0.010</b>

**Portfolio Level Expenses (Indirect Programs)**

Information Technology & Systems	\$200,000
Staff Development & Memberships	\$30,000
Potential Studies	\$75,000
Marketing & Customer Awareness	\$300,000
Planning & Analytic Support	\$125,000
New Program Development	\$50,000
Budgeting & Accounting Support	\$125,000
<b>Total Portfolio Level Expenses</b>	<b>\$905,000</b>
<b>Total I&amp;M Indiana DSM Portfolio</b>	<b>\$16,934,584</b>
<b>Count of Direct Programs</b>	<b>13</b>

2015 DSM Energy Savings as % I&M IN Utility GWh Sales	1.01%
2015 IN DSM Program Cost as % of I&M IN Utility Revenues	1.45%
2015 IN DSM Program Cost	\$16,934,584
2015 IN DSM Energy Savings Plan Target (kWh)	154,131,716
2015 IN DSM Program Operating Cost (cents/kwh saved)	\$0.11

EXHIBIT JCW-2: see Volume II

EXHIBIT JCW-3: see Volume II

Indiana Michigan Power Company - Indiana  
Demand Side Management - 2015 DSM Plan  
2016-2017 Program Forecast

Exhibit JCW-4

		2016 Program Budget	2016 Energy Savings (kWh)	2017 Program Budget	2017 Energy Savings (kWh)	2016 Annual Cost of Conserved Energy (cents/kwh)	2017 Annual Cost of Conserved Energy (cents/kwh)
<b>I&amp;M Indiana DSM Direct Program</b>	<b>Program Description</b>						
Residential EE Products	Rebates for efficient residential lighting & other electro-technologies	\$1,350,000	15,000,000	\$900,000	10,000,000	\$0.09	\$0.09
Residential Low Income Weatherization	Low Income home weatherization & efficiency	\$1,205,906	1,018,912	\$1,205,906	1,018,912	\$1.18	\$1.18
Schools Energy Education	Energy education for elementary age children with take home kits	\$280,000	1,400,000	\$240,000	1,200,000	\$0.20	\$0.20
Residential Appliance Recycling	Rebates for pick up, and recycling of refrigerators and freezers	\$500,000	2,500,000	\$500,000	2,500,000	\$0.20	\$0.20
Residential New Construction	Rebates for efficient new home construction	\$492,422	731,022	\$492,422	731,022	\$0.67	\$0.67
Residential Weatherization	Walk through audit with rebates for home weatherization & efficiency	\$1,757,283	3,425,430	\$1,757,283	3,425,430	\$0.51	\$0.51
Residential Online Audit	Online basic home audit with mailed participant kits	\$479,763	3,750,000	\$479,763	3,750,000	\$0.13	\$0.13
Residential Home Energy Reports	Home consumption comparison reports	\$993,875	28,000,000	\$1,070,875	25,000,000	\$0.04	\$0.04
Residential Peak Reduction	Peak period cycling of residential air conditioners	\$824,835	112,014	\$824,835	112,014	\$7.36	\$7.36
C&I Prescriptive	Rebates for efficient lighting, efficient motors, etc.	\$1,750,000	25,000,000	\$1,750,000	25,000,000	\$0.07	\$0.07
C&I Custom	Rebates for custom C&I efficiency improvements (incl building retro-commissioning)	\$2,750,000	25,000,000	\$2,750,000	25,000,000	\$0.11	\$0.11
C&I Audit & SBDI	Walk through audits and direct install cost effective measures for small business customers	\$823,042	4,430,770	\$823,042	4,430,770	\$0.19	\$0.19
Electric Energy Consumption Optimization (EECO)	Utility distribution voltage control program to optimize & reduce end use consumption	\$2,330,635	52,907,530	\$3,236,885	75,401,498	\$0.04	\$0.04
<b>DSM Program Portfolio Total</b>		<b>\$15,537,761</b>	<b>163,275,678</b>	<b>\$16,031,011</b>	<b>177,569,646</b>	<b>\$0.10</b>	<b>\$0.09</b>

**Annual Portfolio Level Expenses (Indirect Programs)**

Information Technology & Systems	\$200,000	\$200,000
Staff Development & Memberships	\$30,000	\$30,000
Potential Studies	\$75,000	\$75,000
Marketing & Customer Awareness	\$300,000	\$300,000
Planning & Analytic Support	\$125,000	\$125,000
New Program Development	\$50,000	\$50,000
Budgeting & Accounting Support	\$125,000	\$125,000
<b>Total Portfolio Level Expenses</b>	<b>\$905,000</b>	<b>\$905,000</b>
<b>Total I&amp;M Indiana DSM Portfolio</b>	<b>\$16,442,761</b>	<b>\$16,936,011</b>
<b>Count of Direct Programs</b>	<b>13</b>	<b>13</b>

2016 DSM Energy Savings as % I&M IN Utility GWh Sales	1.07%
2016 IN DSM Program Cost as % of I&M IN Utility Revenues	1.41%
2016 IN DSM Program Cost	\$16,442,761
2016 IN DSM Energy Savings Plan Target (kWh)	163,275,678
2016 IN DSM Program Operating Cost (cents/kwh saved)	\$0.10

2017 DSM Energy Savings as % I&M IN Utility GWh Sales	1.16%
2017 IN DSM Program Cost as % of I&M IN Utility Revenues	1.45%
2017 IN DSM Program Cost	\$16,936,011
2017 IN DSM Energy Savings Plan Target (kWh)	177,569,646
2017 IN DSM Program Operating Cost (cents/kwh saved)	\$0.10

## Residential Low Income Weatherization Program - Indiana

<b>Objective:</b>	<p>The Residential Low Income Weatherization program will produce long-term cost-effective electric savings in the residential sector. Savings are achieved by educating customers about opportunities to improve the energy efficiency of their home and providing for improvements through pre-selected implementation contractors who are trained and monitored by the program.</p> <p>The objectives of the Residential Low Income Weatherization Program are to:</p> <ol style="list-style-type: none"> <li>1. Lower electrical energy consumption in the residential sector by providing home weatherization improvements to homes owned by low income customers.</li> <li>2. Educate residential customers about the benefits and opportunities to decrease energy consumption.</li> </ol>		
<b>Target Market:</b>	<p>This program will serve income qualified residential customers. The program element of the Residential Low Income Program which will serve customers up to an including 200 percent of the Federal Poverty Level. The program is oriented toward single-family detached homes.</p>		
<b>Program Duration:</b>	<p>The Residential Low Income Weatherization program will be a program in I&amp;M's 2015 residential sector portfolio and is contemplated as continuing into 2016 and 2017.</p>		
<b>Program Description:</b>	<p>The Residential Low Income Programs is different from traditional DSM programs in that it provides home energy audits, direct install measures and weatherization services for their homes at the full cost to provide these services. The program attempts to provide energy savings by providing energy savings improvements in a part of the housing stock that is often old and substandard in comparison to middle and upper income housing. Customers that qualify for this program are those who otherwise could not obtain DSM improvements due to cost and affordability.</p>		
<b>Incentive Strategy:</b>	<p>The Residential Low Income Weatherization Program will provide walk through home audits and incentives to residential home owners and provide weatherization improvements to their home, including duct sealing, air sealing and installation of additional insulation. The program will also provide some direct install measures by a Home Energy Auditor trained under this program, including LED lighting and programmable thermostats.</p>		
<b>Eligible Measures:</b>	Measure Group	Measure Name	



	Electric Resistance Heat	Air infiltration reduction
	Electric Resistance Heat	Ceiling Insulation R0 to R38
	Electric Resistance Heat	Ceiling Insulation R8 to R38
	Electric Resistance Heat	Ceiling Insulation R19 to R38
	Electric Resistance Heat	Sidewall insulation R5 - R11
	Electric Resistance Heat	Knee wall insulation, R0 - R19
	Electric Resistance Heat	Programmable Thermostat
	Electric Resistance Heat	Duct Sealing, resistive electric furnace
	Electric Resistance Heat	LED 13 watt for 60 watt
	Electric Water Heater	Hand Held Showerhead (1.5 gpm)
	Electric Water Heater	Standard showerhead (1.5 gpm)
	Electric Water Heater	Faucet Aerator- Kitchen (1.5 gpm)
	Electric Water Heater	Faucet Aerator- Bath (1.5 gpm)
	Electric Water Heater	Pipe Insulation (R-3, 6 ft)
	Electric Water Heater	CFL
	Heat Pump	Air infiltration reduction
	Heat Pump	Ceiling Insulation R0 to R38
	Heat Pump	Ceiling Insulation R8 to R38
	Heat Pump	Ceiling Insulation R19 to R38
	Heat Pump	Sidewall insulation R5 - R11
	Heat Pump	Programmable Thermostat
	Heat Pump	Duct Sealing, prescriptive HP
	Heat Pump	LED 13 watt for 60 watt
	Heat Pump	CFL
Electric Resistive/Heat pump	Assessment	
<b>Implementation Strategy:</b>	I&M will utilize an implementation vendor to implement this program who will be expected to provide services through qualified weatherization contractors for residential low income home owners in the I&M Indiana service territory for the efficiency improvements to their homes which I&M provides incentives for.	
<b>Marketing Strategy:</b>	I&M will work with an implementation vendor to provide this program offering to low income all electric heat or electric heat customers in the I&M Indiana service territory. I&M and its vendor will work with local community government agencies to identify customers that qualify for the services provided for through this program. Outreach will be performed to enroll qualified customers in this program.	
<b>Evaluation, Measurement &amp; Verification:</b>	An independent third party program evaluation contractor will perform process and impact evaluations to ensure that the program is effectively implemented, that the program is achieving the expected savings, and to offer suggestions for improving the effectiveness of the program, if warranted.  The process evaluation is expected to include a review of program objectives,	

implementation processes, data collection procedures, quality assurance methodologies, reporting timelines, and tracking of costs. The process evaluation is also expected to determine the primary drivers of customer satisfaction and customer engagement. The methods used for evaluating these customer satisfaction and engagement will likely be based on questionnaires delivered via telephone, mail or online surveys.

The impact evaluation is expected to determine the actual energy reductions achieved by the program, and provide cost/benefit analyses of the program both on historical and prospective bases.

The chosen implementation vendor is expected to capture participant information, perform energy reduction calculations, and provide detailed information, as specified to meet evaluation needs, back to I&M and I&M's independent third party evaluator. The evaluator is expected to work closely with the implementation vendor to ensure proper data collection, energy reduction calculation methodology, and reporting

**Estimated Participation and Impacts**

Expected participation and associated estimated impacts for the program are provided in the table below.

Income Qualified Weatherization	Cost per Participant	2015
Fixed Program Costs		
Vendor Fixed		\$417,902
Implementation & Other Annual Cost		\$16,763
DSM Staffing		\$30,238
Program Monitoring & Evaluation		\$85,998
Indirect Allocated		\$0
Total Fixed		\$550,901
Variable Program Costs		
Incentives (paid annually to participants)	\$0.2327	\$237,102
Delivery & Other	\$0.14	\$417,902
<b>Total Budget</b>	<b>\$1.18</b>	<b>\$1,205,906</b>
Energy Savings (kWh)		1,018,912
Demand Savings (kW)		109
Participation		

**Program Budget**

Anticipated budget associated with this program is outlined in the tables provided above.

<b>Cost Effectiveness Test Results</b>		
		Cost-Benefit Ratio
	Utility Test	.5
	TRC Test	.5
	RIM Test	.3
Participant Test	3.9	

## Residential Peak Reduction Program - Indiana

<b>Objective:</b>	Produce long term electric demand response and associated energy savings in the residential consumer sector by cycling on and off customer air conditioning or heat pump units through the use of separately installed control devices. I&M will operate this equipment during times such as utility system peak, high loading on distribution circuits, outside temperature, and/or emergency conditions. Load management events (non-emergency) will be at the discretion of I&M, with up to 15 events per year. Emergency events will be at the discretion of PJM as defined in PJM Manual 13 – Emergency Operations, with up to 10 events per PJM planning year.
<b>Target Market:</b>	Residential customers with existing central air conditioning and/or heat pump equipment. The existing equipment must be operational to participate in this program. Participants must be either existing owner-occupied single-family or multi-family homeowners who purchase retail electricity from I&M on a residential tariff. For non-owner occupied residences, I&M will require written permission from the owner to install auxiliary load control and communication equipment.
<b>Program Duration:</b>	Based on customer acceptance / satisfaction and overall effectiveness of this program to reduce load during certain conditions, the Residential Peak Reduction Program will be offered as part of I&M’s 2015 energy efficiency program portfolio, and is contemplated to be offered in 2016 and 2017 as well.
<b>Program Description:</b>	<p>This program will focus on Residential load control. In this program, a load control switch will be installed on the outside of the customer’s home on the circuit that powers the central air conditioning unit. The switch will have communication capability such that a signal can be sent from the utility, or its selected third party program implementation contractor, to operate the switch and cycle the air conditioner or heat pump unit.</p> <p>For the 10 events called in 2013, I&amp;M’s EM&amp;V vendor found a 0.63kW demand reduction and an associated average 12 kWh energy savings per event day for each residential air conditioner or heat pump unit that participates in this program. These values will be used to estimate program performance in future years.</p> <p>This Residential DLC program is designed to employ more traditional means of one-way communication to the load control device (i.e., paging or FM radio) with the expectation that the switches installed may be upgraded, at some point in the future, to utilize gridSMART two-way communication when the new technology is expanded. However, at this time, it is also recognized that communication protocols (i.e., communication between a smart meter and related in-home equipment) is rapidly evolving, and it’s difficult to predict what standard(s) may ultimately be adopted and deployed. To the extent reasonable, I&amp;M will strive to select equipment that, in its best estimation and with information available at that time, may possibly be compatible with future communication technologies. In any event, this program will allow for a larger volume of residential customers to participate sooner, rather than later, in demand response programs. I&amp;M has hired a third party program implementation contractor to launch and operate this program.</p>

<b>Incentive Strategy:</b>	<p>A qualified residential customer with a working central air conditioner or heat pump will receive \$40 per year (\$8 per the summer months of May, June, July, August and September) for each air-conditioning/heat pump unit participating in the program. Incentives will be provided through a rider and all incentives will be included as a credit on the customer’s electric bill. A credit will be applied for each central system participating in the program. Therefore, if the customer has two central systems, and load control switches are installed on both units, the customer will receive an incentive, as described above, for each controlled system.</p> <p>The customer may opt out of load control event by contacting the third party program implementation contractor. A one-year minimum enrollment period is required.</p>
<b>Eligible Measures:</b>	<p>Residential customers, served by I&amp;M through a residential tariff and having an existing central air conditioner or heat pump system, are eligible to participate. Measures to be installed include load control switches which will be installed outside near the customer’s air conditioning or heat pump unit. The load control switch will remain the property of I&amp;M.</p>
<b>Implementation Strategy:</b>	<p>Key elements of the implementation strategy include:</p> <ul style="list-style-type: none"> <li>• <b>Recruit/hire Third Party Program Implementation Contractor.</b> I&amp;M’s program implementation contractor, selected through a competitive bidding process, will install load control devices at the customer’s home. To the extent reasonable, this contractor will hire qualified Indiana-based installers / technicians.</li> <li>• <b>Provide High Quality Customer Service.</b> I&amp;M’s program implementation contractor will store and track interactions with the customers as well as detailed information related to all cost, participants, and other related program data. Provide trained customer service staff for assisting customers with questions about the program, service-related calls/issues, and facility participation. Staff and maintain the program sufficient to handle customer’s inquiries, screen customers for eligibility, and explain program rules and benefits in a prompt and courteous manner.</li> </ul> <p>I&amp;M will determine when a load control event is to take place, and electronically send that message to I&amp;M’s program implementation contractor. At this time, I&amp;M plans to have the contractor initiate the control event to cycle the load control equipment.</p> <p>I&amp;M plans to initially utilize a 50% cycling strategy of the central air conditioning and heat pump systems. However, other cycling strategies may be employed and evaluated to determine the strategy that optimizes load impact without significantly affecting customer comfort.</p> <p>This program is designed to utilize a one-way communication technology, such as paging or FM Radio signals to initiate the load control event but the equipment used is forward compatible with future communication technologies, to the extent practical.</p>
<b>Marketing</b>	<p>The program is near full subscription and is expected to have full participation of the</p>

<p><b>Strategy:</b></p>	<p>originally planned 9,000 customers by mid-2014. As such, no further additional marketing to increase participation is expected.</p> <p>If required though I&amp;M or its implementation vendor will develop a marketing and communications program to successfully operate and maintain full subscription for the Residential Peak Reduction Program. This will include the development of marketing materials, the identification of channels and key relationships, and the leveraging of contractors involved with other existing energy efficiency measures. Targeted marketing to customers located on heavily-load distribution circuits, to possibly defer additional supply side infrastructure investments, may be employed.</p> <p>Leads generated from these efforts will be provided to the third party program implementation contractor to determine program eligibility, set appointments (if necessary), secure a signed program agreement from the customer, ensure the equipment can receive the load control signal, provide any additional customer education, and other program implementation requirements. The contractor will also provide a toll-free telephone number where customers can call to receive additional program details, enroll in the program, and ask other program related questions.</p>
<p><b>Evaluation, Measurement &amp; Verification:</b></p>	<p>An independent third party program evaluation contractor will perform process and impact evaluations. The process evaluation is expected to include a review of program objectives, implementation processes, data collection procedures, quality assurance methodologies, reporting timelines, and tracking of costs. The impact evaluation will determine the actual demand and energy reductions achieved, and provide cost/benefit analyses of the program, both on historical and prospective bases.</p> <p>The program evaluation objectives are expected to include:</p> <ul style="list-style-type: none"> <li>• Assessment of the effectiveness of program delivery mechanisms;</li> <li>• Assessment of participant satisfaction with the program and perceived value of the program;</li> <li>• Assessment of the market potential, including the participant characteristics, participation rate, reasons for non-participation, and customer awareness of energy efficiency;</li> <li>• Determination of the program impacts, including achieved demand reduction (kW), and net energy impacts.</li> <li>• Assessment of the program’s cost-effectiveness based on various economic tests;.</li> </ul> <p>I&amp;M may supplement the evaluation efforts with customer surveys and additional load analyses. As part of this program, I&amp;M intends to install interval recording meters on a random sample of participants’ homes to provide necessary data for impact evaluation.</p>
<p><b>Estimated Participation and Impacts</b></p>	<p>Expected participation and associated estimated impacts, both energy and demand, for the program are provided in the table below.</p>

**Program Budget**

Anticipated budget associated with this program for 2015 program operation is shown in the table below.

