

OCC EXHIBIT NO. \_\_\_\_\_

**BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Ohio	)	
Edison Company, The Cleveland Electric	)	
Illuminating Company, and The Toledo	)	
Edison Company For Approval of Their	)	Case No. 16-0743-EL-POR
Energy Efficiency and Peak Demand	)	
Reduction Program Portfolio Plans for	)	
2017 through 2019.	)	

**DIRECT TESTIMONY  
OF  
RICHARD F. SPELLMAN**

**On Behalf of the  
The Office of the Ohio Consumers' Counsel**  
*10 West Broad Street, Suite 1800  
Columbus, Ohio 43215-3485*

**SEPTEMBER 13, 2016**

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## EXHIBITS

Exhibit RFS-1: Resume of Richard F. Spellman

Exhibit RFS-2: Shareholder Incentive mechanisms in the 50 U.S. States

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1    **I.        INTRODUCTION**

2

3    ***Q1.    PLEASE STATE YOUR NAME, ADDRESS AND POSITION.***

4    ***A1.***    My name is Richard F. Spellman and my address is 1850 Parkway Place, Suite  
5            800, Marietta, Georgia, 30067. I am the President of GDS Associates, Inc., an  
6            engineering and management consulting firm.

7

8    ***Q2.    PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.***

9    ***A2.***    I have a BA degree in Math/Economics with distinction from Dartmouth College  
10           and a Master's Degree in Business Science from the Thomas College Graduate  
11           School of Business. I am also a graduate of the University of Michigan Graduate  
12           School of Business Administration Management II Program and the Electric  
13           Council of New England Skills of Utility Management Program. I completed the  
14           Association of Energy Engineers (AEE) Certified Measurement and Verification  
15           Professional (CMVP) training in October 2012 and received this certificate in  
16           December 2012.

17

18    ***Q3.    PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE.***

19    ***A3.***    I began my career in the energy industry in 1977 when I joined Central Maine  
20           Power Company (CMP) as a Staff Economist. During my sixteen years at CMP, I  
21           held a number of management positions, including Director of Market Research  
22           and Forecasting and Manager of Marketing and Product Development. I served  
23           as chairman of the New England Power Pool Demand-Side Management (DSM)

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1 Planning Committee in 1991 and 1992. For several years I was responsible for  
2 the management of the implementation of CMP's portfolio of DSM programs.  
3 Since joining GDS Associates in 1993, I have completed numerous consulting  
4 projects relating to energy efficiency and peak demand reduction ("EE/PDR")  
5 program design, implementation and evaluation. I have completed over sixty  
6 energy efficiency potential studies for GDS clients. I have served as the overall  
7 Project Manager of the Pennsylvania Statewide Evaluator (SWE) team since  
8 2009. I was a Board member of the Association of Energy Services Professionals  
9 from 2005 to 2010. I have served on the Technical Advisory Group (TAG) for  
10 the U.S. Department of Energy Uniform Methods Project since 2012. More  
11 detailed information on my education, work experience and published EE/PDR  
12 papers is provided in my resume, Exhibit RFS-1.

13  
14 ***Q4. IN WHICH STATES HAVE YOU TESTIFIED PREVIOUSLY ON EE/PDR***  
15 ***ISSUES?***

16 ***A4.*** I have testified on EE/PDR issues before state regulatory commissions in  
17 Arkansas, Connecticut, Florida, Georgia, Indiana, Maine, New Mexico, New  
18 Hampshire, New York, North Carolina, Texas, and Vermont. A list of my prior  
19 testimony in these states is provided in my resume, Exhibit RFS-1.

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1   ***Q5.   WHAT DOCUMENTS HAVE YOU REVIEWED IN THE PREPARATION OF***  
2   ***YOUR TESTIMONY?***

3   ***A5.***   I have reviewed the FirstEnergy “Energy Efficiency and Peak Demand Reduction  
4       Portfolio Plans” for 2017 to 2019 (the “Portfolio Plans”) and supporting  
5       testimonies of Eren Demiray, Edward Miller, Denise Mullins and George  
6       Fitzpatrick, the discovery responses and Errata filed by FirstEnergy<sup>1</sup> and the  
7       objections filed by other parties to this docket. I have also reviewed several  
8       energy efficiency studies and databases published by the U.S. EPA National  
9       Action Plan for Energy Efficiency (NAPEE), the American Council for an Energy  
10      Efficient Economy (ACEEE), the Lawrence Berkeley National Laboratory  
11      (LBNL), the International Energy Program Evaluation Conference (IEPEC), and  
12      the U.S. Energy Information Administration (EIA). Although I am not an  
13      attorney, I have reviewed various Ohio statutes and regulations related to  
14      EE/PDR, and have reviewed various Public Utilities Commission of Ohio  
15      ("PUCO") orders.

16

17   ***Q6.   WHAT IS THE PURPOSE OF YOUR TESTIMONY?***

18   ***A6.***   The purpose of my testimony is to demonstrate the flaws in FirstEnergy's  
19       proposed portfolio and to recommend changes for consumer protection. My  
20       recommendations relate to, among other things, (1) FirstEnergy’s proposed

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<sup>1</sup> The Portfolio Plans were filed on behalf of The Cleveland Electric Illuminating Company (“CEI”), The Toledo Edison Company (“TE”), and Ohio Edison Company (“OE”), which collectively shall be referred to as “FirstEnergy,” the “Utilities,” or the “Companies,” and individually as the “Company.”

1 mechanism to charge customers for shared savings (profit), (2) the costs that  
2 customers pay for the proposed programs and the potential benefits of those  
3 programs, (3) the process used by FirstEnergy to develop program designs and  
4 plans, and (4) low-income customers.

5

6 **II. SUMMARY OF RECOMMENDATIONS**

7

8 ***Q7. CAN YOU SUMMARIZE THE RECOMMENDATIONS THAT YOU MAKE***  
9 ***IN YOUR TESTIMONY?***

10 ***A7.*** Based on my analysis of the Portfolio Plans, I conclude that the following changes  
11 should be made so that the Portfolio Plans are fair to customers, consistent with  
12 best practices, and provide the appropriate incentives for the Utilities to reduce  
13 energy usage, reduce peak demand, and increase net benefits for customers:

14 i. FirstEnergy's shared savings proposal, which requires customers to  
15 pay profits to FirstEnergy for its energy efficiency programs,  
16 should not be approved as filed because it is vague and incomplete.  
17 That being said, I have provided my opinion and recommendations  
18 below regarding the parts of the shared savings mechanism that are  
19 known.

20 ii. The shared savings mechanism should only be approved (if at all)  
21 if the PUCO approves the modifications described in my  
22 testimony. These modifications are designed to minimize  
23 customer funding for Utility profits associated with energy

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1 efficiency while still providing the Utilities sufficient incentives to  
2 achieve savings for customers.

3       iii. Customers should not be required to pay shared savings (profit) to  
4 FirstEnergy simply because FirstEnergy exceeds the annual  
5 statutory minimum for energy savings. FirstEnergy is bound by a  
6 settlement (“ESP IV Stipulation”) that the PUCO approved in  
7 FirstEnergy’s recent electric security plan proceeding.<sup>2</sup> In  
8 exchange for parties giving support for FirstEnergy’s ESP filing,  
9 FirstEnergy agreed to pursue energy savings of 800,000 MWh per  
10 year, which is significantly above the statutory minimum.  
11 FirstEnergy's portfolio includes programs that are designed to  
12 reach this 800,000 MWh per year target, and customers will pay  
13 increased program costs (over \$322 million over three years for all  
14 customers, and over \$125 million over three years for residential  
15 customers) to target this high level of energy savings. If customers  
16 must pay for programs that aim to achieve 800,000 MWh in  
17 savings per year, they should not pay profits to FirstEnergy for  
18 merely reaching the statutory minimum of about 530,000 MWh per  
19 year.

20       iv. The shared savings mechanism should be revised to provide that  
21 each customer class (e.g., residential customers) only pays shared

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<sup>2</sup> Case No. 14-1297-EL-SSO, Opinion and Order (Mar. 31, 2016) (the “ESP IV Case”).



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savings to FirstEnergy if FirstEnergy exceeds the targeted savings for that class. FirstEnergy's programs should also focus not just on total energy savings but on the number of customers who participate in programs and therefore save energy and money.

v. To balance the interests of FirstEnergy and consumers, FirstEnergy should pay a penalty to customers if it achieves less than 85% of projected savings or less than 85% of customer class participation targets.

vi. Non-cost-effective programs other than low-income programs should be removed from the Portfolio Plan entirely because they cause consumers to lose money.

vii. If non-cost-effective programs are not removed from the Portfolio, then the net losses that result from these programs should be included in the calculation of FirstEnergy's shared savings (profit). This approach would protect customers from paying extra profit to FirstEnergy for programs that cost more than they save.

viii. The Total Resource Cost ("TRC") test should be used to calculate the benefits to customers for purposes of determining how much profit (shared savings) customers will pay to FirstEnergy. The TRC should be used because it is the test used by the PUCO in its rules and because, unlike the Utility Cost Test ("UCT") that FirstEnergy uses, the TRC includes participant costs (*i.e.* costs that

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1 customers pay out of pocket) and therefore measures the actual  
2 benefits that customers receive.

3 ix. FirstEnergy should not be allowed to charge customers for profit  
4 (shared savings) on the Customer Action Program ("CAP"),  
5 Energy Special Improvement District ("ESID") program, and  
6 Mercantile Customer Program) because customers—not  
7 FirstEnergy—achieved the electricity savings in these programs.

8 x. The LED Street Lighting Tariff, Mercantile Customer Program,  
9 Transmission and Distribution ("T&D") Upgrades Program, and  
10 Smart Grid Modernization Initiative Program, should not be  
11 counted for purposes of shared savings (profit) that customers will  
12 pay to FirstEnergy because these programs are being addressed in  
13 other proceedings.

14 xi. Behavioral programs should not be counted for purposes of the  
15 shared savings (profit) that customers will pay to FirstEnergy  
16 because these programs do not result in persistent savings. The  
17 programs do not have lives of much more than one year and the  
18 electricity savings are more difficult to quantify.

19 xii. There should not be a single cap (limit) on the amount of shared  
20 savings for all three Companies because a single cap could result  
21 in customers of one Company paying higher profits based on the  
22 performance of one of the other Company's programs. Instead,

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1           there should be a separate shared savings cap on what customers  
2           would pay for each customer class for each Company.

3           xiii.   The aggregate shared savings cap that limits how much profit  
4           customers would pay to FirstEnergy should be \$10 million, not  
5           \$25 million, because a \$10 million cap lowers the cost to  
6           customers and at the same time provides sufficient incentive for  
7           FirstEnergy to achieve energy savings.

8           xiv.   The PUCO should require transparency in FirstEnergy's energy  
9           efficiency programs. All shared savings (profit) amounts paid by  
10          customers should be specified in pre-tax dollars, not as after-tax  
11          values. FirstEnergy's Application states that customers will pay up  
12          to \$25 million per year in shared savings. But this figure  
13          understates the profit that customers would pay to FirstEnergy.  
14          Customers will actually pay up to \$39 million in profit to  
15          FirstEnergy because FirstEnergy proposes that customers pay  
16          FirstEnergy's taxes on the profit. The Application should state the  
17          cap in terms of the amount that customers actually pay.

18          xv.   The costs to restart programs that FirstEnergy unilaterally  
19          cancelled for 2015 and 2016 should not be included in the budget  
20          that customers pay for FirstEnergy's EE/PDR programs.  
21          Customers should not be required to pay additional costs based on  
22          FirstEnergy's decision to cancel nearly all of its programs.

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xvi. FirstEnergy's low income programs should be implemented as planned for 2017. Throughout 2017, the FirstEnergy energy efficiency collaborative group should work together to revamp the programs to substantially increase the participation rates (the number of customers benefiting) in the low-income programs under the current budget.

**III. HISTORICAL BACKGROUND**

***Q8. PLEASE DESCRIBE THE HISTORICAL BACKGROUND REGARDING FIRSTENERGY'S ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS.***

**A8.** FirstEnergy filed its first EE/PDR portfolio plan in Ohio in 2009 in Case No. 09-1947-EL-POR. The first plan included programs for the years 2010 through 2012.<sup>3</sup> In 2010, the first year of its programs, FirstEnergy failed to achieve the amount of energy savings required by statute.<sup>4</sup>

The Ohio General Assembly passed Senate Bill 310 ("SB 310") in 2014, "freezing" the annual statutory benchmarks (minimum amounts that the General Assembly requires) for 2015 and 2016. Shortly after SB 310 became effective in

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<sup>3</sup> See Case No. 09-1947-EL-POR, Opinion and Order (Mar. 23, 2011).

<sup>4</sup> See Energy Efficiency & Peak Demand Reduction Program Portfolio Status Report for the Period January 1, 2010 through December 31, 2010 at 5, Case No. 11-2956-EL-EEC (May 23, 2011) (identifying a statutory benchmark of 197,959 MWh for OE but actual energy savings of 164,365 MWh).

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1       2014, FirstEnergy cancelled nearly all of its EE/PDR programs for 2015 and  
2       2016,<sup>5</sup> while all other Ohio electric distribution utilities continued their programs  
3       for the benefit of customers.

4  
5       In 2014, FirstEnergy also filed the "ESP IV Case" requesting approval of a power  
6       purchase agreement ("PPA"). In that case, the PUCO approved the ESP IV  
7       Stipulation in which FirstEnergy agreed to file an application to revive all of the  
8       EE/PDR programs that it had cancelled and to substantially increase the scope of  
9       its EE/PDR programs to achieve 800,000 MWh of energy savings per year. In  
10      exchange, the other parties signing the agreement agreed not to oppose  
11      FirstEnergy's PPA and agreed that FirstEnergy would request in its EE/PDR  
12      application a 150% increase in shared savings (profits paid by all customers, not  
13      the parties to the stipulation) from \$10 million a year to \$25 million a year (after  
14      taxes).<sup>6</sup> FirstEnergy then filed the current 2017-2019 Portfolio Plans, which  
15      target savings of approximately 800,000 MWh per year and includes a \$39  
16      million (pre-tax) shared savings cap. I understand that the OCC did not sign the  
17      stipulation in the ESP IV case and opposed it.

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<sup>5</sup> See Case No. 12-2190-EL-POR, Finding and Order (Nov. 20, 2014).

<sup>6</sup> Customers will actually pay around \$39 million per year in profits to FirstEnergy, a total of \$117 million during the term of the 2017-2019 Portfolio.