<b>Res Peak Reduction</b>	<b>Per KWH Rate</b>	<b>2015</b>
Fixed Program Costs		
Vendor Fixed		\$224,306
Implementation & Other Annual Cost		\$31,552
DSM Staffing		\$110,405
Program Monitoring & Evaluation		\$50,000
Indirect Allocated		\$0
Total Fixed		\$416,263
Variable Program Costs		
Incentives (paid annually to participants)	\$40	\$360,000
Delivery & Other (Service Calls)	\$243	\$48,572
Total Budget		\$824,835
Energy Savings (kWh)		112,014
Service Calls		200
Demand Savings (kW)		5,670

**Cost Effectiveness Test Results**

Based on the assumptions stated above, the anticipated cost effectiveness results for this program are defined in the table below:

	<b>Cost-Benefit Ratio</b>
Utility Test	.6
TRC Test	.95 rounded to 1.0
RIM Test	.6
Participant Test	1.0

## Residential EE Products Program - Indiana

<b>Objective:</b>	<p>The Residential Energy Efficient Products Program objective is to produce long-term cost-effective electric savings in the residential market sector. Savings are achieved by promoting the benefits associated with eligible energy efficiency measures and offering cash-back rebates structured to cover a portion of the incremental cost of installing them.</p> <p>The objectives of the Residential Energy Efficient Products Program are to:</p> <ol style="list-style-type: none"> <li>1. Lower electric consumption in the residential market sector through the purchase and installation of eligible energy efficiency measures and attribute electric energy savings to those purchases that receive a rebate through the program.</li> <li>2. Educate residential customers regarding opportunities to decrease their overall energy usage.</li> <li>3. Encourage equipment vendors and contractors to actively market eligible energy efficient technologies to residential customers.</li> </ol> <p>Through market-based activities, affect a long-term improvement in the market for targeted products.</p>
<b>Target Market:</b>	<p>Residential customers located in Indiana purchasing retail electricity from Indiana Michigan Power Company (I&amp;M) on a residential tariff.</p>
<b>Program Duration:</b>	<p>The Residential EE Products program will be a program in I&amp;M's 2015 residential sector portfolio and is contemplated as continuing into 2016 and 2017.</p>
<b>Program Description:</b>	<p>The Residential Energy Efficient Products Program will increase demand for energy efficient products through cash-back rebates designed to cover a portion of the incremental cost to upgrade to efficient technologies. In addition, the program will educate customers about the energy saving and non-energy benefits associated with efficient HVAC and self-install products that reduce energy consumption. The program will stimulate market provider stocking and investment in high-efficiency products through outreach and training, educational point of sale materials, cooperative advertising and sales brochures.</p> <p>The Residential Lighting component of this program is focused on providing up-stream incentives to buy down or mark down the incremental cost of CFLs, LEDs, and other efficient lighting fixture and control systems.</p>
<b>Incentive Strategy:</b>	<p>The Residential Energy Efficient Products Program will increase demand for energy efficient products through cash-back rebates designed to cover a portion of the incremental cost to upgrade to efficient technologies. The lighting component will provide discounts to utility customers toward the purchase of CFLs, LEDs, and other ENERGY STAR qualified lighting efficiency products.</p>



<b>Eligible Measures:</b>	EE Products Component Measure List					
	Furnace with ECM					
	ECM Motor New Installation					
	HP Replacement 15 SEER/8.2 HSPF					
	HP Replacement 16 SEER/8.4 HSPF					
	HP Replacement 17 SEER/8.6 HSPF					
	HP Replacement 18 SEER/9.0 HSPF and greater					
	Ductless HP Replacement of HP 17 SEER 9.5 HSPF					
	Ductless HP Replacement of HP 19 SEER 9.5 HSPF (or higher)					
	Ductless HP Replacement of HP 21 SEER 10 HSPF					
	Ductless HP Replacement of HP 23 SEER Greater than 10 HSPF					
	Ductless HP Displacement of Elec Resistance 17 SEER 9.5 HSPF					
	Ductless HP Displacement of Elec Resistance 19 SEER 9.5 HSPF					
	Ductless HP Displacement of Elec Resistance 21 SEER 10 HSPF					
	Ductless HP Displacement of Elec Resistance 23 SEER or greater 10 HSPF					
	Heat Pump Water Heater, EF=>2.0; Electric Resistive Space Heat					
	Heat Pump Water Heater, EF=>2.0, Heat Pump Space Heat					
	Heat Pump Water Heater, EF=>2.0, fossil fuel space heat					
	Variable Speed Pool Pump					
	ENERGY STAR Ceiling Fan					
	ENERGY STAR Ceiling Fan Instant Rebate					
	ENERGY STAR Dehumidifier					
	ENERGY STAR Dehumidifier Instant Rebate					
	Central A/C Unit 15-16.9 SEER					
	Central A/C Unit min. 17 SEER					
	Programmable Thermostat - gas heat/electric cooling (elec savings only)					
	Programmable Thermostat - gas heat/electric cooling Instant Rebate					
	Programmable Thermostat - Heat pump home					
	2015 Residential Lighting Component Measures					
					Measure Energy Savings (kWh)	Measure Demand Savings (kW)
Measure	# Bulbs Planned	Incr. Measure Cost	Measure Incentive			
Specialty CFL	15,000	8.33	5	44	0.005	
Standard CFL	300,000	3	1.5	43.7	0.007	
LED	25,000	10	7	40	0.005	
Total	340,000	\$1,274,950	\$700,000	14,770,000	2,300	
<b>Implementation</b>						

<b>Strategy:</b>	I&M will utilize an implementation vendor to implement this program to HVAC trade allies and will provide rebates through up-stream point of sale markdowns.
<b>Marketing Strategy:</b>	<p>The target market for the program is Indiana Michigan Power Company’s Indiana residential customers residing in single family homes and multifamily dwellings of up to 12 units. I&amp;M will promote the program through the following marketing channels for the EE Products Component of the program:</p> <ol style="list-style-type: none"> <li>1. Direct mail campaign and trade ally rollout meeting (1 annually)</li> <li>2. Direct contacts with trade allies at their place of business (At least 200 annually with substantive staff follow-up and continued dialogue)</li> <li>3. Trade ally advisory group meetings or training sessions (1 session semi-annually)</li> <li>4. Web-based marketing via the Indiana Michigan Power Company website (ongoing)</li> <li>5. Direct e-mail or online media outreach to trade allies (1 campaign quarterly)</li> </ol> <p>Contacts with trade allies and end-use customers via Indiana Michigan Power Company key account managers. The program delivery agent will perform regular store visits to actively engage customers in Indiana with messages about the cost savings and environmental benefits of energy efficient lighting products. For the Residential Lighting component of the program promotional lighting program labeling and signage will be placed in retail locations that promote the participant products and provide customers with cost and efficiency value information. Activities within retail events may include a booth, educational materials and hands-on activities.</p>
<b>Evaluation, Measurement &amp; Verification:</b>	<p>An independent third party program evaluation contractor will perform process and impact evaluations to ensure that the program is effectively implemented, that the program is achieving the expected savings, and to offer suggestions for improving the effectiveness of the program, if warranted.</p> <p>The process evaluation is expected to include a review of program objectives, implementation processes, data collection procedures, quality assurance methodologies, reporting timelines, and tracking of costs. The process evaluation is also expected to determine the primary drivers of customer satisfaction and customer engagement. The methods used for evaluating these customer satisfaction and engagement will likely be based on questionnaires delivered via telephone, mail or online surveys.</p> <p>The impact evaluation is expected to determine the actual energy reductions achieved by the program, and provide cost/benefit analyses of the program both on historical and prospective bases.</p> <p>The chosen implementation vendor is expected to capture participant information, perform energy reduction calculations, and provide detailed information, as specified to meet evaluation needs, back to I&amp;M and I&amp;M’s independent third party evaluator. The evaluator is expected to work closely with the implementation vendor to ensure</p>

proper data collection, energy reduction calculation methodology, and reporting.

**Estimated Participation and Impacts**

Expected participation and associated estimated impacts for the program are provided in the table below.

RES EE Products Component	Per KWH Rate	2015
Fixed Program Costs		
Vendor Fixed		\$79,582
Implementation & Other Annual Cost		\$1,500
DSM Staffing		\$25,875
Program Monitoring & Evaluation		\$11,250
Indirect Allocated		\$0
Total Fixed		\$118,207
Variable Program Costs		
Incentives (paid annually to participants)	\$0.14	\$179,969
Delivery & Other	\$0.06	\$73,088
<b>Total Budget</b>	<b>\$0.29</b>	<b>\$371,264</b>
Energy Savings (kWh)		1,294,742
Demand Savings (kW)		397
Participation		2,863

Res Lighting Component	Per KWH Rate	2015
Fixed Program Costs		
Vendor Fixed		\$132,930
Implementation & Other Annual Cost		\$20,000
DSM Staffing		\$36,154
Program Monitoring & Evaluation		\$50,000
Indirect Allocated		\$0
Total Fixed		\$239,084
Variable Program Costs		
Incentives (paid annually to participants)	\$0.0474	\$700,000
Delivery & Other	\$0.009	\$132,930
<b>Total Budget</b>	<b>\$0.07</b>	<b>\$1,072,014</b>
Energy Savings (kWh)		14,770,000
Demand Savings (kW)		2,300
Participation		50,000

	Total Program Budget \$1,443,278 Total Program Energy Savings 16,064,742 kWh											
<b>Program Budget</b>	Anticipated budget associated with this program is outlined in the tables provided above.											
<b>Cost Effectiveness Test Results</b>	<table border="1" data-bbox="380 480 1122 772"> <thead> <tr> <th data-bbox="380 480 764 573"></th> <th data-bbox="764 480 1122 573">Cost-Benefit Ratio</th> </tr> </thead> <tbody> <tr> <td data-bbox="380 573 764 625">Utility Test</td> <td data-bbox="764 573 1122 625">2.6</td> </tr> <tr> <td data-bbox="380 625 764 678">TRC Test</td> <td data-bbox="764 625 1122 678">2.0</td> </tr> <tr> <td data-bbox="380 678 764 730">RIM Test</td> <td data-bbox="764 678 1122 730">.3</td> </tr> <tr> <td data-bbox="380 730 764 772">Participant Test</td> <td data-bbox="764 730 1122 772">5.4</td> </tr> </tbody> </table>			Cost-Benefit Ratio	Utility Test	2.6	TRC Test	2.0	RIM Test	.3	Participant Test	5.4
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Utility Test	2.6											
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RIM Test	.3											
Participant Test	5.4											

## Schools Energy Education Program - Indiana

<b>Objective:</b>	<p>The goal is to educate students about energy use and to produce cost effective electric by influencing students and their families to focus on conservation and efficient use of electricity. Each eligible student will receive a kit of low-cost efficiency measures and educational materials.</p> <p>The objectives of the Schools Energy Education Program are to:</p> <ol style="list-style-type: none"> <li>1. Educate 5<sup>th</sup> and 6<sup>th</sup> grade students and residential customers (parents) about the benefits and opportunities to decrease energy consumption.</li> <li>2. Lower electrical energy consumption in the residential sector by providing take homes kits containing cost effective lighting and water use efficiency measures to 5<sup>th</sup> and 6<sup>th</sup> grade students participating in the program.</li> <li>3. Provide elementary school teachers with an energy savings course and course work for their students.</li> </ol>
<b>Target Market:</b>	This program will serve 5 <sup>th</sup> and 6 <sup>th</sup> grade elementary school students, their parents, and teachers in the I&M Indiana service territory.
<b>Program Duration:</b>	The Schools Energy Education Program will be a program in I&M's 2015 residential sector portfolio and is contemplated as continuing into 2016 and 2017.
<b>Program Description:</b>	The program is available to public and private schools in the service territory for students in grades 5 and 6. The goal is to educate students about energy use and to produce cost effective electric by influencing students and their families to focus on conservation and efficient use of electricity. Each eligible student will receive a kit of low-cost efficiency measures and educational materials.
<b>Incentive Strategy:</b>	The Schools Energy Education Program will provide students with take home kits that provide energy efficiency measures at no additional cost.
<b>Eligible Measures:</b>	Energy efficient lighting including CFLs and LED night lights; low flow faucet aerators and showerheads.
<b>Implementation Strategy:</b>	I&M will utilize an implementation vendor to implement this program who will be expected to provide educational services such as teacher enrollment, course curriculum, and presentations to 5 <sup>th</sup> and 6 <sup>th</sup> grade students in the I&M Indiana service territory of I&M.
<b>Marketing Strategy:</b>	I&M will work with an implementation vendor to provide this program offering to teachers and students in the I&M Indiana service territory. I&M and its vendor will work with schools and teachers to enroll classrooms in the program.

<b>Evaluation, Measurement &amp; Verification:</b>	<p>An independent third party program evaluation contractor will perform process and impact evaluations to ensure that the program is effectively implemented, that the program is achieving the expected savings, and to offer suggestions for improving the effectiveness of the program, if warranted.</p> <p>The process evaluation is expected to include a review of program objectives, implementation processes, data collection procedures, quality assurance methodologies, reporting timelines, and tracking of costs. The process evaluation is also expected to determine the primary drivers of customer satisfaction and customer engagement. The methods used for evaluating these customer satisfaction and engagement will likely be based on questionnaires delivered via telephone, mail or online surveys.</p> <p>The impact evaluation is expected to determine the actual energy reductions achieved by the program, and provide cost/benefit analyses of the program both on historical and prospective bases.</p> <p>The chosen implementation vendor is expected to capture participant information, perform energy reduction calculations, and provide detailed information, as specified to meet evaluation needs, back to I&amp;M and I&amp;M's independent third party evaluator. The evaluator is expected to work closely with the implementation vendor to ensure proper data collection, energy reduction calculation methodology, and reporting</p>																																																
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## Residential Weatherization Program - Indiana

<b>Objective:</b>	<p>The Residential Weatherization program will produce long-term cost-effective electric savings in the residential sector. Savings are achieved by educating customers about opportunities to improve the energy efficiency of their home and buying down the cost of recommended improvements through pre-selected implementation contractors who are trained and monitored by the program.</p> <p>The objectives of the Home Weatherization Program are to:</p> <ol style="list-style-type: none"> <li>1. Achieve a benefit cost ratio equal to or greater than 1:1 based on the total resource cost test.</li> <li>2. Lower electrical energy consumption in the residential sector.</li> <li>3. Educate residential customers about the benefits and opportunities to decrease energy consumption.</li> <li>4. Affect long-term improvements in the market for targeted products through market-based activities.</li> </ol> <p>Coordinate the delivery of services with the NIPSCO Home Weatherization program as directed by Indiana Michigan Power Company as available and as agreed upon by I&amp;M and NIPSCO.</p>
<b>Target Market:</b>	Residential all electric, electric heat, or high use single family residential homes located in I&M Indiana service territory.
<b>Program Duration:</b>	The Residential Weatherization program will be a program in I&M's 2015 residential sector portfolio and is contemplated as continuing into 2016 and 2017.
<b>Program Description:</b>	<p>The Residential Weatherization program will produce long-term cost-effective electrical energy savings in the residential sector. Savings are achieved by educating customers about opportunities to improve the energy efficiency of their home and buying down the cost of recommended improvements through pre-selected installation contractors who are trained and monitored by the program. The program will provide for and offer free walk through audits to homeowners and educate them about efficiency improvements that can be made to their home where the Auditor will present and discuss a long term plan to the customer about future efficiency improvements.</p> <p>Indiana Michigan Power Company's Indiana customers will receive an instant incentive of up to 50% of the cost to insulate and air-seal their home, up to a maximum of \$3000. In addition, I&amp;M's implementation vendor will negotiate bulk rates with installation contractors, provide customers with direct access to their services, and conduct quality control monitoring to ensure the work is completed according program requirements.</p> <p>Customers will receive an incentive of up to 100% of the cost of duct sealing and/or installation of program programmable thermostat and/or LED lamps.</p> <p>I&amp;M will offer a weatherization program to Indiana Michigan Power Company's Indiana residential customers that make use of electricity as their heating fuel. The</p>



program will perform home assessments, offer incentivized shell and HVAC measures and provide regular updates to participating customers to keep them informed of various new and existing program opportunities available from Indiana Michigan Power Company.

**Incentive Strategy:**

The Residential Weatherization Program will provide walk through home audits and incentives to residential home owners who undertake weatherization improvements to their home, including duct sealing, air sealing and installation of additional insulation. The program will also provide some direct install measures by a Home Energy Auditor trained under this program, including LED lighting and programmable thermostats.

**Eligible Measures:**

Measure Group	Measure Name
Electric Resistance Heat	Air infiltration reduction
Electric Resistance Heat	Ceiling Insulation R0 to R38
Electric Resistance Heat	Ceiling Insulation R8 to R38
Electric Resistance Heat	Ceiling Insulation R19 to R38
Electric Resistance Heat	Sidewall insulation R5 - R11
Electric Resistance Heat	Knee wall insulation, R0 - R19
Electric Resistance Heat	Programmable Tstat
Electric Resistance Heat	Duct Sealing, resistive electric furnace
Electric Resistance Heat	LED 13 watt for 60 watt
Electric Water Heater	Hand Held Showerhead (1.5 gpm)
Electric Water Heater	Standard showerhead (1.5 gpm)
Electric Water Heater	Faucet Aerator- Kitchen (1.5 gpm)
Electric Water Heater	Faucet Aerator- Bath (1.5 gpm)
Electric Water Heater	Pipe Insulation (R-3, 6 ft)
Gas Heat + AC	Air infiltration reduction
Gas Heat + AC	Duct Sealing, prescriptive
Gas Heat + AC	Ceiling Insulation R0 to R38
Gas Heat + AC	Ceiling Insulation R8 to R38
Gas Heat + AC	Ceiling Insulation R19 to R38
Gas Heat + AC	Sidewall insulation R3 - R11
Gas Heat + AC	Knee wall insulation, R0 - R19
Gas Heat + AC	Programmable Tstat
Heat Pump	Air infiltration reduction
Heat Pump	Ceiling Insulation R0 to R38
Heat Pump	Ceiling Insulation R8 to R38

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<b>Implementation Strategy:</b>	<p>I&amp;M will utilize an implementation vendor to implement this program who will be expected to educate, promote, and provide incentives to residential home owners in the I&amp;M Indiana service territory to undertake efficiency improvements to their homes with I&amp;M provides incentives for.</p>																																					
<b>Marketing Strategy:</b>	<p>The target market for the program is Indiana Michigan Power Company’s Indiana residential customers residing in single family homes and duplexes, and mobile homes with electric for their primary heat source or joint I&amp;M/NIPSCO service, as available and as agreed upon by I&amp;M and NIPSCO. The program will be promoted through the following marketing channels:</p> <ol style="list-style-type: none"> <li>1. Targeted customer marketing and outreach <ol style="list-style-type: none"> <li>a. Direct mail</li> <li>b. Phone call follow-up on direct mail and with customers who received a price quote</li> </ol> </li> <li>2. Contractor-based customer marketing and outreach <ol style="list-style-type: none"> <li>a. Yard signs</li> </ol> </li> <li>3. Earned media/PR</li> <li>4. Collateral materials distributed by program contractors</li> </ol> <p>I&amp;M through its implementation vendor will conduct a direct mail campaign including at least one (1) mailer to each Indiana Michigan Power customer identified for targeted outreach and will conduct an outbound telemarketing campaign aimed at securing customer permission to proceed with delivering a price quote or with weatherization services, or until the customer declines the service.</p>																																					
<b>Evaluation, Measurement &amp; Verification:</b>	<p>An independent third party program evaluation contractor will perform process and impact evaluations to ensure that the program is effectively implemented, that the program is achieving the expected savings, and to offer suggestions for improving the</p>																																					

effectiveness of the program, if warranted.

The process evaluation is expected to include a review of program objectives, implementation processes, data collection procedures, quality assurance methodologies, reporting timelines, and tracking of costs. The process evaluation is also expected to determine the primary drivers of customer satisfaction and customer engagement. The methods used for evaluating these customer satisfaction and engagement will likely be based on questionnaires delivered via telephone, mail or online surveys.

The impact evaluation is expected to determine the actual energy reductions achieved by the program, and provide cost/benefit analyses of the program both on historical and prospective bases.

The chosen implementation vendor is expected to capture participant information, perform energy reduction calculations, and provide detailed information, as specified to meet evaluation needs, back to I&M and I&M's independent third party evaluator. The evaluator is expected to work closely with the implementation vendor to ensure proper data collection, energy reduction calculation methodology, and reporting.

**Estimated Participation and Impacts**

Expected participation and associated estimated impacts for the program are provided in the table below.

<b>Res Weatherization</b>	<b>Per KWH Rate</b>	<b>2015</b>
Fixed Program Costs		
Vendor Fixed		\$555,550
Implementation & Other Annual Cost		\$16,763
DSM Staffing		\$30,238
Program Monitoring & Evaluation		\$85,998
Indirect Allocated		\$0
Total Fixed		\$688,549
Variable Program Costs		
Incentives (paid annually to participants)	\$0.14	\$462,433
Delivery & Other	\$0.18	\$606,301
<b>Total Budget</b>	<b>\$0.51</b>	<b>\$1,757,283</b>
Energy Savings (kWh)		3,425,430
Demand Savings (kW)		395
Participation		NA

<b>Program Budget</b>	Anticipated budget associated with this program is outlined in the tables provided above.											
<b>Cost Effectiveness Test Results</b>	<table border="1" data-bbox="380 407 1122 699"> <thead> <tr> <th data-bbox="380 407 763 499"></th> <th data-bbox="763 407 1122 499">Cost-Benefit Ratio</th> </tr> </thead> <tbody> <tr> <td data-bbox="380 499 763 552">Utility Test</td> <td data-bbox="763 499 1122 552">1.7</td> </tr> <tr> <td data-bbox="380 552 763 604">TRC Test</td> <td data-bbox="763 552 1122 604">1.7</td> </tr> <tr> <td data-bbox="380 604 763 657">RIM Test</td> <td data-bbox="763 604 1122 657">.5</td> </tr> <tr> <td data-bbox="380 657 763 699">Participant Test</td> <td data-bbox="763 657 1122 699">6.8</td> </tr> </tbody> </table>			Cost-Benefit Ratio	Utility Test	1.7	TRC Test	1.7	RIM Test	.5	Participant Test	6.8
	Cost-Benefit Ratio											
Utility Test	1.7											
TRC Test	1.7											
RIM Test	.5											
Participant Test	6.8											

## Commercial & Industrial (C&I) Custom Program - Indiana

<b>Objective:</b>	The C&I Custom Program will target non-prescriptive efficiency measure projects in the I&M Indiana C&I sector. Some commercial and institutional customers offer special opportunities for energy savings, either brought to I&M by the customer (or the customer's ESCO), or as identified by company account representatives and engineers. By providing up to a fifty percent "buy down," customer projects will be likely to move forward. Experience will show whether a fifty percent buy down is enough to attract projects. If this percentage proves too low (based on response to the program) the percentage buy down will be raised. The hurdle rate (payment for savings) for the program will be set to insure I&M only acquires cost-effective projects.
<b>Target Market:</b>	This program will be available to C&I, institutional, for-profit, and non-profit and public agencies (such as schools) in the I&M Indiana service territory will be eligible.
<b>Program Duration:</b>	The C&I Custom Program will be a program in I&M's 2015 C&I sector portfolio and is contemplated as continuing into 2016 and 2017.
<b>Program Description:</b>	<p>This program targets only commercial, industrial and institutional accounts. The program is a totally custom program, designed to develop exceptionally productive energy savings opportunities in cooperation with the customer. Each project will be specially designed. It is expected that projects will need to be carried out in narrow time windows as dictated by conditions specific to the customer's operations and that evaluation will consist primarily of short term instrumentation and spot metering. The hurdle rate for projects under this program will be set to insure only the most cost-effective projects are selected so as to insure cost recovery.</p> <p>This program will also have a component to support targeting commercial and institutional customers with a usage profile that indicates a possible high value from retro-commissioning. Although direct requests may also be received, typically the program begins off-site with a scan of billing records using EZ Sim or a similar tool. This screening process will select a pool of buildings for which it looks like retro-commissioning is highly likely to produce substantial energy savings. Building commissioning is a process that is associated with new buildings; a quality assurance process that is followed to facilitate new buildings performing as designed. Retro-commissioning applies a similar process to existing buildings. The goal is insure that a building operates efficiently and effectively. The focus of this program is in insuring efficient operation, rather than on upgrading equipment. The program conducts a low-cost "tuning" of electricity related building systems. The tuning typically involves control systems such as energy management systems that may be improperly programmed, or controls that are out of calibration. When problems are identified and demonstrated, they may have major economic effects. When this type of problem exists, retro-commissioning resolves such problems at low cost.</p>
<b>Incentive Strategy:</b>	The incentive is projected to be up to fifty percent of incremental measure cost.

<b>Eligible Measures:</b>	Eligible measures for this program include custom C&I efficiency projects that can include efficient lighting, lighting controls and systems, process improvements, and building retro commissioning.
<b>Implementation Strategy:</b>	I&M will implement this program through the use of an implementation vendor to interface, market, and support trade allies and C&I customers participating in this program.
<b>Marketing Strategy:</b>	I&M and its implementation vendor will perform marketing and outreach for this program via its website, direct mail, bill stuffers, umbrella marketing, and community event outreach efforts. This program will need to be continually advertised during its operations.
<b>Evaluation, Measurement &amp; Verification:</b>	<p>An independent third party program evaluation contractor will perform process and impact evaluations to ensure that the program is effectively implemented, that the program is achieving the expected savings, and to offer suggestions for improving the effectiveness of the program, if warranted.</p> <p>The process evaluation is expected to include a review of program objectives, implementation processes, data collection procedures, quality assurance methodologies, reporting timelines, and tracking of costs. The process evaluation is also expected to determine the primary drivers of customer satisfaction and customer engagement. The methods used for evaluating these customer satisfaction and engagement will likely be based on questionnaires delivered via telephone, mail or online surveys.</p> <p>The impact evaluation is expected to determine the actual energy reductions achieved by the program, and provide cost/benefit analyses of the program both on historical and prospective bases.</p> <p>The chosen implementation vendor is expected to capture participant information, perform energy reduction calculations, and provide detailed information, as specified to meet evaluation needs, back to I&amp;M and I&amp;M's independent third party evaluator. The evaluator is expected to work closely with the implementation vendor to ensure proper data collection, energy reduction calculation methodology, and reporting.</p>

**Estimated  
Participation  
and Impacts**

<b>C&amp;I Custom Component</b>	<b>Per KWH Rate</b>	<b>2015</b>
Fixed Program Costs		
Vendor Fixed		\$240,000
Implementation & Other Annual Cost		\$21,083
DSM Staffing		\$50,835
Program Monitoring & Evaluation		\$100,000
Indirect Allocated		\$0
Total Fixed		\$411,917
Variable Program Costs		
Incentives (paid annually to participants)	\$0.066	\$792,000
Delivery & Other	\$0.020	\$240,000
Total Budget	\$0.12	\$1,443,917
Energy Savings (kWh)		12,000,000
Demand Savings (kW)		1,752
Participation		80
<b>C&amp;I Retro Comm. Lite Component</b>	<b>Per KWH Rate</b>	<b>2015</b>
Fixed Program Costs		
Vendor Fixed		\$192,000
Implementation & Other Annual Cost		\$0
DSM Staffing		\$35,000
Program Monitoring & Evaluation		\$50,000
Indirect Allocated		\$0
Total Fixed		\$277,000
Variable Program Costs		
Incentives (paid annually to participants)	\$0.066	\$792,000
Delivery & Other	\$0.016	\$192,000
Total Budget	\$0.105	\$1,261,000
Energy Savings (kWh)		12,000,000
Demand Savings (kW)		3,269
Participation		NA

<b>Program Budget</b>	<p>Anticipated budget for each program component associated with this program is outlined in the tables provided above.</p> <p>Total Program Budget \$2,704,917  Total Program Energy Savings 24,000,000 kWh</p>										
<b>Overall Program Cost Effectiveness Test Results</b>	<table border="1" data-bbox="381 478 1122 772"> <thead> <tr> <th></th> <th>Cost-Benefit Ratio</th> </tr> </thead> <tbody> <tr> <td>Utility Test</td> <td>3.5</td> </tr> <tr> <td>TRC Test</td> <td>1.6</td> </tr> <tr> <td>RIM Test</td> <td>.6</td> </tr> <tr> <td>Participant Test</td> <td>2.5</td> </tr> </tbody> </table>		Cost-Benefit Ratio	Utility Test	3.5	TRC Test	1.6	RIM Test	.6	Participant Test	2.5
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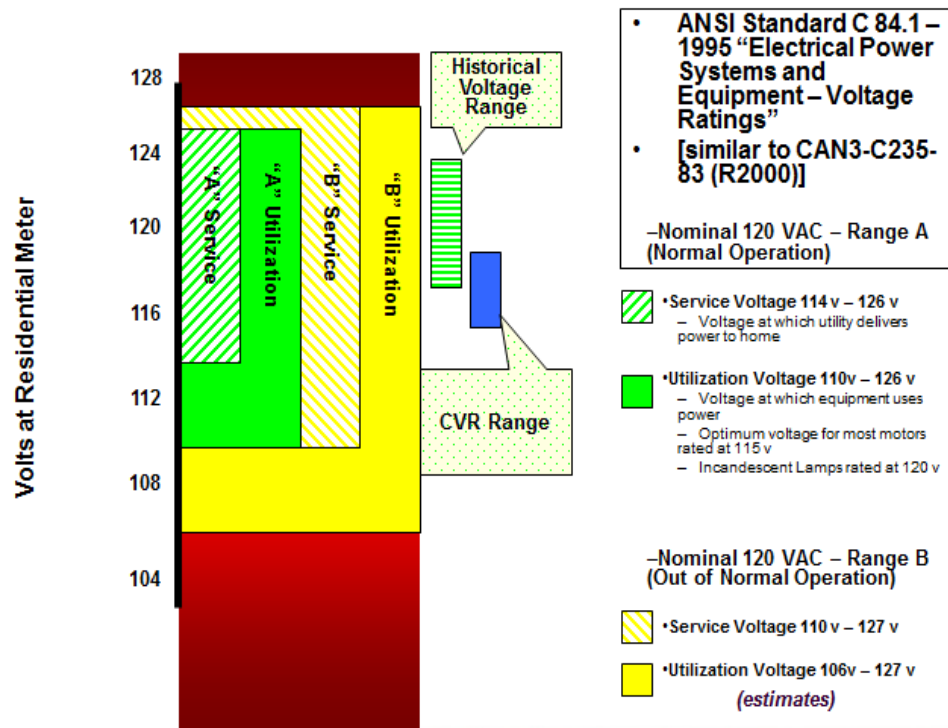
# Electric Energy Consumption Optimization (EECO) Program

## 1. PROGRAM DESCRIPTION

Electric Energy Consumption and Optimization (EECO) Program achieves energy conservation through automated monitoring and control of voltage levels provided on distribution circuits. End use customers realize lower energy and demand consumption when EECO is applied to the distribution circuit from which they are served.

A distribution circuit facilitates electric power transfer from an electric substation to utility meters located at electric customer premises. Electric power customers employ end-use electric devices (loads) that consume electrical power. At any point along a single distribution circuit, voltage levels vary based upon several parameters, mainly including, but not exclusive of, the actual electrical conductors that comprise the distribution circuit, the size and location of electric loads along the circuit, the type of end-use loads being served, the distance of loads from the power source, and losses incurred inherent to the distribution circuit itself.

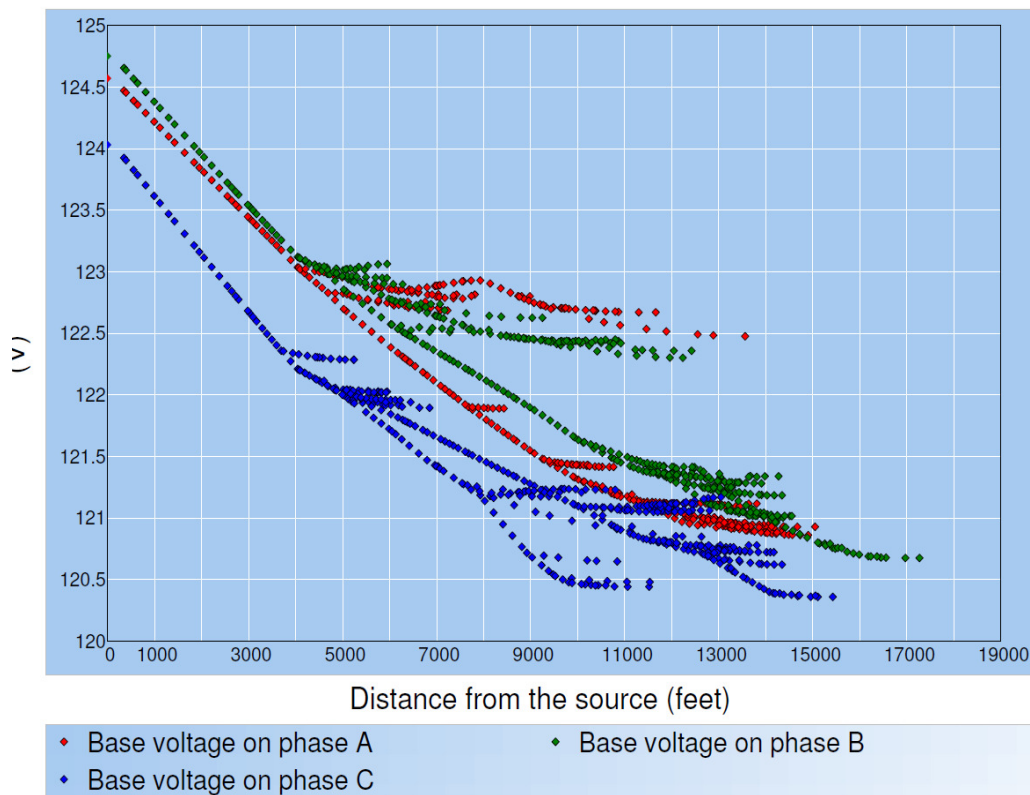
All end-use loads require certain voltage levels to operate and standards exist to regulate the levels of voltage delivered by utilities. In Indiana, I&M is required to maintain a steady state +/- 5% of the respective baseline level (120 volt baseline yields acceptable voltage range of 114 volts to 126 volts).



Historically, utilities including I&M, have set voltage levels near the upper limit at the distribution circuit source (substation) and have applied voltage support devices such as voltage regulators and capacitors along the circuit to assure that all customers are provided voltages within the required range. This basic design economically met the requirements by utilizing the full range (+/- 5%) of allowable voltages while only applying independent voltage support where needed. This basic design has worked well for many years. However, in the 1980's, utilities recognized that loads on the circuits would actually consume less energy if voltages in the lower portion of the acceptable range were provided. In fact, many utilities, including I&M, established emergency operating procedures to lower voltage at distribution substations by 5% during power shortage conditions. The recent focus on energy efficiency and the availability of technology that allows monitoring and tighter control of circuit voltage conditions has led to development of automated voltage control schemes which coordinate the operation of voltage support devices and allow more customers on the circuit to be served at voltages in the lower portion of the acceptable range.

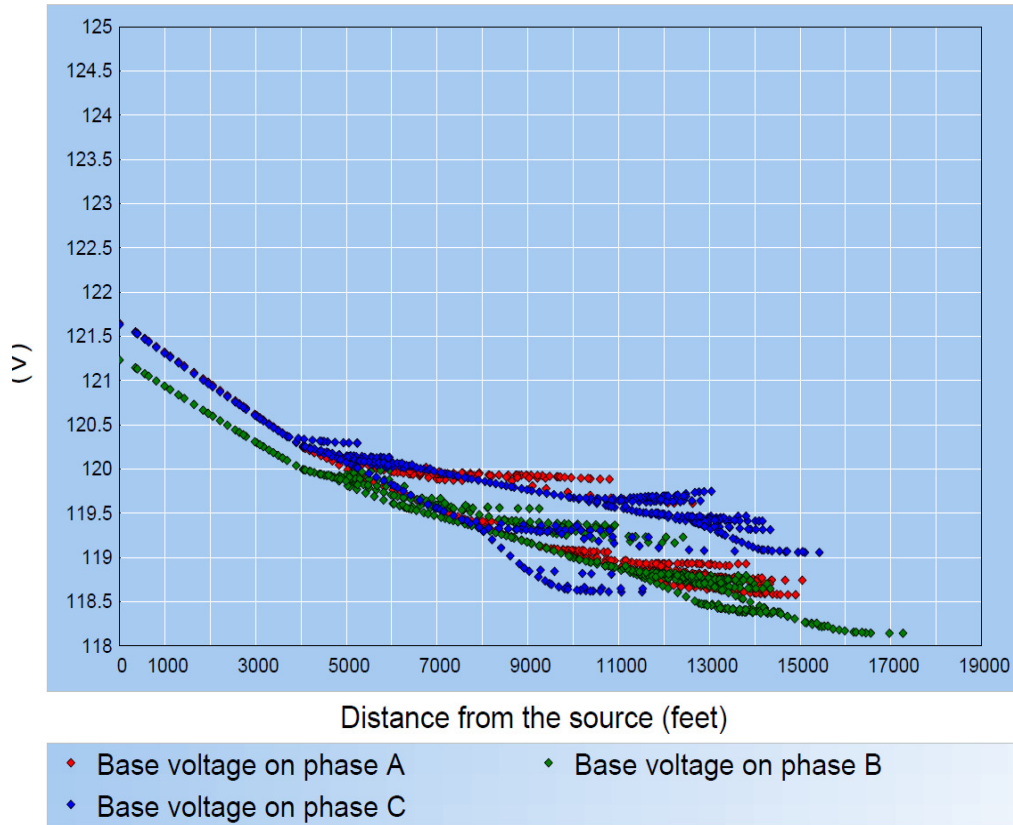
Industry studies have shown that certain end-use loads consume more power with higher voltage levels applied to them, resulting in less efficient operation than if rated voltage levels are applied. Additionally, when higher power consumption is experienced on a distribution circuit, the circuit itself experiences higher levels of system losses. The graphic below depicts a typical I&M distribution circuit during peak conditions where the voltage level (Y axis) deteriorates as distance (x-axis) increases from the source with an overall circuit voltage bandwidth of approximately 4.1 volts (124.5 volts minus 120.4 volts).

### Voltage Profile ( 4\_9335\_25\_HACIENDA )



Energy and demand reductions can be realized through the deployment of smart grid technology to a distribution circuit where the bandwidth of voltage is more tightly controlled along the entire length of the distribution circuit. End-use customers realize energy and demand reductions since most end-use devices become more efficient in power utilization when voltage more near name plate ratings (typically 115 volts) is applied. Reduced losses on the distribution circuit are also realized through reduced end-use power consumption. The graphic below is a model illustration of the voltage profile of the same distribution circuit during peak load conditions with tighter bandwidth voltage control applied where the new overall voltage bandwidth is approximately 3.3 volts (121.5 volts minus 118.2 volts).

## Voltage Profile ( 4\_9335\_25\_HACIENDA )



Independent measurement and verification has verified that, on average, a 1% reduction in voltage on distribution circuits translates into an approximate 1% reduction in end-use consumption (energy and demand) and distribution circuit losses (energy and demand). Of that 1% power consumption reduction at the circuit level, approximately 96% is end-use consumption reduction and 4% is loss reduction.

Electric Energy Consumption Optimization (EECO) Program (a/k/a Volt Var Optimization (VVO), or Conservation Voltage Reduction (CVR)) seeks the realization and attribution of energy and demand reductions on circuits where automated voltage control logic and near real time feedback loop voltage control has been applied. The application of EECO to a circuit creates automated voltage control zones where each zone has a specific voltage bandwidth profile dependent upon the specific load characteristics of the circuit. For some circuits, only one voltage zone is required, while for other circuits, more than one voltage zone may be required. The creation of tight bandwidth voltage control zones to a circuit causes energy and demand reductions to occur which can be expressed at an average voltage zone level which can then be summed to a yearly average circuit energy and demand reduction dependent upon the number of zones on the circuit, dependent upon the number of voltage control zones required for each circuit.

Energy and demand savings occur when EECO is applied to distribution circuits. Once applied, a step change in energy and demand consumption by customers is realized, dependent upon the where customer loads are located within the voltage zones, the load characteristics of the circuit, and how end-use loads respond to the voltage reduction. The resultant energy and demand consumption reduction persists at the new levels as long as tighter voltage bandwidth operation is applied. As a result, ongoing energy and demand savings persists for the duration of the life of the EECO equipment and as long as the equipment is maintained and operated in the voltage bandwidth mode.

## **2. PROGRAM RATIONALE**

EECO is both a demand side management and an energy conservation program. First, it seeks to cost effectively deploy new technology to targeted distribution circuits, in part to reduce the peak demand experienced on I&M's electrical power supply system. The voltage reduction stemming from the EECO program operates to effectively reduce consumption during the times in which system peaks are set and as a result directly reduces peak demand. EECO also cost effectively reduces the level of ongoing energy consumption by end-use devices located on the load side of the utility meter as many end-use devices consume less energy with lower voltages consistently applied. Continuous operation of EECO will yield the same yearly and ongoing energy consumption reduction required for energy conservation. As a result of EECO, both demand and energy consumption reduction will occur on I&M's power system through deliberate intervention by I&M and without any direct customer intervention.

EECO can be deployed cost effectively on I&M distribution circuits with average circuit loads as low as 4 MW. Circuits with average circuit loads equal to or greater than 4 MW are more cost effective, but in general circuits with average loads greater than 4 MW are cost effective under the Total Resource Cost (TRC) test. Due to the existing voltage control design of most I&M distribution substations, in order to maintain cost effectiveness, EECO will be applied based upon groups of circuits that share the same substation bus (electrical source common connection point).

With average voltage reductions per EECO circuit planned for 3%, up to an average 3% peak demand and 3% annual energy usage reduction per EECO circuit will occur.

## **3. PROGRAM PARTICIPATION**

During 2014 and the first quarter of 2015, I&M will install EECO equipment on twenty five (25) distribution circuits for operation during 2015. I&M will continue to operate the nine (9) EECO distribution circuits installed during 2012 and 2013.

The table below reflects the participants by station and customer class for I&M's 25 EECO circuits planned for 2015 operation.

Station_Name	# Res. Cust.	# Comm. Cust.	# Ind. Cust.	Res. kWh	Comm. kWh	Ind. kWh	Total Customers	Total kWh
CHURUBUSCO	1,287	264	30	15,781,848	8,454,297	22,265,519	1,581	46,556,063
EAST SIDE	9,398	621	9	83,037,598	49,165,819	2,406,263	10,028	135,288,512
ELCONA	1,814	250	102	17,517,401	12,406,931	67,778,506	2,166	98,054,398
GRABILL	2,450	363	31	35,693,222	16,070,603	12,295,387	2,844	64,172,800
HACIENDA	4,401	145	2	50,511,484	6,006,794	37,986	4,548	56,734,291
HARPER	3,078	366	21	34,178,609	21,764,100	18,143,436	3,465	74,796,506
SOUTH BEND	4,833	532	2	43,125,429	45,735,426	328,000	5,367	89,427,487
SPY RUN	1,618	276	13	11,813,221	18,377,159	47,728,740	1,907	77,999,824
SWANSON	7,178	264	0	92,539,158	14,114,572	0	7,442	106,769,060
Grand Total	36,057	3,081	210	384,197,970	192,095,702	170,983,837	39,348	749,798,941

**4. ELIGIBLE CUSTOMERS**

All Residential, Commercial, and Industrial customers served by circuits with EECO applied are eligible.