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1   ***Q9.   HOW DOES THE ESP IV STIPULATION AND THE ORDER APPROVING***  
2       ***IT AFFECT THIS PROCEEDING AND YOUR TESTIMONY?***

3   ***A9.***   The ESP IV Stipulation addresses certain of the issues that are raised by  
4       FirstEnergy's Application. For example, the stipulation states that (i) FirstEnergy  
5       will restart the programs that it previously cancelled, (ii) FirstEnergy will strive to  
6       achieve 800,000 MWh of energy savings annually, (iii) all costs will be recovered  
7       through Rider DSE, (iv) the shared savings cap will increase from \$10 to \$25  
8       million, and (v) OPAE will continue to administer the Community Connections  
9       program through 2023.<sup>7</sup>

10  
11       The ESP IV Order approves the ESP IV Stipulation and addresses some of these  
12       issues as well. Although certain parts of FirstEnergy's Application may have been  
13       addressed in the ESP IV Stipulation and order, I understand that several parties in  
14       the ESP IV case applied for rehearing<sup>8</sup> and that the PUCO granted these  
15       applications for further consideration.<sup>9</sup> I also understand that the ESP IV case is  
16       currently under appeal to the Ohio Supreme Court.<sup>10</sup> Thus, it remains uncertain  
17       whether the PUCO's order in the ESP IV case will remain effective going  
18       forward. It is appropriate, in my opinion, for the PUCO to consider all aspects of

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<sup>7</sup> See ESP IV Stipulation at 11, 17.

<sup>8</sup> See, e.g., Application for Rehearing by the Environmental Law & Policy Center, Ohio Environmental Council, and Environmental Defense Fund, Case No. 14-1297-EL-SSO (May 2, 2016);

<sup>9</sup> See Entry on Rehearing, Case No. 14-1297-EL-SSO (May 11, 2016).

<sup>10</sup> See Notice of Appeal by the Office of the Ohio Consumers' Counsel and Northwest Ohio Aggregation Coalition (and its Individual Communities), PUCO Case No. 14-1297-EL-SSO, Ohio Supreme Court Case No. 16-1325 (Sept. 6, 2016).

1 FirstEnergy's Application in this proceeding, where the PUCO now has available  
2 to it the details of FirstEnergy's proposed EE/PDR programs and their cost and  
3 other impact on consumers.

4

5 **IV. FIRSTENERGY'S PROPOSAL FOR CUSTOMERS TO PAY PROFITS**  
6 **(SHARED SAVINGS) SHOULD BE MODIFIED BECAUSE IT IS**  
7 **FLAWED AND WILL CAUSE CUSTOMERS TO PAY RATES THAT**  
8 **ARE UNREASONABLE**

9

10 ***Q10. WHAT IS A SHARED SAVINGS INCENTIVE MECHANISM AND HOW***  
11 ***DOES IT AFFECT CUSTOMERS?***

12 ***A10.*** A shared savings incentive mechanism is a tool used by regulators to reward  
13 exemplary utility performance in delivering energy efficiency and peak demand  
14 reduction programs to its customers.<sup>11</sup> A properly designed shared savings  
15 mechanism gives the utility the incentive to design and administer programs that  
16 achieve greater energy savings and increase customer benefits. In return for  
17 program performance, customers make "shared savings" (profit) payments to the  
18 utility. The amount of the shared savings that customers pay to the utility is often  
19 a percentage of the net benefits created by the utility EE/PDR programs. The net

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<sup>11</sup> The National Action Plan for Energy Efficiency Guide titled "Aligning Utility Incentives with Investment in Energy Efficiency, A Resource of the National Action Plan for Energy Efficiency" (November 2007) states on page ES-4 that "Shared savings mechanisms provide utilities the opportunity to share with ratepayers the net benefits resulting from successful implementation of energy efficiency programs."

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1           benefits are typically the avoided energy and capacity dollar savings minus the  
2           utility and individual customer costs of the programs.

3

4   ***Q11. DO SHARED SAVINGS THAT CUSTOMERS PAY TO THE UTILITY FOR***  
5   ***ENERGY EFFICIENCY IMPACT UTILITY PROFITS?***

6   ***A11.*** Yes. Shared savings that customers pay to the utility are a form of utility  
7           shareholder profit.<sup>12</sup> Shared savings are not a reimbursement to the utility for any  
8           costs that the utility has incurred. Every dollar of shared savings that customers  
9           pay to the utility is a dollar of profit for the utility's shareholders.

10

11   ***Q12. DOES FIRSTENERGY'S APPLICATION CONTAIN A COMPLETE***  
12   ***DESCRIPTION OF THE SHARED SAVINGS THAT IT IS ASKING***  
13   ***CUSTOMERS TO FUND?***

14   ***A12.*** No. FirstEnergy's Application states that it "is the same as approved by the  
15           Commission in the Companies' Previous EE/PDR Portfolio Plans except for the  
16           changes approved by the Commission in the Companies' Stipulated ESP IV."<sup>13</sup>  
17           The "Previous EE/PDR Portfolio Plans" are the plans that the Companies filed in  
18           Case Nos. 12-2190-EL-POR, 12-2191-EL-POR, and 12-2192-EL-POR.<sup>14</sup> The  
19           "Stipulated ESP IV" is the Companies' Stipulated Fourth Electric Security Plan

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<sup>12</sup> Id. The NAPEE Guide states on page 2-8 that "Providing financial incentives to a utility if it performs well in delivering energy efficiency potentially can change the existing utility business model by making efficiency profitable rather than merely a break-even activity."

<sup>13</sup> See Portfolio Plan § 7.1.

<sup>14</sup> See Application ¶ 6.



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1 approved in Case No. 14-1297-EL-SSO.<sup>15</sup> The Application then identifies certain  
2 "key" features of the Shared Savings Mechanism, without identifying the  
3 remaining features of the Shared Savings Mechanism that FirstEnergy considers  
4 to be non-key. The Application does not identify what the "changes approved by  
5 the Commission in the Companies' Stipulated ESP IV" are. Thus, FirstEnergy has  
6 not provided a complete description of all features of the Shared Savings  
7 Mechanism.

8  
9 ***Q13. WHAT IS YOUR RECOMMENDATION TO REMEDY FIRSTENERGY'S***  
10 ***INCOMPLETE FILING?***

11 ***A13.*** FirstEnergy should be required to file in the docket in this case a complete copy  
12 of the Shared Savings Mechanism that (i) includes all inputs, assumptions,  
13 methodologies, calculations, energy and demand savings targets and other  
14 relevant information, (ii) includes a sample calculation demonstrating how shared  
15 savings will be calculated under the 2017-2019 Portfolio, and (iii) does not rely  
16 on vague citations to information that is not in the record in this case. Although  
17 FirstEnergy is entitled to propose a shared savings mechanism, the PUCO must  
18 evaluate the proposal by looking at whether the mechanism is well-defined and  
19 provides the appropriate incentive for the utility while ensuring that customers are  
20 getting the best value for their program dollars. If FirstEnergy does not provide  
21 the PUCO with the necessary information to make an informed decision, then I

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<sup>15</sup> See Application ¶ 3.

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1 recommend that the PUCO find that FirstEnergy is not entitled to any shared  
2 savings.

3

4 ***Q14. DO YOU HAVE RECOMMENDATIONS FOR THE PUCO REGARDING***  
5 ***THE SHARED SAVINGS MECHANISM, BASED ON YOUR REVIEW OF***  
6 ***THE AVAILABLE INFORMATION?***

7 ***A14.*** Yes. I have reviewed the Application, the docket entries from the Previous  
8 EE/PDR Portfolio Plans that I believe to be relevant, the stipulation and order  
9 from FirstEnergy's most recent ESP case, and other documents received through  
10 discovery. My testimony is based on my understanding of various aspects of the  
11 Shared Savings Mechanism, and my recommendations follow.