**5. INCENTIVES**

Customer incentives are not required for the EECO Program.

**6. IMPLEMENTATION PLAN**

A. Promotion

EECO will not require any program promotion.

B. Delivery

Delivery of the EECO Program will be achieved through the installation of control logic, telecommunication equipment, and voltage control equipment in order to control the voltage bandwidth on EECO circuits within voltage compliance levels required by the Indiana Utility Regulatory Commission. Equipment installed for the I&M EECO Pilot is installed, owned and operated by Indiana Michigan Power and is solely located on the source side (utility side) of the utility billing meter located on customer premises.

Control logic software located on a central server, cellular and/or mesh radio telecommunication equipment, electronic communicating voltage control equipment, and communicating voltage sensing equipment are components required for EECO program operation. Existing distribution circuits require engineering, planning, design and field construction to enable proper application of the program. Circuits are analyzed for existing voltage characteristics and re-designed for voltage zones where the tight voltage bandwidth required for EECO operation can be effectively maintained. Prior to full program operation, all EECO equipment is performance tested for verified continuous and consistent operation.

C. Quality Assurance

Indiana Michigan Power will routinely monitor the performance of EECO distribution circuits to ensure the technology remains in proper operating order and customer quality of service is ensured and maintained. Ongoing operation and maintenance expense supports quality assurance efforts.

**D. Evaluation**

Independent third-party evaluation, measurement and verification (EM&V) will be performed by I&M's DSM/EE EM&V Core Plus Program vendor. In general, the program evaluator will:

1. Verify the amount of peak demand reduction and yearly energy consumption from the program, including seasonality effects. Utility-grade metering will be used to quantify the average per-circuit energy and demand reduction on a distribution circuit basis. The EM&V vendor will utilize standard industry protocols and methods to verify the level of demand and energy savings realized at the load side of the customer utility meter, predominantly through a billing analysis methodology.
2. Assess the effectiveness of the program delivery mechanism including, but not limited to, program operation and processes.
3. Validate program cost-effectiveness based on the industry standard economic tests using the same I&M avoided cost information used to evaluate other I&M DSM/EE programs.
4. Quantify participant savings and net benefits.
5. Assess other operational benefits associated with EECO.

**7. TIMELINE**

Indiana EECO 2014 Core 1 - (4 Circuits)										
Phase	Start	Finish	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015
Planning	28-Apr-14	18-Jul-14								
Procurement	12-May-14	24-Oct-14								
Engineering	2-Jun-14	26-Sep-14								
Construction & Commissioning	4-Aug-14	2-Jan-15								
Indiana EECO 2014 Core 2 - (5 Circuits)										
Planning	28-Apr-14	18-Jul-14								
Procurement	19-May-14	28-Nov-14								
Engineering	23-Jun-14	26-Sep-14								
Construction & Commissioning	4-Aug-14	27-Sep-15								
Indiana EECO 2014 Core 3 (5 Circuits)										
Planning	19-May-14	29-Aug-14								
Procurement	19-May-14	19-Dec-14								
Engineering	7-Jul-14	26-Sep-14								
Construction & Commissioning	4-Aug-14	27-Mar-15								
Indiana EECO 2014 Core 4 - (5 Circuits)										
Planning	28-Apr-14	18-Jul-14								
Procurement	19-May-14	19-Dec-14								
Engineering	4-Aug-14	19-Nov-14								
Construction & Commissioning	1-Sep-14	27-Mar-15								
Indiana EECO 2014 Core 5 - (6 Circuits)										
Planning	19-May-14	29-Aug-14								
Procurement	2-Jun-14	30-Jan-15								
Engineering	4-Aug-14	19-Nov-14								
Construction & Commissioning	6-Oct-14	30-Apr-15								

**8. ESTIMATED ANNUAL BUDGET**

\$6.25 million for installation of EECO equipment for the 25 distribution circuits in I&M Indiana service territory. Recovery of associated carrying cost and

depreciation expense proposed for recovery through I&M's DSM Program Cost Rider.

Recovery for 2015 incremental operation and maintenance expense required for EECO operation, third party EM&V cost for the 2015 evaluation effort, and 2015 internal DSM/EE staff program oversight are proposed through I&M's DSM Program Cost Rider.

EM&V costs are for year of results.

Total annual O&M: \$187,500; incremental annual O&M: \$56,000

Annual EM&V: \$75,000

Annual DSM/EE Staff Program Oversight: \$60,885

In general, EECO equipment installation and testing expenses will occur in the year prior to full operation. As such, the associated energy and demand savings, O&M, DSM staff oversight, and EM&V expense, occur in the year of operation.

**9. EXPECTED ENERGY SAVINGS (KWh) and DEMAND SAVINGS (KW) BY SUBSTATION**

Total Annual Consumption by Substation:

Station_Name	Tot Station kWh	Total Station Peak kW
CHURUBUSCO	46,556,063	8,300
EAST SIDE	135,288,512	28,659
ELCONA	98,054,398	15,653
GRABILL	64,172,800	13,014
HACIENDA	56,734,291	13,198
HARPER	74,796,506	14,416
SOUTH BEND	89,427,487	18,171
SPY RUN	77,999,824	12,526
SWANSON	106,769,060	24,696
Grand Total	749,798,941	148,633



Estimated Annual Energy and Demand Savings Total for 25 additional 2015 circuits:

Annual Residential Consumption Affected Circuits			
Energy kWh	384,197,970		
Demand kW	92,627		
Annual Commercial Consumption Affected Circuits (includes Street Lighting)			
Energy kWh	192,095,702		
Demand kW	32,460		
Annual Industrial Consumption Affected Circuits			
Energy kWh	170,983,837		
Demand kW	23,546		
EECO Average Annual Energy Savings 3.2% of Prorated Available Consumption	20,033,038	EECO Average Annual Peak Demand Savings 3%	4,459
Res % Split based on load	51%		
C&I % Split based on load	49%		

**10. COST / BENEFIT ANALYSIS**

Benefit / cost ratios based on the best information available at the time of program design.

- a. Utility Cost = 2.1
- b. Total Resource Cost = 2.1
- c. Ratepayer Impact Measure = .6
- d. Participant = 2.5

## Residential Appliance Recycling Program - Indiana

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<b>Objective:</b>	This program targets residential customers with second refrigerators or freezers, preferably those older than 1993. The program is designed to take these inefficient older refrigerators off the market entirely, and to do so in an environmentally-sustainable manner. I&M will pay a \$40 incentive to each customer to help persuade them to get rid of the second refrigerator or freezer, and will also cover the cost associated with removing the refrigerator or freezer and recycling its components.
<b>Target Market:</b>	This program targets households with second refrigerators or freezers. The program will provide free refrigerator and/or freezer pick up. Once I&M receives verification that the refrigerator has been recycled, the customer will receive a \$40 incentive.
<b>Program Duration:</b>	The Appliance Recycling Program will be a program in I&M's 2015 residential sector portfolio and is contemplated as continuing into 2016 and 2017.
<b>Program Description:</b>	The recycling program improves the in-service technology mix for the service territory by removing energy hog appliances and deleting them from existence in an environmentally friendly way. Appliance recycling is available primarily through two national program vendors, both of which bring the necessary environmentally sound technologies and procedures to the program.
<b>Incentive Strategy:</b>	The Residential Appliance Recycling Program will provide participants with a \$40 incentive and no cost pick up and recycling of their working second refrigerator or freezer.
<b>Eligible Measures:</b>	Eligible measures for this program include secondary inefficient working refrigerators and freezers.
<b>Implementation Strategy:</b>	I&M will implement this program through the use of an implementation vendor to interface, market, provide incentives to customers and provide no additional cost pick up and environmentally friendly recycling of refrigerators and freezers.
<b>Marketing Strategy:</b>	I&M and its implementation vendor will perform marketing and outreach for this program via its website, direct mail, bill stuffers, umbrella marketing, and community event outreach efforts. This program will need to be continually advertised during its operations.
<b>Evaluation, Measurement &amp; Verification:</b>	<p>An independent third party program evaluation contractor will perform process and impact evaluations to ensure that the program is effectively implemented, that the program is achieving the expected savings, and to offer suggestions for improving the effectiveness of the program, if warranted.</p> <p>The process evaluation is expected to include a review of program objectives, implementation processes, data collection procedures, quality assurance methodologies, reporting timelines, and tracking of costs. The process evaluation is</p>

also expected to determine the primary drivers of customer satisfaction and customer engagement. The methods used for evaluating these customer satisfaction and engagement will likely be based on questionnaires delivered via telephone, mail or online surveys.

The impact evaluation is expected to determine the actual energy reductions achieved by the program, and provide cost/benefit analyses of the program both on historical and prospective bases.

The chosen implementation vendor is expected to capture participant information, perform energy reduction calculations, and provide detailed information, as specified to meet evaluation needs, back to I&M and I&M's independent third party evaluator. The evaluator is expected to work closely with the implementation vendor to ensure proper data collection, energy reduction calculation methodology, and reporting

**Estimated Participation and Impacts**

Expected participation and associated estimated impacts for the program are provided in the table below.

<b>Res Appliance Recycle</b>	<b>Per KWH Rate</b>	<b>2015</b>
Fixed Program Costs		
Vendor Fixed		\$0
Implementation & Other Annual Cost		\$24,993
DSM Staffing		\$43,960
Program Monitoring & Evaluation		\$112,467
Indirect Allocated		\$0
Total Fixed		\$181,420
Variable Program Costs		
Incentives (paid annually to participants)	\$0.039	\$108,040
Delivery & Other	\$0.128	\$359,233
Total Budget	\$0.23	\$648,693
Energy Savings (kWh)		2,800,000
Demand Savings (kW)		330
Participation		2,701

**Program Budget**

Anticipated budget associated with this program is outlined in the tables provided above.

**Cost Effectiveness Test Results**

	Cost-Benefit Ratio
Utility Test	1.2
TRC Test	1.3
RIM Test	.3
Participant Test	4.3

## Residential New Construction Program - Indiana

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<b>Objective:</b>	<p>The Indiana Michigan Power Residential New Construction program objective is to produce long-term cost-effective electric savings in the residential market sector for new homes built within the Indiana Michigan Power service territory in Indiana. Savings are achieved by training home builders on building practices designed to achieve the various HERS tiers along with strategies for incorporating the Silver, Gold and Platinum approach and energy efficiency message into their marketing efforts. Lower efficiency tiers and incentives are provided as stepping stones in the process of moving builders to higher efficiency tiers with higher incentives to achieve improved efficiency ratings. Builders will receive cash-back rebates structured to cover a portion of the incremental cost of building homes to meet the various efficiency tiers.</p> <p>The objectives of the Residential New Construction Program are to:</p> <ol style="list-style-type: none"> <li>1. Realize the construction of more efficient homes than current building code in the Indiana Michigan Power service territory residential market sector and to attribute electric energy savings to those new homes participating in the program.</li> <li>2. Educate builders on building energy efficiency best practices.</li> <li>3. Educate builders on opportunities to differentiate themselves by incorporating energy efficiency into their marketing strategy, making it a competitive issue to help move the new home construction market.</li> <li>4. Encourage equipment vendors and contractors to actively market energy efficient technologies to home builders.</li> </ol> <p>Through market-based activities, affect a long-term improvement in the market for energy efficient homes.</p>
<b>Target Market:</b>	Residential home builders who design and construct residential energy efficient single family homes located in I&M Indiana service territory.
<b>Program Duration:</b>	The Residential New Construction program will be a program in I&M's 2015 residential sector portfolio and is contemplated as continuing into 2016 and 2017.
<b>Program Description:</b>	<p>The Residential New Construction program will produce long-term electric energy savings by encouraging the construction of single family homes and duplexes that individually meet one of three performance levels defined by a HERS index score. The program will identify and recruit targeted builders who do not consistently (or seldom) build homes to exceed baseline building codes for energy efficiency. Builders who choose to participate in the program will gain access to cash-back incentives that range from 20 to 63 percent of the cost to upgrade and certify each home, depending upon the primary heating source for the home (gas or electric).</p> <p>Given the stringent requirements and extensive training required for builders and contractors to meet the various HERS index levels, the team expects to encounter market resistance as the market begins to move in a more efficient direction. I&amp;M will utilize a tiered HERS index level approach with I&amp;M Silver, I&amp;M Gold, and I&amp;M Platinum while implementing a comprehensive training program aimed at educating</p>

	builders and contractors on advanced home design and construction practices to encourage the new home construction market to improve energy efficiency beyond current building codes in Indiana (currently, IECC 2009).
<b>Incentive Strategy:</b>	The Residential New Construction Program will provide incentives to residential home builders who design residential energy efficient homes based on the HERs rating of the home at three different incentive levels that increase with lower HERs scores.
<b>Eligible Measures:</b>	New construction residential single family homes.
<b>Implementation Strategy:</b>	I&M will utilize an implementation vendor to implement this program who will be expected to educate, promote, and provide incentives to residential home builders in the I&M Indiana service territory to construct new homes to the HERs ratings levels that I&M provides incentives for.
<b>Marketing Strategy:</b>	<p>The target market for the program is home builders who build in the Indiana Michigan Power Company Indiana electric service territories. I&amp;M will promote the program through the following marketing channels:</p> <ol style="list-style-type: none"> <li>1. Direct mail campaign and trade ally rollout meetings (1 annually)</li> <li>2. Direct contact with Home Builders (At least 50, but driven by annual energy savings goal realization progress)</li> <li>3. Home builder advisory group meetings (1 meeting annually)</li> <li>4. Web-based marketing via the Indiana Michigan Power Company website (ongoing)</li> <li>5. Direct marketing to trade allies and builders.</li> <li>6. Advertising to home builders subject to Indiana Michigan Power Company approval (TBD)</li> </ol> <p>In addition to general marketing I&amp;M anticipates working with trade ally groups and home builder associations to promote the program.</p>
<b>Evaluation, Measurement &amp; Verification:</b>	<p>An independent third party program evaluation contractor will perform process and impact evaluations to ensure that the program is effectively implemented, that the program is achieving the expected savings, and to offer suggestions for improving the effectiveness of the program, if warranted.</p> <p>The process evaluation is expected to include a review of program objectives, implementation processes, data collection procedures, quality assurance methodologies, reporting timelines, and tracking of costs. The process evaluation is also expected to determine the primary drivers of customer satisfaction and customer engagement. The methods used for evaluating these customer satisfaction and engagement will likely be based on questionnaires delivered via telephone, mail or online surveys.</p> <p>The impact evaluation is expected to determine the actual energy reductions achieved by the program, and provide cost/benefit analyses of the program both on historical and prospective bases.</p>

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<b>Cost Effectiveness Test Results</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 40%;">Cost-Benefit Ratio</th> </tr> </thead> <tbody> <tr> <td>Utility Test</td> <td style="text-align: center;">1.6</td> </tr> <tr> <td>TRC Test</td> <td style="text-align: center;">1.6</td> </tr> <tr> <td>RIM Test</td> <td style="text-align: center;">.7</td> </tr> <tr> <td>Participant Test</td> <td style="text-align: center;">3.2</td> </tr> </tbody> </table>		Cost-Benefit Ratio	Utility Test	1.6	TRC Test	1.6	RIM Test	.7	Participant Test	3.2																																							
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## Residential Home Energy Reporting - Indiana

<b>Objective:</b>	Produce energy and cost savings in the residential consumer sector by engaging customers and encouraging them to change their energy-usage behavior. The Residential Home Energy Reporting program provides tailored information that equips the residential customer with the knowledge necessary to implement energy efficient measures and/or improvements relevant to their home. The implementation of these measures will produce energy savings because the focus is on changing customer behavior.
<b>Target Market:</b>	Residential customers located in Indiana purchasing retail electricity from Indiana Michigan Power Company (I&M) on a residential tariff. Those customers having internet access is preferred, but not required.
<b>Program Duration:</b>	The Residential Home Energy Reporting program will be a program in I&M’s 2015 residential sector portfolio and is contemplated as continuing into 2016 and 2017.
<b>Program Description:</b>	<p>The Residential Home Energy Reporting program will provide residential customers with valuable information to help them improve the energy efficiency in their homes and save on their monthly electric bills. Behavioral programs are becoming a common element of energy efficiency portfolios across the United States, helping residents save energy and money. The Residential Home Energy Reporting program aims to lower costs, over the long term, by reducing the need to supply more energy.</p> <p>I&amp;M anticipates approximately 1-2% savings in the annual energy use (kWh) from “engaged” customers participating in the program<sup>1</sup>. This is consistent with projected savings from various vendors that provide a home energy reporting solution.</p> <p>To be successful, research has shown that participants are more likely to become engaged and to change their energy-usage behavior if they are able to compare their energy usage to the energy usage of homes similar to their own. Research has indicated that even the most timely and detailed usage information presented in isolation, doesn’t prompt a significant number of users to change their energy-usage behavior. For this reason, the Residential Home Energy Reporting program which enables customers to track their actual usage over time, set goals, and compare their energy usage and energy saving actions with that of homes with similar characteristics (comparisons are done on the web, in paper format, or both) will have a greater impact on customers’ energy efficiency actions.</p> <p>Components of a Residential Home Energy Reporting program could include some or all of the following: paper mailers, contests, e-commerce capabilities, and ties to social networking platforms such as Facebook, Twitter, and others.</p>
<b>Incentive Strategy:</b>	The Residential Home Energy Reporting program will be offered to the customer as a no additional cost service. The program will be funded through I&M’s Demand-Side Management / Energy Efficiency Program Cost Rider for Indiana.

<sup>1</sup> A customer is considered “engaged” when they receive the printed mailer and choose to utilize the web-facing tool.

<b>Eligible Measures:</b>	Home Energy Reports informing selected customers of their energy savings performance and level of electric energy consumption.
<b>Implementation Strategy:</b>	<p>I&amp;M will select a geographic area within its service territory that includes a reasonable number of customers (~100,000) for maintaining program value.</p> <p>Within the selected customer population, customers will be divided into the participant group and a randomly selected control group which will not receive reports or have any special access to their energy usage data. Customers within the population that are not selected for either the participant group or the control group may have an option to opt-in to the program. The participant group will be mailed printed reports that may include the following information:</p> <ul style="list-style-type: none"> <li>• Comparison of current and historical electric usage levels to that of similar homes or groups of homes</li> <li>• Energy saving tips</li> <li>• Updates on progress toward any individual goals that were set</li> <li>• Information related to other I&amp;M Indiana energy efficiency and demand response program offerings</li> <li>• Instructions for accessing their energy usage data online</li> </ul> <p>Customers who elect to opt-in will not receive the printed reports via mail, but will have access to the web. Customers that opt-in will not be included in the participant group for reporting purposes. Similarly, if a customer in the control group learns of the program and elects to opt-in to the program, they will be removed from the control group for reporting purposes. All customer-specific data will be held confidential.</p> <p>Upon completion of each year of the program, an independent 3<sup>rd</sup> party evaluator will evaluate the impact on overall energy consumption, review consumer feedback and optimize I&amp;M's program delivery approach for future program years.</p>
<b>Marketing Strategy:</b>	<p>I&amp;M will work with the Residential Home Energy Reporting vendor to develop a marketing and communications plan to successfully implement the program. Due to the program targeting a subset of I&amp;M's customers, marketing activities will be geared towards initial customer engagement of targeted participants and reengagement of these same individuals, thereafter.</p> <p>I&amp;M's marketing involvement will be in more of an oversight role for the Residential Home Energy Reporting Program. Since the solution includes a vendor-developed paper mailer, initial program awareness should result from these efforts. I&amp;M will provide guidance on branding and other marketing-related attributes, but the majority of direct marketing will be performed by the selected vendor. In addition to paper mailers, an important communication channel for this target audience will be the web (AEP customer websites and e-mail) due to the ability to generate immediate action by offering a direct link to the Residential Home Energy Reporting site.</p>
<b>Evaluation,</b>	An independent third party program evaluation contractor will perform process and



<b>Measurement &amp; Verification:</b>	<p>impact evaluations to ensure that the program is effectively implemented, that the program is achieving the expected savings, and to offer suggestions for improving the effectiveness of the program, if warranted.</p> <p>The process evaluation is expected to include a review of program objectives, implementation processes, data collection procedures, quality assurance methodologies, reporting timelines, and tracking of costs. The process evaluation is also expected to determine the primary drivers of customer satisfaction and customer engagement. The methods used for evaluating these customer satisfaction and engagement will likely be based on questionnaires delivered via telephone, mail or online surveys.</p> <p>The impact evaluation is expected to determine the actual energy reductions achieved by the program, and provide cost/benefit analyses of the program both on historical and prospective bases.</p> <p>The chosen implementation vendor is expected to capture participant information, perform energy reduction calculations, and provide detailed information, as specified to meet evaluation needs, back to I&amp;M and I&amp;M's independent third party evaluator. The evaluator is expected to work closely with the implementation vendor to ensure proper data collection, energy reduction calculation methodology, and reporting.</p>																								
<b>Estimated Participation and Impacts</b>	<p>Expected participation and associated estimated impacts for the program are provided in the table below.</p> <table border="1" data-bbox="381 1136 1490 1287"> <tr> <td>2015 HERS Program</td> <td></td> </tr> <tr> <td>Participation</td> <td>145,000</td> </tr> <tr> <td>Energy Savings (kWh)</td> <td>33,000,000</td> </tr> <tr> <td>Demand Savings (kW)</td> <td>3,762</td> </tr> </table>	2015 HERS Program		Participation	145,000	Energy Savings (kWh)	33,000,000	Demand Savings (kW)	3,762																
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<b>Cost Effectiveness Test Results</b>		
		Cost-Benefit Ratio
	Utility Test	1.2
	TRC Test	1.2
	RIM Test	.4
Participant Test	NM	

## Residential Online Audit Program - Indiana

<b>Objective:</b>	<p>The program is open to all residential customers at no charge to provide easy access to energy efficiency recommendations tailored to the home. Since it is conducted via the internet, it can fit in a customer’s schedule, and provides an opportunity for all customers to participate. The program elements are an entry-level degree of customer engagement, providing a way for customers to begin to get direct information on what they can do to make their home more energy efficient.</p> <p>All homes will receive low-cost lighting measures for self-installation. Homes that identify as electrically heated will also receive water conservation measures.</p>
<b>Target Market:</b>	<p>This program will be available to all residential customers in the I&amp;M Indiana service territory regardless of heat source. Electric water heat customers will receive water measures in the kit as well.</p>
<b>Program Duration:</b>	<p>The Residential Online Audit Program will be a program in I&amp;M’s 2015 residential sector portfolio and is contemplated as continuing into 2016 and 2017.</p>
<b>Program Description:</b>	<p>This program provides an online tool available for all residences within the I&amp;M service territory. Individuals are invited to participate by modeling their residence’s equipment and typical household operations. Guidance is then given to the participant on potential energy efficiency activities or measures that might be useful in helping them to achieve greater efficiency within their home. Based on the survey results, a kit of low-cost measures is mailed to the participants for self-installation.</p>
<b>Incentive Strategy:</b>	<p>The Residential Online Audit Program will provide audit participants with an online audit and kits mailed to the home that provide energy efficiency measures at no additional cost.</p>
<b>Eligible Measures:</b>	<p>Energy efficient lighting including CFLs, an LED, and LED night lights; low flow faucet aerators and showerheads.</p>
<b>Implementation Strategy:</b>	<p>I&amp;M will implement this program through the use of vendors to provide for the online audit capability and kits mailed to homes of participants.</p>
<b>Marketing Strategy:</b>	<p>I&amp;M will perform marketing and outreach for this program via its website, umbrella marketing, and community event outreach efforts.</p> <p>This program will serve as a referral conduit to not only I&amp;M’s Residential EE Products and Residential Home Weatherization Programs but all residential sector programs.</p>

**Evaluation,  
Measurement  
& Verification:**

An independent third party program evaluation contractor will perform process and impact evaluations to ensure that the program is effectively implemented, that the program is achieving the expected savings, and to offer suggestions for improving the effectiveness of the program, if warranted.

The process evaluation is expected to include a review of program objectives, implementation processes, data collection procedures, quality assurance methodologies, reporting timelines, and tracking of costs. The process evaluation is also expected to determine the primary drivers of customer satisfaction and customer engagement. The methods used for evaluating these customer satisfaction and engagement will likely be based on questionnaires delivered via telephone, mail or online surveys.

The impact evaluation is expected to determine the actual energy reductions achieved by the program, and provide cost/benefit analyses of the program both on historical and prospective bases.

The chosen implementation vendor is expected to capture participant information, perform energy reduction calculations, and provide detailed information, as specified to meet evaluation needs, back to I&M and I&M's independent third party evaluator. The evaluator is expected to work closely with the implementation vendor to ensure proper data collection, energy reduction calculation methodology, and reporting

**Estimated  
Participation  
and Impacts**

Expected participation and associated estimated impacts for the program are provided in the table below.

Res Online Audit	Per KWH Rate	2015
Fixed Program Costs		
Vendor Fixed (Apogee)		\$17,010
Implementation & Other Annual Cost		\$5,000
DSM Staffing		\$69,863
Program Monitoring & Evaluation		\$46,000
Indirect Allocated		\$0
Total Fixed		\$137,873
Variable Program Costs		
Incentives (paid annually to participants)	\$0.065	\$252,335
Delivery & Other (Mailers)	\$0.074	\$286,578
<b>Total Budget</b>	<b>\$0.18</b>	<b>\$676,785</b>
Energy Savings (kWh)		3,865,320
Demand Savings (kW)		483
Participation		7,642

<b>Program Budget</b>	Anticipated budget associated with this program is outlined in the tables provided above.										
<b>Cost Effectiveness Test Results</b>	<table border="1"><thead><tr><th data-bbox="380 552 763 646"></th><th data-bbox="763 552 1122 646">Cost-Benefit Ratio</th></tr></thead><tbody><tr><td data-bbox="380 646 763 695">Utility Test</td><td data-bbox="763 646 1122 695">1.7</td></tr><tr><td data-bbox="380 695 763 743">TRC Test</td><td data-bbox="763 695 1122 743">1.7</td></tr><tr><td data-bbox="380 743 763 791">RIM Test</td><td data-bbox="763 743 1122 791">.4</td></tr><tr><td data-bbox="380 791 763 840">Participant Test</td><td data-bbox="763 791 1122 840">8.0</td></tr></tbody></table>		Cost-Benefit Ratio	Utility Test	1.7	TRC Test	1.7	RIM Test	.4	Participant Test	8.0
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TRC Test	1.7										
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Participant Test	8.0										

## **Commercial & Industrial (C&I) Audit & SBDI Program - Indiana**

<b>Objective:</b>	<p>There are consistent energy savings to be obtained from food service facilities (primarily restaurants) and the refrigeration end-use in grocery stores and supermarkets and small C&amp;I customers in the I&amp;M Indiana service territory.</p> <p>The program will also provide audits, prescriptive measures, and a small business direct install component (SBDI) to increase energy savings by offering specific services and incentives to small business customers in the I&amp;M service territory and accelerate implementation of proven, state-of-the-art energy efficiency measures. This program will allow small business customers to save energy and reduce demand when energy efficient enhancements are implemented. The enhanced program will encourage the adoption of state-of-the-art technologies, specifically commercially available LED style lighting.</p>
<b>Target Market:</b>	<p>This program will be available to C&amp;I, institutional, for-profit, and non-profit and public agencies (such as schools) in the I&amp;M Indiana service territory.</p> <p>The SBDI target market will include all small businesses less than 150kW in demand. Preference will be given to customers that have either already participated in the Audit Program or have no previous experience with any programs in the I&amp;M territory. These customers may include but are not limited to: restaurants, grocery, convenience stores/gas stations, barber shops, beauty salons, auto service shops/dealers, health services, membership organizations, banks, and hotels/motels.</p>
<b>Program Duration:</b>	<p>The C&amp;I Audit &amp; SBDI Program will be a program in I&amp;M's 2015 C&amp;I sector portfolio and is contemplated as continuing into 2016 and 2017.</p>
<b>Program Description:</b>	<p>This program is targeted to small commercial/retail establishments, food service facilities and grocery store/supermarkets. It consists of refrigeration casework improvements, improvements to refrigeration set-points to reduce load, restaurant commissioning audits (designed to optimize controls and limit energy losses in food service facilities) and a commercial LED bulb change out. The program will also serve as a feeder to the C&amp;I Prescriptive Program.</p> <p>The SBDI component of the program will offer direct install of prescriptive measures in small businesses that have less than 150 kW in demand. Incentives up to 70% of the incremental cost to install the measures will be provided through the program. The implementation vendor will qualify installation contractors and will coordinate data from projects with data collected for each measure incented and installed.</p>
<b>Incentive Strategy:</b>	<p>Payment for measure installation will be based on a targeted 70/30 split of total installed cost. Roughly 70% of the cost to be paid by the I&amp;M directly to the trade ally in the form of a set incentive amount and 30% to be paid by the customer directly to the trade ally. The incentive will be based on a set \$/kWh incentive values capped at 70% of the average total measure cost using the deemed savings associated with each measure.</p>
<b>Eligible</b>	

**Measures:**

Eligible measures for this program include C&I efficiency measures such as:

<b>Category</b>	<b>Measure Description</b>
Lighting	Incandescent to 13w CFL
Lighting	Incandescent to 23w CFL
Lighting	1 Lamp 4' 32w T8 to 1 Lamp 4ft HPT8 -- Relamp (2)
Lighting	2 Lamp 4' 32w T8 to 2 Lamp 4ft HPT8 -- Relamp (2)
Lighting	3 Lamp 4' 32w T8 to 3 Lamp 4ft HPT8 -- Relamp (2)
Lighting	4 Lamp 4' 32w T8 to 4 Lamp 4ft HPT8 -- Relamp (2)
Lighting	Occupancy Sensor -- Ceiling Mount
Lighting	Occupancy Sensor -- Wall Mount
Lighting	Incandescent to LED 12.5w (2)
Lighting	Incandescent to LED 17w (2)
Lighting	Incandescent to LED 13w -- Downlight (2)
Lighting	400w HID to 6 Lamp 4ft HOT8 (2)
Lighting	250w HID to 4L 4 ft HOT8 (2)
Lighting	LED Exit Sign Retrofit/Replacement
Lighting	LED Exit Sign Fixture with Battery Backup
Lighting	Incandescent to LED 40w Equivalent (2)
Lighting	Incandescent to LED 60w Equivalent (2)
Lighting	Incandescent to LED 75w Equivalent (2)
Lighting	Incandescent to LED 40w Equivalent -- Downlight(2)
Lighting	Incandescent to LED 60w Equivalent -- Downlight (2)
Lighting	Incandescent to LED 75w+ Equivalent -- Downlight(2)
Lighting	Outdoor: less than 175w HID to LED (2)
Lighting	Outdoor: 176w - 250w HID to LED (2)
Lighting	Outdoor: 251w - 400w HID to LED (2)
Lighting	Replace Exterior 1000w MH with LED
Lighting	Replace Exterior 400w MH with LED
Lighting	Replace Exterior 250w or less with LED
Lighting	LED Lighting within refrigerated space
Refrigeration	ECM - Reach In Cooler (3)
Refrigeration	ECM -- Walk-In Cooler (3)
Refrigeration	ECM - Reach In Freezer (3)
Refrigeration	ECM -- Walk In Freezer (3)
Refrigeration	Vending Machine Occ Sensor -- Refrigerated Glass Front Cooler
Refrigeration	Vending Machine Occ Sensor -- Refrigerated Beverage
Refrigeration	Install Strip Curtain -- Walk In Cooler
Refrigeration	Install Strip Curtain -- Walk In Freezer
Refrigeration	Refrigerated Display Case Lighting 5ft T8 to 5ft LED -- cooler
Refrigeration	Refrigerated Display Case Lighting 6ft T12 to 6ft LED -- cooler
Refrigeration	Refrigerated Display Case Lighting 5ft T8 to 5ft LED -- cfreezer
Refrigeration	Refrigerated Display Case Lighting 6ft T12 to 6ft LED -- cfreezer

	Refrigeration	Anti-sweat Heater Controls -- med. Temp case
	Refrigeration	Anti-sweat heater controls -- low temp case
	Refrigeration	Auto Door Closer -- Low temp reach-in
	Refrigeration	Auto Door Closer -- Medi temp reach-in
	Refrigeration	Auto Door Closers -- Low temp walk-in
	Refrigeration	Auto Door Closers -- Medium temp walk-in
	Refrigeration	Evaporator Fan Controls
	Refrigeration	Night Covers -- Vertical
	Refrigeration	Night Covers -- Horizontal
	Refrigeration	Add doors to open refrigeration cases
	Refrigeration	Floating Pressure Controls -- Air Cooled
	Refrigeration	Floating Pressure Controls -- Evaporatively Cooled
	Refrigeration	Floating Suction Controls -- Air Cooled
	Refrigeration	Floating Suction Controls -- Evaporatively Cooled
	Refrigeration	LED Case Lighting -- T8 to LED side bar
	Refrigeration	LED Case Lighting -- T12 to LED side bar
	Refrigeration	LED Case Lighting -- T8 to LED mullion (double)
	Refrigeration	LED Case Lighting -- T12 to LED mullion (double)
	Refrigeration	Motion Sensors on LED cases
	<b>Implementation Strategy:</b>	<p>I&amp;M will implement this program through the use of an implementation vendor to interface, market, and support trade allies and C&amp;I customers participating in this program.</p> <p>I&amp;M's implementation vendor will pre-screen a small group of qualified trade allies through which this program will be deployed. Trade ally qualification criteria for this program will include such items as reference checks, commitment to identifying holistic opportunities, standing with the current I&amp;M and geographic coverage. These trade allies will provide the necessary services to effectively implement the program and obtain the energy savings outlined below. Trade allies will be trained and certified in the use of a walk-through audit assessment tool that will be designed to identify and calculate savings and incentive values for measures included within the program. A potential engagement strategy will include paying the trade ally for performing the walk-through audit. The savings will be achieved within the identified not to exceed (NTE) budget levels shown while adhering to the budgetary constraints identified by I&amp;M. Key implementation aspects include:</p> <ul style="list-style-type: none"> <li>• I&amp;M customers that have participated in the existing I&amp;M Audit – Restaurant and Grocery program will be eligible for the Small Business Direct Install portion of the program. Depending on the level of uptake by these past participants, there may or may not be sufficient savings realized to achieve the goals shown below.</li> <li>• Additional outreach including outbound calling via local or remote resources or qualified trade allies will be made to eligible small business participants to determine their willingness to participate in an on-site visit for the installation of no cost / low cost energy efficiency products. The first \$200 in energy</li> </ul>



	<p>efficient upgrades would be provided at no charge to the customer via direct reimbursement to the trade ally upon submission of appropriate paperwork. The visit would include the creation of tailored energy report that would include recommended additional energy efficiency upgrades for the facility. These recommended measures would be taken from the SBDI measures list and installation could be immediately following the creation of the energy report or could be completed at a later date at the customers' convenience.</p> <ul style="list-style-type: none"> <li>• In-bound call (resulting from mass market or targeted marketing efforts) will also be encountered and will be handled similarly to the outbound calls discussed above.</li> <li>• Interested customers will be aligned with qualified regional trade allies in order to schedule the initial energy audit and subsequent installation of energy conservation measures (ECMs).</li> <li>• The initial on-site visit is expected to take an average of 30-60 minutes to complete the walk-through audit. During the audit the trade ally will collect the necessary facility information to develop the energy report. An exit briefing will be held with the appropriate customer contact to describe what no cost / low cost energy efficient products were installed during the visit, the estimated annual energy savings attributable to those products, and a review of the energy report indicating the recommended additional energy efficiency upgrades for the facility. The trade ally performing the walk-through audit will also discuss what additional energy efficiency equipment upgrades they may be eligible for from the other programs in the I&amp;M service territory.</li> <li>• If applicable, the trade ally will work with the customer to schedule the installation of additional energy efficient direct install equipment while still on site. If the customer cannot schedule at that time, the trade ally will provide a follow-up call to schedule this installation.</li> <li>• Additionally, the contact information of the other program contacts in their territory will be left with the customer, along with information about I&amp;M's other non-residential Programs.</li> </ul>
<p><b>Marketing Strategy:</b></p>	<p>I&amp;M and its implementation vendor will perform marketing and outreach for this program via its website, direct mail, bill stuffers, umbrella marketing, and community event outreach efforts.</p> <p>The marketing strategy will include an appropriate mix of direct outreach and targeted campaigns utilizing printed outreach (email, bill inserts, association publications, etc.). Marketing efforts will be conducted to the extent necessary to achieve the goal.</p>
<p><b>Evaluation, Measurement &amp; Verification:</b></p>	<p>An independent third party program evaluation contractor will perform process and impact evaluations to ensure that the program is effectively implemented, that the program is achieving the expected savings, and to offer suggestions for improving the effectiveness of the program, if warranted.</p> <p>The process evaluation is expected to include a review of program objectives, implementation processes, data collection procedures, quality assurance methodologies, reporting timelines, and tracking of costs. The process evaluation is</p>

also expected to determine the primary drivers of customer satisfaction and customer engagement. The methods used for evaluating these customer satisfaction and engagement will likely be based on questionnaires delivered via telephone, mail or online surveys.

The impact evaluation is expected to determine the actual energy reductions achieved by the program, and provide cost/benefit analyses of the program both on historical and prospective bases.

The chosen implementation vendor is expected to capture participant information, perform energy reduction calculations, and provide detailed information, as specified to meet evaluation needs, back to I&M and I&M's independent third party evaluator. The evaluator is expected to work closely with the implementation vendor to ensure proper data collection, energy reduction calculation methodology, and reporting.

**Estimated Participation and Impacts**

C&I Audit Component	Per KWH Rate	2015
Fixed Program Costs		
Vendor Fixed		\$0
Implementation & Other Annual Cost		\$25,000
DSM Staffing		\$17,466
Program Monitoring & Evaluation		\$22,500
Indirect Allocated		\$0
Total Fixed		\$64,966
Variable Program Costs		
Incentives (paid annually to participants)	\$0.045	\$64,385
Delivery & Other	\$0.025	\$35,626
Total Budget	\$0.12	\$164,976
Energy Savings (kWh)		1,430,770
Demand Savings (kW)		54
Participation		NA

<b>C&amp;I SBDI Component</b>	<b>Per KWH Rate</b>	<b>2015</b>
Fixed Program Costs		
Vendor Fixed		\$0
Implementation & Other Annual Cost		\$25,000
DSM Staffing		\$17,466
Program Monitoring & Evaluation		\$22,500
Indirect Allocated		\$0
Total Fixed		\$64,966
Variable Program Costs		
Incentives (paid annually to participants)	\$0.130	\$390,000
Delivery & Other	\$0.068	\$203,100
Total Budget		\$658,066
Energy Savings (kWh)		
		3,000,000
Demand Savings (kW)		
		295
Participation		
		NA

<b>C&amp;I Audit &amp; SBDI</b>	<b>Per KWH Rate</b>	<b>2015</b>
Fixed Program Costs		
Vendor Fixed		\$0
Implementation & Other Annual Cost		\$50,000
DSM Staffing		\$34,931
Program Monitoring & Evaluation		\$45,000
Indirect Allocated		\$0
Total Fixed		\$129,931
Variable Program Costs		
Incentives (paid annually to participants)	\$0.103	\$454,385
Delivery & Other	\$0.054	\$238,726
Total Budget		\$823,042
Energy Savings (kWh)		
		4,430,770
Demand Savings (kW)		
		348
Participation		
		NA

**Program Budget**

Anticipated budget associated with this program is outlined in the tables provided above.

**Cost**

<b>Effectiveness Test Results</b>		Cost-Benefit Ratio
	Utility Test	2.1
	TRC Test	1.2
	RIM Test	.4
	Participant Test	2.5

## Commercial & Industrial (C&I) Prescriptive Program - Indiana

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<b>Objective:</b>	Rebates are straightforward reimbursements of a portion of customer cost of specific rebated energy efficiency items. Many customers have concerns about the high first cost associated with some of the larger energy efficiency investments (e.g. HVAC systems or energy management systems). The incentives proposed will help remove that barrier.
<b>Target Market:</b>	This program will be available to C&I, institutional, for-profit, and non-profit and public agencies (such as schools) in the I&M Indiana service territory.
<b>Program Duration:</b>	The C&I Prescriptive Program will be a program in I&M's 2015 C&I sector portfolio and is contemplated as continuing into 2016 and 2017.
<b>Program Description:</b>	<p>This program targets non-residential customers eligible for prescriptive measures. These will include commercial, industrial, and institutional customers. For-profit, non-profit and public agencies (such as schools) will be included.</p> <p>Customers can either apply for rebates through this program through mail, email, or fax, or can participate through a trade alley that may apply for the rebate for the customer pending all application requirements are met.</p>
<b>Incentive Strategy:</b>	The Residential C&I Prescriptive Program will provide participants with a incentive through an application process where applications reflect the list of approved measures incented through the program.
<b>Eligible Measures:</b>	<p>Eligible measures for this program include:</p> <ul style="list-style-type: none"> <li>Efficient Lighting Equipment</li> <li>LED Exit Signs</li> <li>LED Traffic Lights (intersection)</li> <li>Efficient Package Refrigeration</li> <li>Efficient Food Prep and Holding Equipment</li> <li>ECM Motors (electrically commutated)</li> <li>Premium Efficiency Motors</li> <li>Energy Star Transformers</li> <li>Single Application Variable Speed Drives (VFDs)</li> <li>Vending Machine Energy Misers/Timers</li> <li>Window Film</li> </ul>
<b>Implementation Strategy:</b>	I&M will implement this program through the use of an implementation vendor to interface, market, and support trade allies and C&I customers participating in this program.
<b>Marketing Strategy:</b>	I&M and its implementation vendor will perform marketing and outreach for this program via its website, direct mail, bill stuffers, umbrella marketing, and community event outreach efforts. This program will need to be continually advertised during its operations.