12

13 ***Q15. IS THE DESIGN OF THE SHARED SAVINGS INCENTIVE PROPOSED BY***  
14 ***FIRST ENERGY FLAWED?***

15 ***A15.*** Yes. The phrase "shared savings" suggests that as the utility increases the amount  
16 of savings for customers, the utility and the customer share the additional savings,  
17 and both the utility and the customer are better off. It is possible to design a  
18 utility incentive mechanism that properly incents the utility to reduce energy  
19 usage and save customers money. FirstEnergy's proposed Shared Savings  
20 Mechanism, however, is flawed. FirstEnergy has designed the Shared Savings  
21 Mechanism in a manner that increases the amount of profits that customers pay to  
22 the Companies, but without ensuring increased net benefits for customers.

1   ***Q16. IS FIRSTENERGY'S PROPOSED SHARED SAVINGS MECHANISM***  
2       ***DESIGNED TO BENEFIT THE COMPANY'S CUSTOMERS?***

3   ***A16.*** No. The Shared Savings Mechanism is designed to benefit FirstEnergy. The  
4       calculation of utility profits under the Shared Savings Mechanism includes four  
5       primary inputs: (i) the incentive tiers and savings target, (ii) the net benefits  
6       calculation, (iii) the energy savings calculation, and (iv) the shared savings  
7       (profit) cap. These inputs are designed in a way that benefits the Companies by  
8       increasing the amount of shared savings that customers pay (thereby increasing  
9       utility profits) without necessarily increasing, and in some instances decreasing,  
10      the benefit that customers derive from the EE/PDR programs.

11  
12   ***Q17. CAN YOU PROVIDE A SUMMARY OF THE FLAWS IN THE DESIGN OF***  
13       ***FIRSTENERGY'S SHARED SAVINGS MECHANISM?***

14   ***A17.*** First, the Companies' incentive schedule,<sup>16</sup> which provides for increased profits as  
15       the Companies achieve additional annual energy savings, is designed to virtually  
16       guarantee that the Companies will reach the highest incentive percentage because  
17       the highest tier is significantly below the 800,000 MWh annual energy savings  
18       target that FirstEnergy has budgeted in its Application. The incentive table also  
19       violates the core principle of customer class equity found in section 4901:1-39-03  
20       of the Ohio Administrative Code because the shareholder incentive tiers are  
21       calculated only on a Company-by-Company basis, and not a class-by-class basis.

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<sup>16</sup> See Application § 7.1.

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1        This class equity principal is further violated due to the absence of specifying a  
2        minimum number of participants within each customer class through which  
3        targeted savings will be achieved. This means that all residential customers could  
4        pay higher profits to the Companies based on large savings achieved through a  
5        relatively small number of customers participating in the Portfolio's commercial  
6        and industrial programs.

7  
8        Second, the Companies tilt the net benefits calculation against customers by  
9        excluding non-cost-effective programs from the calculation. They count the net  
10       benefits from cost effective programs and use those benefits to increase profits,  
11       but they do not count the net costs of non-cost-effective programs, which would  
12       decrease the amount of profit that customers pay to FirstEnergy. The Companies  
13       also improperly include the benefits of the Customer Action Program, Energy  
14       Special Improvement District program, and Mercantile Self-Direct program, even  
15       though the Companies play no part whatsoever in achieving those benefits. The  
16       Companies should not receive customer-funded profits for energy savings they  
17       played no part in.

18  
19       Third, although the Companies propose not to count the non-cost effective  
20       programs in the net benefits calculation, they propose to include them in the  
21       energy savings calculation, which significantly boosts their opportunity to earn a  
22       shareholder incentive, funded by customers. This gives the Companies the  
23       incentive to include non-cost-effective programs in the Portfolio Plans,

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1       compounding the harm to consumers. The Companies should not be permitted to  
2       have it both ways. They should not be permitted to include non-cost effective  
3       programs in the energy savings calculation, and they should be removed from the  
4       Portfolio Plans. However, if they want credit for the reduced energy achieved  
5       through non-cost-effective programs, then the net cost of these programs must  
6       also be recognized when calculating the total net benefits of the Portfolio Plans.

7

8       Fourth, the Companies provided no reasonable justification to increase their  
9       shared savings cap to \$25 million. Moreover, a single cap for all three Companies  
10      may cause customers of one Company to pay higher profits based on the  
11      performance of one of the other Company's programs.

12

13      Each of these material defects in the Shared Savings Mechanism must be  
14      corrected to avoid customers paying excessive shared savings to the Companies,  
15      as I discuss in more detail below.

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1    **A.     TO PROTECT CUSTOMERS AND PROMOTE REASONABLE RATES,**  
2           **THE PUCO SHOULD ESTABLISH APPROPRIATE BENCHMARKS**  
3           **AND INCENTIVE TIERS.**

4  
5    ***Q18.   WHAT IS THE STATUTORY MINIMUM ENERGY SAVINGS THAT***  
6           ***FIRSTENERGY MUST ACHIEVE?***

7    ***A18.*** Under Ohio Revised Code ("R.C.") 4928.66(A), Ohio electric utilities are  
8           required to achieve energy savings of 1% of their energy "baseline," which is the  
9           average kWh sold by the utility in the previous three years. In its Application,  
10          FirstEnergy identifies the following baselines (in MWh):<sup>17</sup>

	<b>OE</b>	<b>CEI</b>	<b>TE</b>
<b>2017</b>	23,897,849	18,754,732	10,484,896
<b>2018</b>	23,352,582	18,574,168	10,486,596
<b>2019</b>	23,310,890	18,537,490	10,543,694

12

13          The annual 1% statutory benchmarks are therefore (in MWh):

	<b>OE</b>	<b>CEI</b>	<b>TE</b>	<b>Total</b>
<b>2017</b>	238,978	187,547	104,848	531,373
<b>2018</b>	233,525	185,741	104,865	524,131
<b>2019</b>	233,108	185,374	105,436	523,918

14

15          As this chart demonstrates, the aggregate statutory minimum savings for the three  
16          Companies combined is just over 500,000 MWh per year.

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<sup>17</sup> See Application, Exhibit A (the "Portfolio Plan"), Table 3.

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**Q19. SHOULD CUSTOMERS PAY SHARED SAVINGS TO FIRSTENERGY  
BASED ON FIRSTENERGY EXCEEDING THE STATUTORY MINIMUM  
SAVINGS AMOUNT?**

**A19.** No. FirstEnergy states that its shared savings mechanism is intended to "encourage the Companies, through financial incentives, to exceed their statutorily mandated EE/PDR goals."<sup>18</sup> In the past, the PUCO has approved tiered shared savings mechanisms that give the utility an increased percentage of the net benefits from EE/PDR programs if the programs achieve savings above the statutory minimums.<sup>19</sup> FirstEnergy proposes a similar tiered mechanism in this case.<sup>20</sup> The logic behind this structure is that without a chance for additional profits through an incentive mechanism, the utility has an incentive to reach the statutory minimum (to avoid a penalty<sup>21</sup>), but not to go above and beyond. In this case, however, that logic does not apply. FirstEnergy signed a stipulation in its ESP IV Case that requires FirstEnergy to "strive to achieve over 800,000 MWh of energy savings annually."<sup>22</sup> Because the Stipulation approved in the ESP IV Case already binds FirstEnergy to pursue 800,000 MWh of annual energy savings in its 2017-2019 Portfolio Plans, FirstEnergy does not need additional financial

---

<sup>18</sup> See Portfolio Plan § 7.1.

<sup>19</sup> See, e.g., Case No. 12-2190-EL-POR, Opinion and Order, (Mar. 23, 2013); Case No. 11-5569-EL-POR, Opinion and Order (Mar. 21, 2012).

<sup>20</sup> See Portfolio Plan § 7.1.