<b>Evaluation, Measurement &amp; Verification:</b>	<p>An independent third party program evaluation contractor will perform process and impact evaluations to ensure that the program is effectively implemented, that the program is achieving the expected savings, and to offer suggestions for improving the effectiveness of the program, if warranted.</p> <p>The process evaluation is expected to include a review of program objectives, implementation processes, data collection procedures, quality assurance methodologies, reporting timelines, and tracking of costs. The process evaluation is also expected to determine the primary drivers of customer satisfaction and customer engagement. The methods used for evaluating these customer satisfaction and engagement will likely be based on questionnaires delivered via telephone, mail or online surveys.</p> <p>The impact evaluation is expected to determine the actual energy reductions achieved by the program, and provide cost/benefit analyses of the program both on historical and prospective bases.</p> <p>The chosen implementation vendor is expected to capture participant information, perform energy reduction calculations, and provide detailed information, as specified to meet evaluation needs, back to I&amp;M and I&amp;M's independent third party evaluator. The evaluator is expected to work closely with the implementation vendor to ensure proper data collection, energy reduction calculation methodology, and reporting.</p>																																																
<b>Estimated Participation and Impacts</b>	<p>Expected participation and associated estimated impacts for the program are provided in the table below.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 50%; text-align: left;">C&amp;I Prescriptive</th> <th style="width: 20%; text-align: center;">Per KWH Rate</th> <th style="width: 30%; text-align: center;">2015</th> </tr> </thead> <tbody> <tr> <td colspan="3">Fixed Program Costs</td> </tr> <tr> <td>Vendor Fixed</td> <td></td> <td style="text-align: right;">\$393,750</td> </tr> <tr> <td>    Implementation &amp; Other Annual Cost</td> <td></td> <td style="text-align: right;">\$40,645</td> </tr> <tr> <td>    DSM Staffing</td> <td></td> <td style="text-align: right;">\$88,202</td> </tr> <tr> <td>    Program Monitoring &amp; Evaluation</td> <td></td> <td style="text-align: right;">\$97,547</td> </tr> <tr> <td>    Indirect Allocated</td> <td></td> <td style="text-align: right;">\$0</td> </tr> <tr> <td>    Total Fixed</td> <td></td> <td style="text-align: right;">\$620,144</td> </tr> <tr> <td colspan="3">Variable Program Costs</td> </tr> <tr> <td>    Incentives (paid annually to participants)</td> <td style="text-align: center;">\$0.05</td> <td style="text-align: right;">\$1,750,000</td> </tr> <tr> <td>    Delivery &amp; Other</td> <td style="text-align: center;">\$0.0113</td> <td style="text-align: right;">\$393,750</td> </tr> <tr> <td><b>Total Budget</b></td> <td style="text-align: center;"><b>\$0.07</b></td> <td style="text-align: right;"><b>\$2,370,144</b></td> </tr> <tr> <td colspan="3"> </td> </tr> <tr> <td>Energy Savings (kWh)</td> <td></td> <td style="text-align: right;">35,000,000</td> </tr> <tr> <td>Demand Savings (kW)</td> <td></td> <td style="text-align: right;">5,600</td> </tr> <tr> <td>Participation</td> <td></td> <td style="text-align: center;">NA</td> </tr> </tbody> </table>	C&I Prescriptive	Per KWH Rate	2015	Fixed Program Costs			Vendor Fixed		\$393,750	Implementation & Other Annual Cost		\$40,645	DSM Staffing		\$88,202	Program Monitoring & Evaluation		\$97,547	Indirect Allocated		\$0	Total Fixed		\$620,144	Variable Program Costs			Incentives (paid annually to participants)	\$0.05	\$1,750,000	Delivery & Other	\$0.0113	\$393,750	<b>Total Budget</b>	<b>\$0.07</b>	<b>\$2,370,144</b>				Energy Savings (kWh)		35,000,000	Demand Savings (kW)		5,600	Participation		NA
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<b>Program Budget</b>	Anticipated budget associated with this program is outlined in the tables provided above.											
<b>Cost Effectiveness Test Results</b>	<table border="1" data-bbox="381 409 1209 682"> <thead> <tr> <th data-bbox="381 409 808 493"></th> <th data-bbox="808 409 1209 493">Cost-Benefit Ratio</th> </tr> </thead> <tbody> <tr> <td data-bbox="381 493 808 541">Utility Test</td> <td data-bbox="808 493 1209 541">10.1</td> </tr> <tr> <td data-bbox="381 541 808 590">TRC Test</td> <td data-bbox="808 541 1209 590">4.6</td> </tr> <tr> <td data-bbox="381 590 808 638">RIM Test</td> <td data-bbox="808 590 1209 638">.7</td> </tr> <tr> <td data-bbox="381 638 808 682">Participant Test</td> <td data-bbox="808 638 1209 682">5.3</td> </tr> </tbody> </table>			Cost-Benefit Ratio	Utility Test	10.1	TRC Test	4.6	RIM Test	.7	Participant Test	5.3
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Utility Test	10.1											
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EXHIBIT JCW-18: see Volume III



**Indiana Michigan Power Company - Indiana  
Demand Side Management - 2015 1 Year Plan  
I&M 2013 Integrated Resource Plan Table ES-1**

Exhibit ICW-19

**Table ES-1**

Indiana Michigan Power Company 2013 Integrated Resource Plan Cumulative Resource Changes (2014-2033)																
Preferred Portfolio																
IRP Yr.	PJM Plan Year <sup>(A)</sup>	(Cumulative) RETIREMENTS	(Cumulative) PJM <sup>(B)</sup> ADDITIONS							Resulting Cumul. NET CHANGE	Resulting I&M Reserve Margin	(Cumulative) NAMEPLATE <sup>(C)</sup> ADDITIONS				
		Coal	Coal Rerate	Nuclear Rerate	DSM (EE)		Wind <sup>(D)</sup>	Solar <sup>(E)</sup>				Wind	Solar			
		MW	MW	MW	Existing <sup>(F)</sup>	New	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW
1	2014 <sup>(B)</sup>	-	-	-	59	-	26	-	-	85	33.0%	(B)	200	-	-	
2	2015 <sup>(B)</sup>	(982) <sup>(C)</sup>	-	-	92	-	26	-	-	(864)	6.7%	(B)	200	-	-	
3	2016 <sup>(B)</sup>	(982)	-	-	121	-	26	-	4	(831)	11.5%	(B)	200	-	9	
4	2017	(982)	-	50	143	-	26	-	6	(757)	18.6%		200	-	15	
5	2018	(982)	36	50	163	-	26	-	8	(699)	19.9%		200	-	20	
6	2019	(982)	36	50	180	-	26	-	10	(683)	20.6%		200	-	25	
7	2020	(982)	72	50	194	19	26	19	12	(593)	23.3%		200	50	31	
8	2021	(982)	72	50	205	37	26	38	15	(539)	23.8%		200	100	40	
9	2022	(982)	72	50	214	50	26	57	19	(494)	24.3%		200	150	49	
10	2023	(982)	72	50	220	50	26	76	22	(466)	23.9%		200	200	59	
11	2024	(982)	72	50	224	76	26	95	26	(413)	25.3%		200	250	68	
12	2025	(982)	54	50	227	91	26	114	29	(391)	25.5%		200	300	77	
13	2026	(982)	54	50	228	114	39	133	33	(331)	26.2%		300	350	87	
14	2027	(982)	54	50	228	150	39	152	36	(273)	27.1%		300	400	96	
15	2028	(982)	36	50	227	121	39	171	40	(298)	26.0%		300	450	105	
16	2029	(982)	36	50	228	136	39	190	44	(259)	26.0%		300	500	115	
17	2030	(982)	36	50	228	164	39	209	47	(209)	26.5%		300	550	124	
18	2031	(982)	36	50	228	196	39	228	51	(154)	27.0%		300	600	133	
19	2032	(982)	36	50	227	232	39	247	54	(97)	28.1%		300	650	142	
20	2033	(982)	36	50	228	249	39	266	58	(56)	27.9%		300	700	152	
					477										852	
					TOTAL DSM								TOTAL Solar			

<sup>(A)</sup> PJM Planning Year is effective 6/1/XXXX.

<sup>(B)</sup> I&M collectively participated with affiliated AEP-East operating companies in these established PJM (Capacity) Planning Years, electing the Fixed Resource Requirement (FRR) ('self-)planning option through the 2016 PJM Planning Year. For purposes of this IRP only, beginning with the 2017 Planning Year I&M is assumed to be a 'stand-alone' entity.

<sup>(C)</sup> Tanners Creek Plant (Units 1-4) retirement effective approximately June 1, 2015, concurrent with implementation of U.S. EPA Mercury and Air Toxics Standards (MATS) Rules.

<sup>(D)</sup> Represents estimated contribution from current/known Indiana and Michigan program activity reflected in the Company's load and demand forecast.

<sup>(E)</sup> Due to the intermittency of wind resources, PJM initially recognizes 13% of wind resource 'nameplate' MW rating for ICAP determination purposes.

<sup>(F)</sup> Due to the intermittency of solar resources, PJM initially recognizes 38% of solar resource 'nameplate' MW rating for ICAP determination purposes.

**Indiana Michigan Power Company - Indiana  
Demand Side Management - 2015 DSM Plan  
2014 Program Forecast--Cause 43827 DSM 3**

Exhibit JCW-20

	<b>Direct Program Expenditures (\$)</b>	<b>Program Energy Savings (kWh)</b>
DSM Program		
Residential Lighting	\$1,545,042	16,542,202
Home Energy Audit	\$769,084	3,434,997
Income Qualified Weatherization	\$2,178,342	2,593,708
Energy Efficient Schools (Education & Audits)	\$586,561	2,015,432
C&I Prescriptive	\$6,904,320	35,578,622
<b>Core Program Total</b>	<b>\$11,983,348</b>	<b>60,164,961</b>
Residential Appliance Recycling	\$689,872	3,181,339
Residential Online Audit	\$338,585	735,892
Residential Home Energy Reports	\$553,275	7,517,350
Residential New Construction	\$206,931	236,432
Residential Weatherization	\$1,479,670	2,395,292
Residential Peak Reduction	\$1,694,201	0
Residential EE Products	\$757,736	2,293,183
C&I Custom	\$1,195,956	29,710,026
C&I Retro Commissioning Lite	\$1,425,732	28,489,293
C&I HVAC & Refrigeration	\$573,858	3,051,608
C&I Audit & SBDI	\$636,362	6,501,040
Renewables & Demonstrations	\$275,613	24,420
Electric Energy Consumption Optimization (EECO)		7,919,594
<b>Core Plus Program Total</b>	<b>\$9,827,791</b>	<b>92,055,468</b>
<b>DSM Program Portfolio Total</b>	<b>\$21,811,139</b>	<b>152,220,429</b>
<b>IURC Goal (kWh)</b>		<b>169,200,000</b>
<b>Forecast Annual Performance to Annual Goal (kWh)</b>		<b>-16,979,571</b>

**Indiana Michigan Power Company - Indiana  
Demand Side Management - 2015 DSM Plan  
Cause 43959 Program Performance**

Exhibit JCW-21

DSM Program	Direct Program Expenditures (\$)					Program Energy Savings (kWh)				
	2010 Actual	2011 Actual	2012 Actual	2013 Actual	Total	2010 Verified	2011 Verified*	2012 Verified**	2013 Verified***	Total
	Residential Lighting	\$224,862	\$1,152,506	\$1,396,072	\$1,078,698	\$3,852,138	9,285,627	35,867,940	15,230,938	21,487,684
Home Energy Audit	\$131,374	\$232,581	\$1,483,744	\$2,085,528	\$3,933,227	186,505	257,300	2,343,867	6,329,546	9,117,218
Income Qualified Weatherization	\$137,450	\$257,741	\$1,359,233	\$1,339,398	\$3,093,822	416,078	466,639	708,364	1,748,559	3,339,640
Energy Efficient Schools (Education & Audits)	\$30,964	\$167,484	\$628,568	\$860,717	\$1,687,733	4,067	424,437	1,954,715	3,838,811	6,222,030
C&I Prescriptive	\$323,648	\$1,400,498	\$2,944,191	\$16,573,985	\$21,242,322	5,833,273	31,497,865	27,346,169	86,378,457	151,055,764
<b>Core Program Totals</b>	<b>\$848,298</b>	<b>\$3,210,810</b>	<b>\$7,811,808</b>	<b>\$21,938,325</b>	<b>\$33,809,241</b>	<b>15,725,550</b>	<b>68,514,181</b>	<b>47,584,053</b>	<b>119,783,057</b>	<b>251,606,841</b>
Residential Appliance Recycling	\$331,955	\$443,481	\$467,967	\$677,111	\$1,920,514	4,002,832	3,021,235	2,387,879	3,963,874	13,375,820
Residential Online Audit	\$0	\$7,326	\$92,019	\$809,901	\$909,246	0	0	670,409	12,279,596	12,950,005
Residential Home Energy Reports	\$0	\$0	\$487,106	\$830,553	\$1,317,659	0	0	4,134,057	16,698,313	20,832,370
Residential New Construction	\$0	\$5,175	\$8,069	\$29,512	\$42,756	0	0	0	0	0
Residential Weatherization	\$0	\$105,121	\$60,897	\$326,633	\$492,651	0	454,153	16,710	50,919	521,782
Residential Peak Reduction	\$0	\$11,774	\$860,448	\$1,412,719	\$2,284,941	0	0	0	213,356	213,356
Residential Solar Siting	\$0	\$1,673	\$11,013	\$17,577	\$30,263	0	0	0	0	0
C&I Custom	\$6,271	\$132,143	\$899,047	\$2,749,086	\$3,786,547	0	0	5,568,645	34,529,508	40,098,153
C&I Retro Commissioning Lite	\$0	\$7,582	\$133,113	\$1,754,638	\$1,895,333	0	0	0	18,571,762	18,571,762
C&I HVAC & Refrigeration	\$0	\$7,554	\$47,901	\$52,788	\$108,243	0	0	0	0	0
C&I Audit	\$0	\$3,550	\$66,088	\$382,861	\$452,499	0	0	98,013	3,351,291	3,449,304
C&I New Construction	\$0	\$2,511	\$4,177	\$17,480	\$24,168	0	0	0	0	0
Renewables & Demonstrations	\$0	\$5,215	\$9,412	\$93,273	\$107,900	0	0	0	58,978	58,978
<b>Core Plus Program Totals</b>	<b>\$338,226</b>	<b>\$733,105</b>	<b>\$3,147,257</b>	<b>\$9,154,132</b>	<b>\$13,372,720</b>	<b>4,002,832</b>	<b>3,475,388</b>	<b>12,875,713</b>	<b>89,717,597</b>	<b>110,071,530</b>
<b>DSM Direct Program Portfolio Totals</b>	<b>\$1,186,524</b>	<b>\$3,943,915</b>	<b>\$10,959,065</b>	<b>\$31,092,457</b>	<b>\$47,181,961</b>	<b>19,728,382</b>	<b>71,989,569</b>	<b>60,459,766</b>	<b>209,500,654</b>	<b>361,678,371</b>
Staff Development & Professional Org.	\$13,459	\$21,360	\$30,156	\$62,716	\$127,691					
Computer System Development	\$859	\$12,055	\$191,757	\$242,382	\$447,053					
Marketing & Customer Awareness	\$50,389	\$65,267	\$255,797	\$349,757	\$721,210					
<b>DSM Indirect Program Totals</b>	<b>\$64,707</b>	<b>\$98,682</b>	<b>\$477,710</b>	<b>\$654,855</b>	<b>\$1,295,954</b>					
<b>DSM Portfolio Totals</b>	<b>\$1,251,231</b>	<b>\$4,042,597</b>	<b>\$11,436,775</b>	<b>\$31,747,312</b>	<b>\$48,477,915</b>					
<b>Portfolio Realization Rate (cents/verified kwh)</b>	<b>\$0.06</b>	<b>\$0.06</b>	<b>\$0.19</b>	<b>\$0.15</b>						

IURC Goal (kWh)	47,200,000	77,300,000	107,100,000	138,600,000	370,200,000
<b>Annual Performance to Annual Goal (kWh)</b>	<b>-27,471,618</b>	<b>-5,310,431</b>	<b>-46,640,234</b>	<b>70,900,654</b>	<b>-8,521,629</b>
<b>Cumulative Performance to Goal (kWh)</b>	<b>-27,471,618</b>	<b>-32,782,049</b>	<b>-79,422,283</b>	<b>-8,521,629</b>	

\*I&M administered 2011 Core Programs. The Statewide Third Party Administrator administered the 2012 and 2013 Core Programs.

\*\*\*2013 (PY 4) Draft EM&V Report Verified Savings, final reports not available at the time of this filing

\*\*Includes energy savings reported in January 2012 for I&M administered Core Programs during 2011 for Residential Lighting, Energy Efficient Schools, C&I Prescriptive Programs

**Indiana Michigan Power Company - Indiana  
Demand Side Management - 2015 DSM Plan  
2015 (PY 6) Net Lost Energy Savings**

Exhibit JCW-22

DSM Program	2015 PY 6 Current Year Measures Portion			2015 PY 6 Cumulative (Prior Year) Energy Savings Portion		
	DSM Program 2015 PY 6 Expected Energy Savings Current Year Measures (kWh)	PY 6 2015 Program Net to Gross Ratios (PY 4 Evaluated NTG Ratios)	Total Adjusted** 2015 PY 6 DSM Program Net Energy Savings Current Year Measures (kWh) 3 = (1 x .5) x 2	2010-2014 Cumulative Net Energy Savings (kWh)* 4	2014 PY 5 Forecast Net Energy Savings Full Year Measures in 2015 (kWh) 5	2015 PY 6 Net Lost Energy Savings 6 = 3 + 4 + 5
Residential Lighting (2010 - 2014)	0	49%	0	46,032,578	8,105,679	54,138,257
Residential EE Products	16,064,742	50%	4,039,441	0	0	4,039,441
Home Energy Audit (2010 - 2014)	0	89%	0	8,031,049	3,057,148	11,088,197
Residential Low Income Weatherization	1,018,912	100%	509,456	3,706,377	2,593,708	6,809,541
Schools Energy Education	1,730,874	97%	839,474	6,474,280	1,954,969	9,268,723
Residential Appliance Recycling	2,800,000	68%	952,000	9,134,742	2,163,311	12,250,053
Residential New Construction	731,022	100%	365,511	0	236,432	601,943
Residential Weatherization	3,425,430	91%	1,558,571	601,785	2,179,716	4,340,071
Residential Online Audit	3,865,320	85%	1,642,761	8,466,156	625,508	10,734,425
Residential Home Energy Reports	33,000,000	100%	16,500,000	9,232,263	7,517,350	33,249,613
Residential Peak Reduction	112,014	100%	56,007	0	0	56,007
C&I Prescriptive	35,000,000	80%	14,000,000	123,365,758	28,462,897	165,828,655
C&I Retro Commissioning Lite (2010 - 2014)	0		0	16,716,061	25,640,363	42,356,424
C&I Custom	24,000,000	96%	11,520,000	39,493,191	28,521,625	79,534,816
C&I Audit & SBDI	4,430,770	84%	1,860,923	3,878,652	5,460,874	11,200,449
Renewables & Demonstrations	0		0	17,860		17,860
Electric Energy Consumption Optimization (EECO) Residential***	14,371,293	100%	14,371,293	0	4,071,703	18,442,996
Electric Energy Consumption Optimization (EECO) C&I***	13,581,338	100%	13,581,338	0	3,847,891	17,429,230
<b>DSM Program Portfolio Total</b>	<b>154,131,716</b>		<b>81,796,776</b>	<b>275,150,752</b>	<b>124,439,173</b>	<b>481,386,701</b>
Residential			40,834,514	91,697,090	32,505,523	165,037,127
C&I			40,962,262	183,453,662	91,933,651	316,349,575

\*As accounted for through measure life tracking for measures installed as of Dec 31, 2013 but with life remaining in 2014; PY 1 Verified Net Savings adjusted by 1/2 to reflect energy savings accounted for in base rates placed into effect from Cause 44075 with a test year of March 2010 through April 2011.

\*\*Adjusted Net Lost Revenue adjusts reported annualized savings to account for measure installations that do not yield a full year's worth of energy savings, as agreed upon by I&M's Oversight Board.

\*\*\*EECO savings is presented as an average yearly savings where savings incurs savings from initiation date for duration of year, so full year savings occurs during first program year.