<sup>21</sup> See Ohio Administrative Code ("OAC") 4901:1-39-06(B) ("If staff finds that an electric utility has not demonstrated compliance with the approved program portfolio plan or annual sales or peak-demand reductions required by division (A) of section 4926.66 of the Revised Code, staff may recommend remedial action and/or the assessment of a forfeiture.").

<sup>22</sup> See ESP IV Stipulation at 11-12.

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1 incentives to pursue savings above the statutory minimums identified above,  
2 which combined are substantially lower than 800,000 MWh per year.

3

4 ***Q20. PLEASE EXPLAIN HOW THE 800,000 MWH SAVINGS TARGET AGREED***  
5 ***TO IN THE ESP IV STIPULATION AFFECTS THE DESIGN OF THE***  
6 ***SHARED SAVINGS THAT CUSTOMERS ARE ASKED TO PAY.***

7 ***A20.*** The 800,000 MWh savings target agreed to in the ESP IV Stipulation is a critical  
8 input to the mechanism. FirstEnergy should not be allowed to earn shareholder  
9 incentives for exceeding the statutory minimum savings amount, which is  
10 substantially lower than the 800,000 MWh per year committed to in its ESP IV  
11 Stipulation. That is, if the lower statutory target were used as the threshold for  
12 earning a shareholder incentive, FirstEnergy would be allowed to collect  
13 additional profits from customers in the form of shared savings for energy savings  
14 that it has already agreed to target in the approved ESP IV Stipulation. Allowing  
15 this would provide a windfall to FirstEnergy, paid by customers. FirstEnergy's  
16 agreement to strive to achieve energy efficiency savings was part of the settlement  
17 package the PUCO adopted, when it implemented ESP IV rates, effective June 1,  
18 2016. Customers are already paying rates that reflect the various agreements  
19 reached under the stipulated ESP IV. Customers should not pay additional profits  
20 to FirstEnergy in the form of shared savings based on FirstEnergy exceeding the  
21 statutory minimum energy savings. Rather, shared savings should be based on  
22 energy savings exceeding the projected annual 800,000 MWh savings, on a per  
23 customer class basis, as I discuss below.



1   ***Q21. HOW DOES THE 800,000 MWH TARGET AFFECT THE PROGRAM***  
2       ***BUDGET THAT CUSTOMERS ARE BEING ASKED TO FUND?***

3   ***A21.*** As a general rule, a program administrator will need to spend more on programs  
4       to achieve higher energy savings. All else equal, a portfolio that targets 800,000  
5       MWh per year will have substantially higher program costs than a portfolio that  
6       targets under 550,000 MWh per year. For example, FirstEnergy's 2017-2019  
7       Portfolio targets annual savings of about 800,000 MWh per year and will cost  
8       customers over \$322 million in program costs<sup>23</sup> (plus \$117 million in shared  
9       savings). FirstEnergy could remove a substantial portion of the proposed  
10      programs, thereby significantly reducing the cost to customers, while still  
11      targeting savings that would exceed its statutory minimum.

12  
13   ***Q22. SHOULD THE FACT THAT FIRSTENERGY'S PORTFOLIO HAS A***  
14       ***BUDGET DESIGNED TO REACH 800,000 MWH AFFECT THE SHARED***  
15       ***SAVINGS THAT CUSTOMERS ARE BEING ASKED TO PAY?***

16   ***A22.*** Yes. When a program administrator (here, the utility) designs a portfolio, it  
17       includes projected energy savings and projected costs. In this case, FirstEnergy  
18       budgeted for programs that are designed to achieve 800,000 MWh in energy  
19       savings, and customers will pay increased program costs for those programs.

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<sup>23</sup> See Application, OE Appendix B-1, CEI Appendix B-1, TE Appendix B-1.

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1 As described in my testimony above, however, FirstEnergy proposes that  
2 customers pay shared savings when its programs achieve annual savings for  
3 reaching the following targets:

- 4 • 531,373 MWh in 2017
- 5 • 524,131 MWh in 2018
- 6 • 523,918 MWh in 2019.

7

8 In other words, FirstEnergy has budgeted for programs to reach 800,000 MWh,  
9 and customers will pay the increased program costs associated with that budget.

10 But FirstEnergy will be rewarded with shared savings if it reaches savings  
11 substantially below its targets. 531,373 MWh is less than 67% of the 800,000  
12 MWh budget. There is no dispute that an energy efficiency portfolio that  
13 achieves only 67% of its targeted savings has demonstrated very poor  
14 performance. A fundamental principle of shared savings is that it serves to  
15 reward only exemplary performance. Allowing FirstEnergy the ability to earn  
16 shared savings incentives on any such decreased target savings would result in  
17 rewarding FirstEnergy for poor performance. There is no justification for  
18 rewarding FirstEnergy's shareholders for implementing programs that achieve  
19 anything less than 100% of their budgeted savings targets.

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1 **Q23. ARE THERE ANY FLAWS IN THE INCENTIVE TIERS IN THE**  
2 **PROPOSED SHARED SAVINGS MECHANISM?**

3 **A23.** Yes. The proposed tiered Shared Savings Mechanism unfairly shifts the costs and  
4 benefits of programs between different classes of customers. This violates the  
5 PUCO rule that a utility must consider equity among customer classes when  
6 developing its EE/PDR portfolio.<sup>24</sup> As proposed, the tiered incentive mechanism  
7 gives each Company additional profits as it achieves higher energy savings  
8 compared to the 1% annual statutory benchmark.<sup>25</sup> Each class of customers pays  
9 higher profits, even if the additional energy savings are not attributable to that  
10 class's programs, and even if the additional energy savings do not result in  
11 additional net benefits to that customer class. For example, for 2017, FirstEnergy  
12 identifies a baseline usage of 23,898,000 MWh for Ohio Edison (OE).<sup>26</sup> The  
13 annual statutory benchmark of 1% for OE is therefore 238,980 MWh. Thus, as  
14 long as OE achieves 238,980 MWh in energy savings, the shared savings  
15 mechanism will trigger. As OE achieves greater savings, its profits increase. At a  
16 maximum, OE receives a 13.0% incentive if it achieves greater than 115% of the  
17 annual benchmark (*i.e.*, if it achieves greater than 274,827 MWh of savings).

18  
19 The problem with this structure, however, is that the Shared Savings Mechanism  
20 is triggered by, and the incentive tiers are based on, total energy savings,

---

<sup>24</sup> See OAC 4901:1-39-03(B)(6) ("When developing programs for inclusion in its program portfolio plan, an electric utility shall consider the following criteria: (6) Equity among customer classes.").

<sup>25</sup> See Portfolio Plan § 7.1.

<sup>26</sup> See Direct Testimony of Denise J. Mullins, Exhibit DJM-1, Case No. 16-743-EL-POR (Apr. 15, 2016).

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1 regardless of which class of customers' programs are responsible for those  
2 savings. That means that if the utility's residential programs underperform (and  
3 therefore contribute a lower percentage of savings than expected), but the utility's  
4 commercial and industrial programs over-perform so that the aggregate savings  
5 from all programs is above the statutory benchmark, then residential customers  
6 will still be required to pay higher profits using the higher incentive percentage.  
7 The PUCO should not permit this type of cross-subsidization between classes of  
8 customers. One class of customers should not be required to pay higher profits  
9 based on the performance of another class's programs.