**INDIANA MICHIGAN POWER COMPANY**

**CAUSE NO. 44486**

**PRE-FILED VERIFIED DIRECT TESTIMONY**

**OF**

**DAVID M. ROUSH**

**PRE-FILED VERIFIED DIRECT TESTIMONY OF DAVID M. ROUSH  
ON BEHALF OF  
INDIANA MICHIGAN POWER COMPANY**

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

2 A. My name is David M. Roush. My business address is 1 Riverside Plaza,  
3 Columbus, Ohio 43215.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am employed by the American Electric Power Service Corporation (“AEPSC”)  
6 as Director-Regulated Pricing and Analysis. AEPSC supplies engineering,  
7 financing, accounting, and planning and advisory services to the subsidiaries of  
8 the American Electric Power (“AEP”) System, one of which is Indiana Michigan  
9 Power Company (“I&M” or “Company”).

10 **Q. Please briefly describe your educational and business experience.**

11 A. I graduated from The Ohio State University (OSU) in 1989 with a Bachelor of  
12 Science degree in mathematics and a computer and information science minor.  
13 In 1999, I earned a Master of Business Administration degree from The  
14 University of Dayton. I have completed both the EEI Electric Rate Fundamentals  
15 and Advanced Courses. In 2003, I completed the AEP/OSU Strategic  
16 Leadership Program. In 1989, I joined AEPSC as a Rate Assistant. Since that  
17 time I have progressed through various positions and was promoted to my  
18 current position of Director-Regulated Pricing and Analysis in June 2010.

19 **Q. Have you previously testified before any regulatory commissions?**

20 A. Yes. I have submitted testimony before the Indiana Utility Regulatory  
21 Commission (“IURC” or “Commission”), the Public Service Commission of

1 Kentucky, the Michigan Public Service Commission, the Public Service  
2 Commission of West Virginia and the Public Utilities Commission of Ohio. With  
3 respect to the IURC, I have testified in a number of Causes, including Cause  
4 Nos. 43769, 43959 and 43827 DSM 1 regarding I&M's Demand Side  
5 Management and Energy Efficiency Programs.

6 **Q. What is the purpose of your testimony in this proceeding?**

7 A. The purpose of my testimony is to explain the Company's proposals with respect  
8 to Program Cost recovery, Net Lost Revenue recovery and Shared Savings. I will  
9 also discuss the continued operation of the Demand-Side Management / Energy  
10 Efficiency (DSM/EE) Program Cost Rider (Rider).

11 **Q. What exhibits are you sponsoring?**

12 A. I am sponsoring the following exhibits:

13	Petitioner's Exhibit DMR-1	Summary of Program Costs
14	Petitioner's Exhibit DMR-2	Calculation of Net Lost Revenues
15	Petitioner's Exhibit DMR-3	Calculation of Shared Savings
16	Petitioner's Exhibit DMR-4	Sample Rider Rate Design

17 **Q. Were these exhibits prepared or assembled by you or under your direction  
18 and supervision?**

19 A. Yes.

20 **Q. Please provide a brief background regarding the Company's DSM/EE Rider.**

21 A. I&M currently has a DSM/EE Rider that includes Program Cost recovery, Net  
22 Lost Revenue recovery and Shared Savings. This Rider mechanism began with

1 the Commission's March 4, 2009 Order in Cause No. 43306 and has evolved  
2 over the course of several proceedings. As discussed by I&M witness Jon C.  
3 Walter, the Company's 2015 DSM Plan is different from previous plans as a  
4 result of the passage of Senate Enrolled Act No. 340.

5 **Q. Please summarize the Company's DSM/EE Rider proposals.**

6 A. The Company is proposing to collect Program Costs, Net Lost Revenues and  
7 Shared Savings through the DSM/EE Program Cost Rider. The Rider provides  
8 for a reconciliation of billing under the Rider to actual Program Costs, actual Net  
9 Lost Revenues and actual Shared Savings. Finally, I&M is requesting continued  
10 accounting authority to implement the recovery of Program Costs, Net Lost  
11 Revenues and Shared Savings and to account for any over-recovery or under-  
12 recovery as a regulatory liability or regulatory asset, respectively.

13 **Q. What DSM-related costs do the Commission's rules allow to be recovered**  
14 **by a utility?**

15 A. Rule 8 (170 IAC 4-8-1, *et seq.*) sets forth guidelines for DSM cost recovery.  
16 Pursuant to 170 IAC 4-8-5, a utility is entitled to recover the reasonable cost of  
17 planning and implementing a DSM program and lists several alternative cost  
18 recovery methodologies. Pursuant to 170 IAC 4-8-6, a utility is permitted to seek  
19 recovery of lost revenue resulting from the implementation of a DSM program.  
20 Pursuant to 170 IAC 4-8-7, a utility is permitted to propose a shareholder  
21 incentive to encourage participation in and promotion of a DSM program.

22 **Q. What level of Program Costs is the Company projecting for 2015?**



1 A. I&M witness Walter discusses in detail the projected programs and associated  
2 cost forecast for 2015. Petitioner's Exhibit DMR-1 summarizes the forecast 2015  
3 Program Costs from Petitioner's Exhibit JCW-1. For the purposes of the  
4 DSM/EE Program Cost Rider, the Company proposes to continue to allocate  
5 indirect Program Costs 75% to the residential classes and 25% to the  
6 commercial and industrial (C&I) classes. Further, the Company proposes to  
7 continue to allocate Electric Energy Consumption Optimization (EECO) Program  
8 Costs based upon the number of residential and C&I customers served by the  
9 distribution circuits where EECO equipment is installed. These methodologies  
10 continue to be reasonable and fairly allocate the costs among the customer  
11 classes.

12 **Q. Why is the Company requesting Net Lost Revenues and Shared Savings?**

13 A. DSM programs have many positive consequences, including reducing the use of  
14 fossil fuels, reducing emissions and delaying the need to construct generation in  
15 the future. However, the reduced customer usage that results from DSM  
16 programs leads to reduced revenue for the Company and thus reduced recovery  
17 of fixed costs during periods between basic rate cases. The recovery of Net Lost  
18 Revenues and Shared Savings, as further discussed below, helps to mitigate the  
19 negative consequences on the Company of offering DSM programs, while still  
20 providing significant benefits to the Company's customers.

21 **Q. What are Net Lost Revenues and how were they determined?**

22 A. Net lost revenues are the revenues lost less the costs saved as a result of a  
23 DSM program. As shown in Petitioner's Exhibit DMR-2, to determine Net Lost

1 Revenues, the net, verified kWh impacts of each program are multiplied by the  
2 average fixed cost per kWh for customers eligible for each program based upon  
3 I&M's current rates. The net lost energy savings provided by I&M witness Walter  
4 are verified through an evaluation, measurement and verification (EM&V)  
5 process which accounts for free-ridership and only includes incremental impacts  
6 since the Company's last basic rate proceeding (Cause No. 44075). The  
7 realizations that I&M is currently using and proposes to continue using were  
8 determined based upon the rates established in Cause No. 44075. To determine  
9 the realizations, revenues related to the customer charge, the basing point of fuel  
10 and all riders were deducted from total revenues to determine the Net Lost  
11 Revenue component.

12 **Q. What are Shared Savings?**

13 A. I&M considers Shared Savings as an incentive for the implementation of cost  
14 effective DSM programs. As described by the 'National Action Plan for Energy  
15 Efficiency'<sup>1</sup>, many jurisdictions acknowledge the need to include a utility return  
16 component comparable to the Shared Savings component proposed by the  
17 Company in order to make investments in energy efficiency programs  
18 comparable to supply-side alternatives from a utility financial perspective.

19 The proposed Shared Savings component shares the calculated net  
20 benefits for measurable DSM programs between customers and the Company.

21 The net benefit as calculated on a Utility Cost basis is the difference between the

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<sup>1</sup> "National Action Plan for Energy Efficiency Report," U.S. Department of Energy, U.S. Environmental Protection Agency, July 2006. [http://www.epa.gov/cleanenergy/documents/suca/napee\\_report.pdf](http://www.epa.gov/cleanenergy/documents/suca/napee_report.pdf) and "Aligning Utility Incentives with Investment in Energy Efficiency – A resource of the National Action Plan for Energy Efficiency," U.S. Department of Energy, U.S. Environmental Protection Agency, November 2007. <http://www.epa.gov/cleanenergy/documents/suca/incentives.pdf>

1 costs avoided by implementing the DSM programs (avoided electric capacity and  
2 energy) and the utility-incurred costs of the DSM programs (Program Costs).

3 As previously discussed, the programs included in the Shared Savings  
4 calculation have net lost energy savings which can be reasonably determined  
5 through the EM&V process and reflect the exclusion of free-riders.

6 **Q. Why is the Company using the Utility Cost Test to calculate net benefits?**

7 A. Use of the Utility Cost Test as the basis for net benefits in the Shared Savings  
8 calculations properly motivates the utility to control DSM program administrative  
9 costs and participant incentive costs. In contrast, the Total Resource Cost Test  
10 excludes the cost of incentives provided to participants.

11 Without a return based upon the Utility Cost effectiveness standard, a  
12 utility could institute highly attractive programs that meet the Total Resource Cost  
13 effectiveness standard while offering unnecessarily high participant incentives.  
14 Program effectiveness evaluation based upon the Total Resource Cost standard  
15 combined with a utility's return based upon the Utility Cost effectiveness standard  
16 will motivate the utility to control both administrative and participant incentive  
17 costs and thus the revenue requirement for all customers. Conversely, a major  
18 portion of the costs used in the Total Resource Cost Test, namely the cost of the  
19 energy efficiency measures, are outside of the control of the utility.

20 **Q. How were Shared Savings determined?**

21 A. The Company proposes a sharing mechanism wherein the Company receives,  
22 before taxes, 15% of the Shared Savings. The calculation of Shared Savings for  
23 the proposed programs, excluding the Low Income Weatherization program and

1 EECO program, is shown in Petitioner's Exhibit DMR-3. The Low Income  
2 Weatherization program is discussed by I&M witness Walter and the Company is  
3 not seeking Shared Savings on that program or the EECO program. The  
4 Company's share of the Shared Savings would be treated as above-the-line for  
5 ratemaking purposes and included in the earnings test under the fuel adjustment  
6 clause.

7 **Q. Please explain the calculation of future DSM/EE Program Cost Rider rates.**

8 A. As illustrated in Petitioner's Exhibit DMR-4, the costs for each program will be  
9 fully allocated to each class of customers. Specifically, the Residential costs are  
10 allocated to the residential tariff classes and the commercial and industrial costs  
11 are allocated to the commercial and industrial tariff classes, excluding non-  
12 metered customers and large industrial customers that opt-out. Indirect costs are  
13 allocated proportionally to all classes based upon the Program Costs. Costs  
14 related to the EECO program are allocated based upon the number of residential  
15 and C&I customers served by the distribution circuits where EECO equipment is  
16 installed.

17 In addition to Program Costs, the revenue requirement for the DSM/EE  
18 Program Cost Rider will include Net Lost Revenues, Shared Savings, an  
19 adjustment, if needed, based on the year-to-date experience for the current  
20 program year and a reconciliation of prior program years. Each of these  
21 components is shown in the illustration provided in Petitioner's Exhibit DMR-4.

22 **Q. Is the Company proposing to revise the Rider rates at this time?**

1 A. No, as discussed by I&M witness Walter, the Company will propose new rates at  
2 the time of its annual true-up/reconciliation proceeding. Petitioner's Exhibit DMR-  
3 4 is simply an illustration based upon the forecast program information for 2015  
4 included in this filing and uses the most recent allocation factor data and kWh for  
5 2014 from Cause No. 43827 DSM-3. The reconciliation components are shown  
6 as zero for purposes of this illustration.

7 **Q. How will subsequent Rider rates be established?**

8 A. Subsequent Rider rates shall be identified in I&M's annual DSM/EE Program  
9 Cost Rider proceedings at which time the Rider rates will be reconciled as  
10 provided in the DSM/EE Program Cost Rider. The reconciliation process will  
11 include a true-up of actual Program Cost expenditures and actual Net Lost  
12 Revenues and Shared Savings based upon achieved program participation. The  
13 reconciliation process will also recognize any necessary adjustments for  
14 customers that have opted-out. Deemed savings per participant for DSM  
15 programs would be adjusted prospectively, if warranted, for future participants.

16 **Q. Is the requested ratemaking treatment consistent with the Commission's**  
17 **rules?**

18 A. Yes. The Company's DSM/EE Program Cost Rider provides for the recovery of  
19 the cost incurred in excess of the cost that is included in basic rates. I&M has no  
20 DSM/EE costs included in basic rates. Further the DSM/EE Program Cost Rider  
21 provides for the recovery of Net Lost Revenues and Shared Savings which are  
22 both permissible under the Commission's rules. Lastly the DSM/EE Program

1 Cost Rider provides for a reconciliation of actual costs and actual collection  
2 under the Rider.

3 **Q. In your opinion is the ratemaking treatment proposed by the Company**  
4 **reasonable?**


5 A. Yes. The proposed ratemaking treatment is reasonable and consistent with the  
6 Commission's rules and places DSM/EE programs on a comparable basis with  
7 supply-side alternatives.

8 **Q. Does this conclude your pre-filed verified direct testimony?**

9 A. Yes, it does.

## VERIFICATION

I, David M. Roush, Director–Regulated Pricing and Analysis, for the American Electric Power Service Corporation (AEPSC), affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.



David M. Roush

Indiana Michigan Power Company - Indiana  
Forecast 2015 DSM/EE Programs  
Summary of Program Costs

**Exhibit JCW-1**

<u>Program</u> (1)	<u>Program Costs</u> (2)
Residential Lighting (2010 - 2014)	\$0
Residential EE Products	\$1,443,278
Residential Home Energy Audit (2010 - 2014)	\$0
Residential Low Income Weatherization	\$1,205,906
Schools Energy Education	\$348,803
Residential Appliance Recycling	\$648,693
Residential New Construction	\$492,422
Residential Weatherization	\$1,757,283
Residential Online Audit	\$676,785
Residential Home Energy Reports	\$1,448,875
Residential Peak Reduction	\$824,835
C&I Prescriptive	\$2,370,144
C&I Retro-Commissioning Lite (2010 - 2014)	\$0
C&I Custom	\$2,704,917
C&I Audit & SBDI	\$823,042
Residential EECO*	\$1,143,294
C&I EECO*	\$141,306
<b>Total All Programs</b>	<b>\$16,029,584</b>
Total Residential	\$9,990,175
Total C&I	\$6,039,409
Indirect Costs	\$905,000
<b>Total</b>	<b>\$16,934,584</b>

\* EECO Costs allocated by Number of EECO customers



Indiana Michigan Power Company - Indiana  
Forecast 2015 DSM/EE Programs  
Calculation of Net Lost Revenues

<u>Program</u> (1)	Net Lost Realization * (c/kWh) (2)	<b>Exhibit JCW-22</b>	
		<u>kWh</u> <u>Reduction</u> (3)	<u>Net Lost</u> <u>Revenue</u> (4)=(2)x(3)
Residential Lighting (2010 - 2014)	6.776	54,138,257	\$3,668,408
Residential EE Products	6.776	4,039,441	\$273,713
Residential Home Energy Audit (2010 - 2014)	6.776	11,088,197	\$751,336
Residential Low Income Weatherization	6.776	6,809,541	\$461,414
Schools Energy Education	6.776	9,268,723	\$628,049
Residential Appliance Recycling	6.776	12,250,053	\$830,064
Residential New Construction	6.776	601,943	\$40,788
Residential Weatherization	6.776	4,340,071	\$294,083
Residential Online Audit	6.776	10,734,425	\$727,365
Residential Home Energy Reports	6.776	33,249,613	\$2,252,994
Residential Peak Reduction	6.776	56,007	\$3,795
C&I Prescriptive	5.728	165,828,655	\$9,498,665
C&I Retro-Commissioning Lite (2010 - 2014)	5.728	42,356,424	\$2,426,176
C&I Custom	5.728	79,534,816	\$4,555,754
C&I Audit & SBDI	5.728	11,200,449	\$641,562
Residential EECO	6.776	18,442,996	\$1,249,697
C&I EECO	5.728	17,429,230	\$998,346
<b>Total All Programs</b>		<b>481,368,841</b>	<b>\$29,302,209</b>
Total Residential		165,019,267	\$11,181,706
Total C&I		316,349,574	\$18,120,503

\* Realization at current rates, excluding fuel, customer charges and riders

Indiana Michigan Power Company - Indiana  
Forecast 2015 DSM/EE Programs  
Calculation of Shared Savings

<u>Program</u> (1)	<b>Exhibit WKC-1</b> <u>Utility Cost Test</u> <u>Net Benefit</u> (2)	15% Pre-Tax Shared <u>Savings</u> (3)=(2)x15%
Residential Lighting (2010 - 2014)	N/A	*
Residential EE Products	\$2,488,468	
Residential Home Energy Audit (2010 - 2014)	N/A	*
Residential Low Income Weatherization	N/A	*
Schools Energy Education	\$187,453	
Residential Appliance Recycling	\$122,203	
Residential New Construction	\$317,349	
Residential Weatherization	\$1,294,552	
Residential Online Audit	\$522,113	
Residential Home Energy Reports	\$291,910	
Residential Peak Reduction	\$0	
Residential EECO	N/A	*
<b>Residential Sector Total</b>	<b>\$5,224,048</b>	<b>\$783,607</b>
C&I Prescriptive	\$22,897,408	
C&I Retro-Commissioning Lite (2010 - 2014)	N/A	*
C&I Custom	\$7,234,666	
C&I Audit & SBDI	\$931,333	
C&I EECO	N/A	*
<b>Commercial and Industrial Sector Total</b>	<b>\$31,063,406</b>	<b>\$4,659,511</b>
<b>Total</b>	<b>\$36,287,454</b>	<b>\$5,443,118</b>

\* Program not included in Shared Savings calculation

Indiana Michigan Power Company - Indiana  
DSM Program Costs, Indirect Program Costs, Net Lost Revenue, and Shared Savings  
Forecast Period Jan 1, 2015 through December 31, 2015 - Program Year 6  
Sample DSM/EE Program Cost Rider Rate Design

Program Description	Total Program Costs	RS	GS**	EHG	MS	WSS	IS	LGS	IP/IRP
<b>Section 1 - PY 6 DSM/EE Program Costs:</b>									
	<b>Exhibit DMR-1</b>								
Residential Lighting (2010 - 2014)	\$0	\$0							
Residential EE Products	\$1,443,278	\$1,443,278							
Residential Home Energy Audit (2010 - 2014)	\$0	\$0							
Residential Low Income Weatherization	\$1,205,906	\$1,205,906							
Schools Energy Education	\$348,803	\$348,803							
Residential Appliance Recycling	\$648,693	\$648,693							
Residential New Construction	\$492,422	\$492,422							
Residential Weatherization	\$1,757,283	\$1,757,283							
Residential Online Audit	\$676,785	\$676,785							
Residential Home Energy Reports	\$1,448,875	\$1,448,875							
Residential Peak Reduction	\$824,835	\$824,835							
Residential EECO*	\$1,143,294	\$1,143,294							
C&I Prescriptive	\$2,370,144		\$2,244,461	\$7,941	\$17,203	\$17,806	\$2,191	\$70,477	\$10,065
C&I Retro-Commissioning Lite (2010 - 2014)	\$0		\$0	\$0	\$0	\$0	\$0	\$0	\$0
C&I Custom	\$2,704,917		\$2,561,482	\$9,062	\$19,633	\$20,321	\$2,501	\$80,431	\$11,487
C&I Audit & SBDI	\$823,042		\$779,399	\$2,757	\$5,974	\$6,183	\$761	\$24,473	\$3,495
C&I EECO*	\$141,306		\$133,812	\$473	\$1,026	\$1,062	\$131	\$4,202	\$600
<b>Total Direct Program Costs</b>	<b>\$16,029,584</b>	<b>\$9,990,175</b>	<b>\$5,719,154</b>	<b>\$20,233</b>	<b>\$43,836</b>	<b>\$45,372</b>	<b>\$5,584</b>	<b>\$179,583</b>	<b>\$25,647</b>
<b>Indirect Program Costs:</b>									
<b>Total Indirect Program Costs</b>	<b>\$905,000</b>	<b>\$564,026</b>	<b>\$322,893</b>	<b>\$1,142</b>	<b>\$2,475</b>	<b>\$2,562</b>	<b>\$315</b>	<b>\$10,139</b>	<b>\$1,448</b>
<b>Total PY 6 Direct &amp; Indirect Program Costs</b>	<b>\$16,934,584</b>	<b>\$10,554,201</b>	<b>\$6,042,047</b>	<b>\$21,375</b>	<b>\$46,311</b>	<b>\$47,934</b>	<b>\$5,899</b>	<b>\$189,722</b>	<b>\$27,095</b>