10  
11 ***Q24. DO YOU HAVE A RECOMMENDATION ON HOW THE SHARED***  
12 ***SAVINGS MECHANISM SHOULD BE CHANGED TO ELIMINATE***  
13 ***SUBSIDIES BETWEEN CUSTOMER CLASSES AND ADDRESS THE***  
14 ***800,000 MWH TARGET IN THE ESP IV STIPULATION?***

15 ***A24.*** Yes. The Shared Savings Mechanism should be modified so that the incentive  
16 tiers are not tied to aggregate compliance percentages but instead are tied to  
17 energy savings by class as compared to that individual class's projected savings in  
18 the Application. For example, FirstEnergy projects that OE's non-low-income  
19 residential programs will achieve 136,884,030 KWh of energy savings in 2017.<sup>27</sup>  
20 This number should form the baseline for the shared savings tiers. If OE does not

---

<sup>27</sup> See Application, OE Appendix B-2. This excludes 43,750,520 KWh of energy savings from the Customer Action Program ("CAP"). As discussed in my testimony below, savings and benefits from the CAP should be excluded from the shared savings mechanism because FirstEnergy is not responsible for achieving those savings.

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1 achieve at least 136,884,030 KWh savings through its non-low-income residential  
2 programs (excluding CAP), then non-low-income customers should not pay  
3 shared savings profits. The compliance percentages in the Shared Savings  
4 Mechanism should be percentages of the projected energy savings, not  
5 percentages of the annual statutory benchmark for the entire Company. The same  
6 would apply for all of OE's, TE's and CEI's customer classes. The following  
7 chart identifies the savings target (in MWh) for each class of customers for each  
8 Company for 2017, 2018, and 2019<sup>28</sup> that should be used as the baseline for  
9 determining the "compliance percentage" in the Shared Savings Mechanism:

	OE			CEI			TE		
Class	2017	2018	2019	2017	2018	2019	2017	2018	2019
Residential Low Income	2,510	2,510	2,510	2,664	2,664	2,664	1,050	1,050	1,050
Residential Non-Low Income	88,053	87,072	89,036	66,428	66,967	67,702	27,023	27,243	27,519
Nonresidential	146,203	154,395	159,493	87,576	91,634	94,086	53,810	55,694	57,723

10

11

12 This revision to the mechanism protects customers in each class and more  
13 appropriately incents FirstEnergy to achieve savings in all sectors. In addition, to  
14 ensure customer class equity, FirstEnergy should be required, for each company,  
15 to specify a minimum number of participants within each customer class through  
16 which targeted savings will be achieved. Failure to obtain energy savings through  
17 projects completed by at least this minimum number of participants should result

---

<sup>28</sup> These numbers represent the projected savings for each class of customers for each Company as found in Appendix B-2 to the Application, excluding projected savings from the CAP, Mercantile Customer Program, Transmission & Distribution Upgrades, Smart Grid Modernization, ESID, and Behavioral programs, because those programs should be excluded from shared savings.

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1 in a prorated percentage reduction in shared savings incentive that each  
2 FirstEnergy company can earn. For example, if Ohio Edison achieves 100% of its  
3 Residential Non-Low-Income savings target in 2017 through projects completed  
4 by 80% of the required number of participants, the company should receive only  
5 80% of the shared savings incentive allotted for that company's customer sector.

6

7 ***Q25. SHOULD CUSTOMERS BE REQUIRED TO PAY ADDITIONAL PROFITS***  
8 ***TO THE COMPANIES SIMPLY BECAUSE THE COMPANIES ACHIEVE***  
9 ***SAVINGS THAT ARE marginally higher than the statutory***  
10 ***minimum?***

11 ***A25.*** No. Shared savings profits should reward only exemplary performance. The  
12 Companies' proposed Shared Savings Mechanism rewards them by requiring  
13 customers to pay millions of dollars in extra profits as soon as the Companies  
14 achieve any savings over the statutory minimum. In the lowest tier, customers  
15 pay profits to the Companies in the amount of 5% of the Total Discounted Net  
16 Lifetime Benefits if the Companies achieve between 100% and 105% of the  
17 annual statutory minimum savings. Customers should not be required to pay  
18 millions of dollars in profits to the Companies when the programs achieve savings  
19 that just barely exceed the targets.

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***Q26. WHAT IS YOUR RECOMMENDATION ON HOW THE INCENTIVE TIERS SHOULD BE MODIFIED TO GIVE THE UTILITY THE PROPER INCENTIVES, WHILE AT THE SAME TIME, PROTECTING CUSTOMERS FROM PAYING UNREASONABLE RATES?***

***A26.*** The Shared Savings Mechanism should include only two tiers, as follows:

Incentive Tier	Compliance Percentage	Incentive Percentage
1	100% to <= 115%	4.0%
2	> 115%	8.0%

A 13% incentive percentage is too high. The incentive percentages proposed by the Companies should be reduced given FirstEnergy's current arrangement for collecting its lost distribution revenues from customers.<sup>29</sup> The top tier under the Shared Savings Mechanism should be reduced to 8%, as reflected in my proposal, to more adequately balance the interests of customers in paying reasonable rates and the interests of the Companies in increasing their profits. The 8% incentive percentage is within the range being offered to other utilities nationwide that have shared savings mechanisms.<sup>30</sup> Below I discuss the shareholder incentive mechanisms in place in other states.

---

<sup>29</sup> See Case No. 12-1230-EL-SSO, Opinion and Order (July 18, 2012) (approving stipulation that provides that FirstEnergy "shall be entitled to receive lost distribution revenues for all energy efficiency and peak demand reduction programs approved by the Commission, except for historic mercantile self-directed projects").

<sup>30</sup> See, e.g., Georgia Public Service Commission, Commission Final Order in Docket Nos. 36498 and 36499, approved on July 11, 2013. In this Final Order, the Georgia Public Service Commission approved a shareholder incentive equal to 8.5 percent of net benefits based upon the Utility Cost Test. See pages 24 and 35.

1   ***Q27. HAVE YOU REVIEWED CURRENT INFORMATION ON THE***  
2       ***PERCENTAGE OF NET BENEFITS USED IN OTHER STATES THAT***  
3       ***HAVE SHARED SAVINGS MECHANISMS SIMILAR TO THE PERCENT***  
4       ***OF NET BENEFITS SHARED SAVINGS MECHANISM APPROACH THAT***  
5       ***FIRSTENERGY HAS PROPOSED IN THIS DOCKET?***

6   ***A27.*** Yes. I have collected up-to-date information on the design of shared savings  
7       mechanisms in other states. It is clear that the design of shareholder incentive  
8       mechanisms varies considerably from state to state. At least sixteen states do not  
9       offer any shared savings mechanism or payment at all. Several states have  
10      designed their shared savings mechanisms to be a payment based on a percent of  
11      the annual EE/PDR budget if certain targets are met (these can include both  
12      energy savings and other non-energy, market-related targets).

13  
14      Several states include penalties in their incentive mechanism design if targets are  
15      not met. Pennsylvania has a penalty for not achieving savings targets, but no  
16      incentive payment if the savings target is met or exceeded.

17  
18      For the states where the shared savings incentive design is based on a percent of  
19      net savings, the shared savings percentage (of net savings) typically ranges in the  
20      8 to 10 percent range. Exhibit RFS-2 summarizes the shareholder incentive  
21      mechanism data that I have collected for U.S. states.



1   ***Q28. DOES THE CUSTOMER-FUNDED INCENTIVE MECHANISM***  
2                   ***PROPOSED BY FIRST ENERGY HAVE ANY PENALTIES FOR FAILING***  
3                   ***TO ACHIEVE THE SAVINGS TARGETS PRESENTED IN THE***  
4                   ***PORTFOLIO PLAN?***

5   ***A28.*** No. FirstEnergy's incentive proposal does not include any penalties if the  
6           Companies do not meet their annual savings targets.

7  
8   ***Q29. DO YOU HAVE ANY RECOMMENDATIONS REGARDING SUCH***  
9                   ***PENALTIES?***

10   ***A29.*** If the Companies receive an incentive for exemplary performance, then they  
11           should also be subject to a penalty for poor performance. This creates some  
12           symmetry and fairness in the process. In order to make the incentive mechanism  
13           balanced, there should be a penalty if the Companies do not achieve their savings  
14           target. If a Company does not achieve at least 85% of the annual savings target  
15           proposed in the Application, the Company should pay a penalty of 8% of the  
16           Total Discounted Net Lifetime Benefits under the TRC test to customers. Also, in  
17           the event that a Company achieves 100% or more of its savings target, but  
18           through projects completed in less than the minimum targeted number of  
19           participating customers, the Company's shared savings incentive should be  
20           reduced by an equal percentage.

1    **B.      FIRSTENERGY SHOULD NOT BE ABLE TO COUNT NET BENEFITS**  
2           **AND ENERGY SAVINGS OF NON-COST-EFFECTIVE PROGRAMS**  
3           **FOR PURPOSES OF SHARED SAVINGS FUNDED BY CUSTOMERS.**

4  
5    ***Q30.   IS FIRSTENERGY PROPOSING THAT CUSTOMERS PAY FOR***  
6           ***PROGRAMS THAT ARE NOT COST-EFFECTIVE?***

7    ***A30.***   Yes. Based on the results of FirstEnergy's Market Potential Study, there are eight  
8           residential programs in the Portfolio that are not cost-effective, including the low-  
9           income programs. There are also four non-residential programs that are not cost-  
10          effective.<sup>31</sup> As I discuss later in my testimony, I recommend that these non-cost  
11          effective programs (other than the low-income programs) be eliminated from the  
12          Portfolio Plans. If they are not eliminated, the PUCO should order FirstEnergy to  
13          account for these programs costs when calculating shared savings.

14  
15   ***Q31.   WHAT DOES IT MEAN FOR A PROGRAM TO NOT BE COST-***  
16           ***EFFECTIVE UNDER THE TOTAL RESOURCE COST TEST AND WHAT***  
17           ***DOES THIS MEAN TO CUSTOMERS WHO ARE CHARGED FOR SUCH***  
18           ***PROGRAMS?***

19   ***A31.***   Under the Total Resource Cost (TRC) test, cost effective programs (having TRC  
20           ratios of 1.0 or higher) have cumulative net benefits that equal or exceed the  
21           combined program-related and participating customer costs. Benefits typically

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<sup>31</sup> See Market Potential Study Tables 8-19, 8-20, 8-21.

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1 include avoided energy, capacity, transmission, and distribution costs plus any  
2 avoided customer operations and maintenance costs. According to the Ohio  
3 Administrative Code, costs in the TRC Test include utility costs and program  
4 participant costs. To be non-cost effective (TRC ratio of less than 1.0) a  
5 program's cumulative net benefits are less than the combined utility and  
6 participating customer costs. For example, Ohio Edison's Low-Income Energy  
7 Efficiency Program has a TRC ratio of 0.3.<sup>32</sup> This means that customers are  
8 paying over three dollars for every one dollar of cumulative lifetime energy  
9 savings benefit obtained. It is not reasonable to ask customers to spend their  
10 hard-earned money this way (except for programs for low income customers).

11  
12 ***Q32. HOW DOES FIRSTENERGY'S PROPOSED SHARED SAVINGS***  
13 ***MECHANISM ACCOUNT FOR PROGRAMS THAT ARE NOT COST-***  
14 ***EFFECTIVE?***

15 ***A32.*** The Shared Savings Mechanism contains two provisions that are relevant to the  
16 analysis of programs that are not cost-effective. First, "[t]he savings of ***all***  
17 ***programs*** [including non-cost effective programs] will contribute to the  
18 calculations of whether the Companies have exceeded their benchmarks for any  
19 particular year, and in doing so have triggered the Shared Savings Mechanism  
20 [emphasis supplied.]."<sup>33</sup> This means that the energy savings from non-cost-  
21 effective programs may be ***included*** when determining how much energy savings

---

<sup>32</sup> See Ohio Edison PUCO Table 7A-B, TRC Benefits Table - Residential

<sup>33</sup> Application § 7.1.

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1 FirstEnergy has achieved and which "incentive tier" will be used under the Shared  
2 Savings Mechanism. Second, "[t]he Total Discounted Net Lifetime Benefits of  
3 all cost-effective energy efficiency programs (as determined by the UCT) are  
4 eligible for shared savings [emphasis supplied]."<sup>34</sup> This means that for non-cost-  
5 effective programs, the programs' net costs are *excluded* from the calculation of  
6 Total Discounted Net Lifetime Benefits.<sup>35</sup> This unfairly contributes to increased  
7 funding from customers for the energy efficiency programs.

8  
9 ***Q33. HOW DO THESE TWO PROVISIONS AFFECT THE SHARED SAVINGS***  
10 ***THAT CUSTOMERS ARE BEING ASKED TO PAY?***

11 ***A33.*** FirstEnergy's non-cost effective programs do not decrease its profits (and indeed  
12 increase them under the proposed Shared Savings Mechanism), and thus, it has  
13 little incentive to ensure that programs and measures are cost effective, or to find  
14 innovative ways (using best practices from other programs) to improve the cost  
15 effectiveness of its entire portfolio of programs.

16  
17 FirstEnergy takes the net benefits of all cost-effective programs, which are  
18 positive, and uses them to calculate its shared savings profits, which are paid by  
19 customers. At the same time, FirstEnergy excludes the net costs of all non-cost-  
20 effective programs from the calculation. Excluding non-cost-effective programs

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<sup>34</sup> *Id.*

<sup>35</sup> Total Discounted Net Lifetime Benefits, as that term is used in the Application, is the total benefits of all programs, minus the program costs under the Portfolio Plan. Programs that are not cost-effective have negative Total Discounted Net Lifetime Benefits because the costs are greater than the benefits.

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1 from the shared savings calculation benefits FirstEnergy because the Total  
2 Discounted Net Lifetime Benefits of non-cost-effective programs is, by definition,  
3 negative. If the Total Discounted Net Lifetime Benefits of non-cost-effective  
4 programs were included in the shared savings calculation, FirstEnergy's profits  
5 would appropriately decrease, meaning customers would pay less.

6

7 ***Q34. SHOULD NON-COST-EFFECTIVE PROGRAMS BE INCLUDED IN THE***  
8 ***CALCULATION OF TOTAL DISCOUNTED NET LIFETIME BENEFITS?***

9 ***A34.*** Yes, but only if First Energy is allowed to keep non-cost-effective programs in its  
10 EE/PDR portfolio (which it should not be). The proposed Shared Savings  
11 Mechanism provides that the Companies receive a higher "incentive percentage"  
12 (and therefore higher profits) if they achieve greater energy savings. The  
13 incentive percentage is multiplied by the "Total Discounted Net Lifetime  
14 Benefits" achieved under the plan, and the resulting product is the amount of  
15 profit that customers pay. But there is often no correlation between increasing the  
16 energy savings and increasing the net benefits to customers because of  
17 FirstEnergy's calculation of net lifetime benefits using the Utility Cost Test,  
18 because it does not include costs incurred by customers. Thus, FirstEnergy can  
19 increase energy savings, thereby pushing it into a higher incentive percentage  
20 under the Company's proposed Shared Savings Mechanism (and increasing  
21 profits), even though that increase does not benefit — and in many instances,  
22 actually harms — customers. This means that not only are customers not

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1 "sharing" in the additional savings, they are paying the utility additional profits  
2 when the utility reduces the benefits to customers.