Indiana Michigan Power Company - Indiana  
DSM Program Costs, Indirect Program Costs, Net Lost Revenue, and Shared Savings  
Forecast Period Jan 1, 2015 through December 31, 2015 - Program Year 6  
Sample DSM/EE Program Cost Rider Rate Design

Program Description	Total Program Costs	RS	GS**	EHG	MS	WSS	IS	LGS	IP/IRP
<b>Total PY 6 Direct &amp; Indirect Program Costs</b>	\$16,934,584	\$10,554,201	\$6,042,047	\$21,375	\$46,311	\$47,934	\$5,899	\$189,722	\$27,095
<b>Section 2 - PY 6 Net Lost Revenues:</b>									
Residential	<b>Exhibit DMR-2</b> \$11,181,706	\$11,181,706							
C&I	\$18,120,503		\$17,159,624	\$60,708	\$131,521	\$136,131	\$16,752	\$538,816	\$76,951
<b>Total Net Lost Revenues</b>	<b>\$29,302,209</b>	<b>\$11,181,706</b>	<b>\$17,159,624</b>	<b>\$60,708</b>	<b>\$131,521</b>	<b>\$136,131</b>	<b>\$16,752</b>	<b>\$538,816</b>	<b>\$76,951</b>
<b>Section 3 - PY 6 Shared Savings:</b>									
Residential	<b>Exhibit DMR-3</b> \$783,607	\$783,607							
C&I	\$4,659,511		\$4,412,430	\$15,611	\$33,819	\$35,005	\$4,308	\$138,551	\$19,787
<b>Total Shared Savings</b>	<b>\$5,443,118</b>	<b>\$783,607</b>	<b>\$4,412,430</b>	<b>\$15,611</b>	<b>\$33,819</b>	<b>\$35,005</b>	<b>\$4,308</b>	<b>\$138,551</b>	<b>\$19,787</b>
<b>Section 4 - PY 5 Forecasted True-up</b>									
<b>PY 5 Program Cost, Net Lost Revenues, Shared Savings:</b>									
Residential	<b>Exhibit XX</b> \$0	\$0							
C&I	-		-	-	-	-	-	-	-
<b>Total PY 5 Forecasted True-up</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Section 5 - PY X Rider Reconciliation:</b>									
Residential	<b>Exhibit XX</b> -	-							
C&I	-		-	-	-	-	-	-	-
<b>Total PY X Reconciliation</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Total DSM Costs (All Components)</b>	<b>\$51,679,911</b>	<b>\$22,519,514</b>	<b>\$27,614,101</b>	<b>\$97,694</b>	<b>\$211,651</b>	<b>\$219,070</b>	<b>\$26,959</b>	<b>\$867,089</b>	<b>\$123,833</b>

Indiana Michigan Power Company - Indiana  
DSM Program Costs, Indirect Program Costs, Net Lost Revenue, and Shared Savings  
Forecast Period Jan 1, 2015 through December 31, 2015 - Program Year 6  
Sample DSM/EE Program Cost Rider Rate Design

Program Description	Total Program Costs	RS	GS**	EHG	MS	WSS	IS	LGS	IP/IRP
<b>Total DSM Costs</b>	\$51,679,911	\$22,519,514	\$27,614,101	\$97,694	\$211,651	\$219,070	\$26,959	\$867,089	\$123,833
<b>Rate Design:</b>	Total	RS	GS**	EHG	MS	WSS	IS	LGS	IP/IRP
KWH (excluding opt-out customer kWh)	13,338,230,607	4,414,827,368	2,749,516,674	9,503,293	39,259,717	142,295,051	1,284,539	1,663,323,965	4,318,220,000
Rider Factor (\$/kWh)		\$0.005101	\$0.010043	\$0.010280	\$0.005391	\$0.001542	\$0.020987	\$0.000521	\$0.000029
<b>Proposed Rider Factor (\$/kWh)</b>		<b>\$0.005101</b>	<b>\$0.010043</b>	<b>\$0.010280</b>	<b>\$0.005391</b>	<b>\$0.001542</b>	<b>\$0.020987</b>	<b>\$0.000521</b>	<b>\$0.000029</b>
Revenue Verification	\$51,680,971	\$22,520,034	\$27,613,396	\$97,694	\$211,649	\$219,419	\$26,959	\$866,592	\$125,228
Revenue Verification Difference	1,060	520	(705)	(0)	(2)	349	(0)	(497)	1,395

\*EECO Costs allocated by Number of EECO customers

\*\*GS excludes Non-Metered Customers

<u>Allocation Basis (Number of Applicable Customers)</u>	RS	GS**	EHG	MS	WSS	IS	LGS	IP/IRP
Residential	4,776,659							
Commercial & Industrial (C&I) - All Customers		640,218	2,265	4,907	5,079	625	20,103	2,871
Less: Opt-out Customers		0	0	0	0	0	0	0
Commercial & Industrial (C&I) - Excluding Opt-Out		640,218	2,265	4,907	5,079	625	20,103	2,871

<u>EECO Allocation Basis (Number of Applicable Customers)</u>	RS	Total C&I	Total EECO
Residential	11,844		
Commercial & Industrial (C&I)		1,475	
Total			13,319
% of Total	89%	11%	100%

**INDIANA MICHIGAN POWER COMPANY**

**CAUSE NO. 44486**

**PRE-FILED VERIFIED DIRECT TESTIMONY**

**OF**

**WILLIAM K. CASTLE**

**PRE-FILED VERIFIED DIRECT TESTIMONY OF WILLIAM K. CASTLE  
ON BEHALF OF  
INDIANA MICHIGAN POWER COMPANY**

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

2 A. My name is William K. Castle. My business address is One Riverside Plaza,  
3 Columbus, Ohio 43215.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am Director of Resource Planning and DSM for American Electric Power  
6 Service Corporation (AEPSC), the service company affiliate of Indiana Michigan  
7 Power Company (I&M or Company).

8 **Q. Please briefly describe your educational and business experience.**

9 A. I received a Bachelor of Science in Mechanical Engineering degree from Tulane  
10 University in 1988, and a Masters of Business Administration from the University  
11 of Texas – Austin in 1998. I hold the Chartered Financial Analyst (CFA)  
12 designation. I have worked in the utility industry since 1998, beginning with the  
13 Columbia Energy Group, Herndon, Virginia, where I held positions in financial  
14 planning and corporate finance. Subsequent to the acquisition of Columbia  
15 Energy Group by Merrillville, Indiana based NiSource in 2000, I performed  
16 financial planning and analysis functions. Since 2004 I have been employed by  
17 AEP Service Corporation (AEPSC) in Corporate Planning and Budgeting.  
18 Assignments in my current capacity include resource planning and demand-side  
19 management (DSM) analysis.

20 **Q. Have you previously testified before the Indiana Utility Regulatory**  
21 **Commission?**

1 A. Yes. I previously testified in Cause No. 43306, an I&M rate proceeding and in  
2 Cause Nos. 43769 and 43827 DSM-3, regarding I&M's Demand Side  
3 Management and Energy Efficiency Programs.

4 **Q. What is the purpose of your testimony in this proceeding?**

5 A. The purpose of my testimony is to calculate the standard cost-effectiveness tests  
6 and net benefits for the proposed 2015 I&M DSM Portfolio (2015 Portfolio or  
7 2015 DSM Plan). In addition, I perform a sensitivity analysis around key  
8 variables.

9 **Q. What exhibits are you sponsoring?**

10 A. I am sponsoring Petitioner's Exhibit WKC-1 which shows the cost benefit test  
11 results and the utility net benefits that can be expected to result for the 2015  
12 Portfolio, and Petitioner's Exhibit WKC-2 which demonstrates the sensitivity of  
13 the portfolio to key variables. Additionally, I will provide work papers supporting  
14 my testimony.

15 **Q. Were these exhibits prepared by you?**

16 A. Yes.

17 **Q. Did you calculate these scores using the same methodology you utilized in  
18 Cause Nos. 43769 and 43827 DSM-3?**

19 A. Yes.

20 **Q. Is there an industry standard methodology to determine the cost  
21 effectiveness of DSM programs and measures?**

22 A. Yes. DSM programs and measures are typically evaluated with one or more  
23 standard economic tests. The four main tests are the Ratepayer Impact Measure  
24 (RIM), Total Resource Cost (TRC), Program Administrator Cost (also called the



1 Utility Cost), and the Participant test. The Commission's DSM Rules include these  
2 tests. These tests are reproduced from the California Standard Practice Manual  
3 which has been in use since 1983 and revised most recently in 2001. The tests are  
4 widely accepted in the industry as the basis for describing the economic merits of  
5 DSM programs from various perspectives.

6 **Q. Please discuss the inputs and assumptions used in the cost-effectiveness**  
7 **analysis of the DSM Programs.**

8 A. The projected annual energy and demand impacts, program budgets, and  
9 energy and demand savings for the 2015 Portfolio are provided in the work  
10 papers. A decomposition of the program budget, including estimated EM&V  
11 costs, and formulae used to determine the (present value of) cost and benefits is  
12 also included in electronic work papers. The avoided costs assumptions are  
13 developed by the Fundamentals group of AEP Service Corporation. These  
14 avoided costs approximate the marginal cost of capacity and energy within the  
15 PJM RTO that I&M operates in. Implicit in the estimates for avoided costs are  
16 the costs of compliance with environmental mandates, including possible future  
17 CO<sub>2</sub> regulation, beginning in 2022.

18 Estimates of measure costs and program impacts are consistent with the  
19 Indiana Technical Resource Manual (TRM) or vendor-supplied estimates, if the  
20 information is not specified in the TRM. Additionally, program costs, including  
21 incentive levels were also estimated by I&M and are informed by actual results  
22 and costs being seen in I&M's service territory.

23 **Q. What are the cost benefit results?**

1 A. As can be seen in Petitioner's Exhibit WKC-1, the Proposed Portfolio of  
2 programs has a TRC of 2.1.

3 **Q. Is the Proposed Portfolio Cost-effective from a TRC perspective?**

4 A. Yes, while the portfolio consists of multiple programs with varying degrees of  
5 cost-effectiveness, an aggregate score at or above 1.0 indicate that the benefits  
6 are at least equal to the costs, in total. The two programs in the 2015 Portfolio  
7 that do not achieve that distinction are the Residential Low Income  
8 Weatherization program and the Residential Peak Reduction program. Company  
9 witness Walter discusses the reasons why it is reasonable to retain these  
10 programs.

11 **Q. Are there any differences in the 2015 Portfolio from the 2014 Portfolio filed  
12 in Cause No. 43827 DSM-3 that have materially impacted cost-  
13 effectiveness?**

14 A. Yes, the 2015 Portfolio excludes some of the less cost-effective programs as well  
15 as reflecting changes in the measure mix and delivery methods of other  
16 programs. Programs such as Residential EE Products and C&I Prescriptive are  
17 modeled with assumptions that better reflect the mix of measures, costs to  
18 administer programs, and participant incentive levels that are currently being  
19 realized. Significant adjustments to the C&I Custom program assumptions have  
20 been made relative to the assumptions in the Action Plan that results in more  
21 realistic cost-effectiveness scores. The assumption of program delivery costs  
22 have been adjusted to reflect actual costs to deliver the programs experienced in  
23 2014. Additionally, the proposed C&I Custom program is now a combination of  
24 the C&I Custom and C&I Retro Commissioning programs. Finally, industrial

1 customers have constituted the bulk of the most cost-effective custom projects,  
2 and it is unclear to what degree the suspension of the benchmarks in the Phase  
3 II Order will affect their participation in 2015, and thus the cost-effectiveness of  
4 the program relative to the Action Plan which did not contemplate reduced  
5 industrial participation.

6 **Q. Are there risks to the cost-effectiveness of this, or any, portfolio of energy**  
7 **efficiency programs?**

8 A. Yes. Because program benefits accrue over multiple years, there is uncertainty  
9 in the realized values of avoided costs in the future. However, this is accounted  
10 for in the use of risk-adjusted discount rates (the utility's weighted average cost  
11 of capital for the TRC, UTC, and RIM tests, and a higher rate, 15%, for the  
12 Participant Test) to determine the present value of those benefits. A more  
13 tangible risk to the cost-effectiveness is the degree to which customers  
14 participate in the programs. Participation that is lower than what is planned can  
15 undermine cost effectiveness by requiring a program to support a given level of  
16 fixed administrative program costs over less avoided energy and capacity  
17 benefits. Similarly, after-the-fact adjustments to savings for free-ridership, which  
18 occurs when a significant portion of participants would have adopted the energy  
19 efficiency measures absent a utility-sponsored program, will adversely affect  
20 absolute savings levels as well as cost-effectiveness. It should be noted that the  
21 risk of non-participation and/or free-ridership is not present with the Electric  
22 Energy Consumption Optimization (EECO) project.

23 **Q. Describe the sensitivity analysis performed and the results.**

1 A. Two independent sensitivities were performed. First, participation levels were  
2 reduced from the planned level. Second, at the planned participation levels, net-  
3 to-gross levels were varied. As can be seen in Petitioner's Exhibit WKC-2,  
4 participation levels must be less than 30% of planned levels, in aggregate, to  
5 render the 2015 Portfolio, exclusive of EECO, "not cost-effective." Similarly, after-  
6 the-fact determinations of net-to-gross factors must be less than 40% of  
7 expected values, in aggregate, to render the 2015 Portfolio, exclusive of EECO,  
8 "not cost-effective." Including EECO in the sensitivity further inures the portfolio,  
9 rendering it cost-effective under all participation sensitivities and only not-cost-  
10 effective if aggregate net-to-gross values are less than 10%. Short of severe and  
11 unexpected deviations from the plan and current experience, this portfolio is cost-  
12 effective even when significantly stressed.

13 **Q. Does this conclude your prefiled verified direct testimony?**

14 A. Yes.

## VERIFICATION

I, William K. Castle, Director of Resource Planning and DSM for American Electric Power Service Corporation, affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.

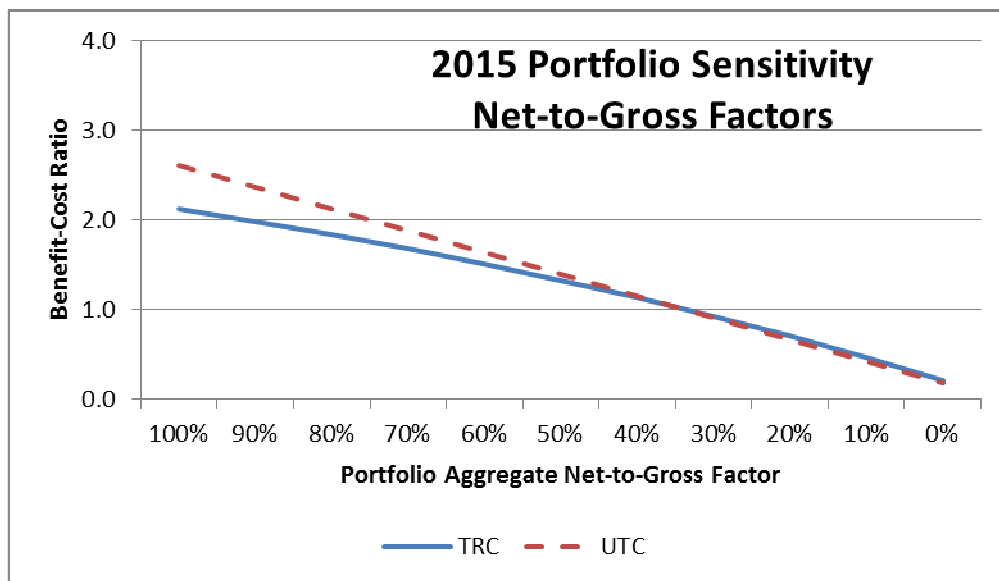
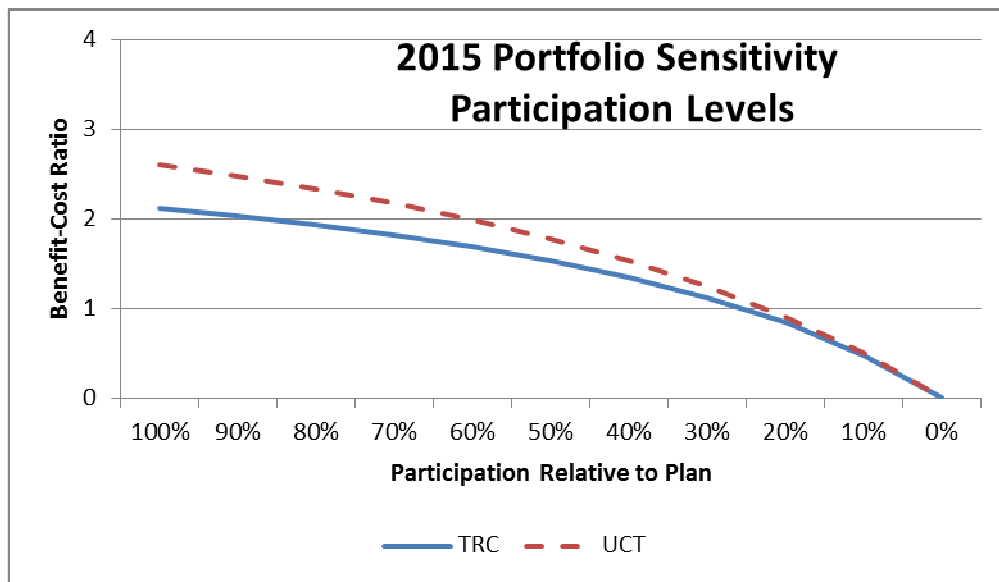
Dated: May 15<sup>th</sup>, 2014.

  
\_\_\_\_\_  
William K. Castle

Exhibit WKC-1

Program	Benefits				Costs				Benefit/Cost Ratios					Net Benefits
	TRC	UCT	RIM	PCT	TRC	UCT	RIM	PCT	TRC	UCT	RIM	PCT	UCT	
Residential EE Products	4,020,331	4,020,331	4,020,331	9,589,565	1,962,979	1,531,863	12,587,007	1,759,798	2.0	2.6	0.3	5.4	2,488,468	
Residential Low Income Weatherization	694,651	694,651	694,651	917,716	1,279,922	1,279,922	2,252,839	237,102	0.5	0.5	0.3	3.9	-	
Schools Energy Education	557,665	557,665	557,665	902,357	427,908	370,212	1,222,812	230,783	1.3	1.5	0.5	3.9	187,453	
Residential Appliance Recycling	810,527	810,527	810,527	1,526,492	614,885	688,325	2,441,792	359,100	1.3	1.2	0.3	4.3	122,203	
Residential Online Audit	1,240,438	1,240,438	1,240,438	2,055,590	721,951	718,325	2,887,161	256,600	1.7	1.7	0.4	8.0	522,113	
Residential Home Energy Reports	1,829,713	1,829,713	1,829,713	3,063,060	1,537,803	1,537,803	4,600,863	-	1.2	1.2	0.4	NM	291,910	
Residential Weatherization	3,159,693	3,159,693	3,159,693	3,134,879	1,865,141	1,865,141	6,490,517	462,433	1.7	1.7	0.5	6.8	1,294,552	
Residential New Construction	839,995	839,995	839,995	729,041	522,646	522,646	1,254,084	228,079	1.6	1.6	0.7	3.2	317,349	
Residential Peak Reduction	3,866,355	3,866,355	3,866,355	2,776,847	4,052,468	6,752,854	6,829,314	2,700,386	1.0	0.6	0.6	1.0	-	
C&I Prescriptive	25,413,025	25,413,025	25,413,025	23,759,969	5,553,618	2,515,618	35,226,536	4,520,833	4.6	10.1	0.7	5.3	22,897,408	
C&I Custom	10,105,604	10,105,604	10,105,604	12,940,844	6,197,338	2,870,938	16,906,689	5,280,000	1.6	3.5	0.6	2.5	7,234,666	
C&I Audit & SBID	1,804,891	1,804,891	1,804,891	2,944,421	1,466,650	873,558	4,196,857	1,195,749	1.2	2.1	0.4	2.5	931,333	
Sub-Total	54,342,888	54,342,888	54,342,888	64,340,781	26,203,307	21,527,204	96,899,470	17,230,864	2.1	2.5	0.6	3.7	36,287,454	
EFCO	19,336,427	19,336,427	19,336,427	22,742,660	9,252,773	9,252,773	31,995,432	9,252,773	2.1	2.1	0.6	2.5	N/A	
Total	73,679,316	73,679,316	73,679,316	87,083,440	35,456,080	30,779,977	128,894,903	26,483,637	2.1	2.4	0.6	3.3	36,287,454	

Exhibit WKC-2



Note: EECO participation and net-to-gross values do not vary. Residential Peak Reduction net-to-gross does not vary. Values shown exclusive of EECO contribution.