3  
4 The PUCO should not permit the Companies to increase their profits, paid by  
5 consumers, based on this proposed accounting methodology. The Shared Savings  
6 Mechanism should be modified to provide that the Total Discounted Net Lifetime  
7 Benefits of all programs, not just cost-effective programs, is used to calculate  
8 shared savings profits.<sup>36</sup> In my experience, excluding non-cost-effective  
9 programs from the calculation of net benefits in a shared savings mechanism is  
10 inequitable and highly unusual, if not unprecedented, and it should not be  
11 permitted. I have conducted a brief survey of five other states with shared savings  
12 mechanisms (Arkansas, Georgia, Michigan, North Carolina, South Carolina) and  
13 all five of these states include non-cost-effective programs in the calculation of  
14 the shared savings incentive. Moreover, none of the other Ohio electric utilities  
15 excludes non-cost-effective programs from its shared savings mechanism.

---

<sup>36</sup> As I discuss further in my testimony below, non-cost-effective programs other than low-income programs should be removed from the Portfolio entirely.

1     **C.     THE APPROPRIATE COST-BENEFIT TEST FOR THE SHARED**  
2     **SAVINGS THAT CUSTOMERS WILL PAY FOR IS THE TOTAL**  
3     **RESOURCE COST TEST.**

4  
5     ***Q35.   PLEASE DESCRIBE THE TOTAL RESOURCE COST TEST.***

6     ***A35.*** The Ohio Administrative Code defines the TRC test as follows: "'Total resource  
7     cost test' means an analysis to determine if, for an investment in energy efficiency  
8     or peak-demand reduction measure or program, on a life-cycle basis, the present  
9     value of the avoided supply costs for the periods of load reduction, valued at  
10    marginal cost, are greater than the present value of the monetary costs of the  
11    demand-side measure or program borne by both the electric utility and the  
12    participants, plus the increase in supply costs for any periods of increased load  
13    resulting directly from the measure or program adoption. Supply costs are those  
14    costs of supplying energy and/or capacity that are avoided by the investment,  
15    including generation, transmission, and distribution to customers. Demand-side  
16    measure or program costs include, but are not limited to, the costs for equipment,  
17    installation, operation and maintenance, removal of replaced equipment, and  
18    program administration, net of any residual benefits and avoided expenses such as  
19    the comparable costs for devices that would otherwise have been installed, the  
20    salvage value of removed equipment, and any tax credits."

21  
22    The National Action Plan for Energy Efficiency Guide titled "Understanding  
23    Cost-Effectiveness of Energy Efficiency Programs" defines the TRC test as

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1 follows: The TRC measures the net benefits of the energy efficiency program for  
2 the region as a whole. Costs included in the TRC are costs to purchase and install  
3 the energy efficiency measure and overhead costs of running the energy  
4 efficiency program. The benefits included are the avoided costs of energy (as  
5 with the PACT and the RIM). Table 6-4 in this Guide outlines the benefits and  
6 costs in the TRC.<sup>37</sup> The TRC test, unlike the Utility Cost Test (described below)  
7 includes costs for energy efficiency measures paid directly by participants.  
8

9 ***Q36. PLEASE DESCRIBE THE UTILITY COST TEST.***

10 ***A36.*** The Utility Cost Test (UCT), also known as the Program Administrator Cost Test  
11 (PACT), examines the costs and benefits of the energy efficiency program from  
12 the perspective of the entity implementing the program (here, FirstEnergy). The  
13 costs included in the UCT include the utility's overhead and incentive costs.  
14 Overhead costs are administration, marketing, research and development,  
15 evaluation, and measurement and verification. Incentive costs are payments made  
16 to the customers to offset purchase or installations costs. The benefits from the  
17 utility perspective are the savings derived from not delivering the energy to  
18 customers. Depending on the jurisdiction and type of utility, the "avoided costs"  
19 can include reduced wholesale electricity or natural gas purchases, generation

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<sup>37</sup> National Action Plan for Energy Efficiency Guide titled "Understanding Cost-Effectiveness of Energy Efficiency Programs", page 6-5.



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1 costs, power plant construction, transmission and distribution facilities, ancillary  
2 service and system operating costs, and other components.<sup>38</sup>

3

4 ***Q37. WHICH COST EFFECTIVENESS TEST HAS FIRSTENERGY PROPOSED***  
5 ***TO USE FOR COST EFFECTIVENESS CALCULATIONS AND FOR***  
6 ***CALCULATING THE TOTAL DISCOUNTED NET LIFETIME BENEFITS***  
7 ***FOR THE SHARED SAVINGS MECHANISM?***

8 ***A37.*** FirstEnergy proposes that for purposes of satisfying OAC 4901:1-39-04, the TRC  
9 test be used for cost effectiveness calculations, but when calculating utility profits  
10 for the shared savings mechanism, the UCT should be used. From the customers'  
11 perspective, the main downfall of the UCT is that it fails to take into account  
12 participant costs and therefore cannot be used to determine the actual net benefits  
13 that customers receive from the Companies' programs. Under the UCT, not all  
14 energy efficiency costs are included, which increases the utility profits that  
15 customers must pay to the utility. Thus, a program that is not cost-effective using  
16 the TRC could nonetheless increase utility profits using the UCT.

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<sup>38</sup> Id. Page 6-2.

1   ***Q38. WHICH TEST IS USED FOR PURPOSES OF CALCULATING NET***  
2       ***PROGRAM BENEFITS UNDER THE OHIO ADMINISTRATIVE CODE?***

3   ***A38.*** The PUCO rules require the TRC to be used to calculate net program benefits.  
4       *See* OAC 4901:1-39-01(F) ("Cost effective' means the measure, program, or  
5       portfolio being evaluated that satisfies the total resource cost test.").

6

7   ***Q39. IN YOUR VIEW, IS THERE A GOOD REASON TO USE DIFFERENT COST***  
8       ***EFFECTIVENESS TESTS FOR STATUTORY COMPLIANCE AND THE***  
9       ***SHARED SAVINGS MECHANISM?***

10   ***A39.*** No, there is no reason to use two different tests. The net benefits calculation for  
11       purposes of shared savings should be consistent with the PUCO rules and should  
12       utilize the TRC test.

13

14   ***Q40. WHICH TEST DO YOU RECOMMEND SHOULD BE USED TO***  
15       ***CALCULATE THE TOTAL DISCOUNTED NET LIFETIME BENEFITS***  
16       ***INSTEAD OF THE UTILITY COST TEST?***

17   ***A40.*** The TRC test should be used to calculate the total discounted net lifetime benefits  
18       because it is the test used under the PUCO rules and this test more appropriately  
19       balances the interests of both customers and the utility. The PUCO rules require  
20       an electric utility to demonstrate that its EE/PDR portfolio is cost-effective on a  
21       portfolio basis and that each program is cost-effective (unless the program

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1 provides “substantial non-energy benefits”).<sup>39</sup> The PUCO has determined that the  
2 appropriate test for cost-effectiveness is the TRC test.<sup>40</sup> The TRC test calculates  
3 the net benefits of a program by subtracting both the program costs and the costs  
4 borne by customers from the total program benefits. In contrast, the UCT  
5 subtracts the utility or program administrator program costs but not the costs that  
6 the customer incurs directly. The TRC test is the only cost effectiveness test that  
7 accounts for all the costs and benefits of the Companies’ EE/PDR programs.  
8 Therefore, the Companies' shared savings incentives should come from the total  
9 net benefits that the programs provide, not the net benefits provided only to the  
10 utility.

---

<sup>39</sup> See OAC 4901:1-39-04(B).

<sup>40</sup> See OAC 4901:1-39-01(F).

1    **D.     FIRSTENERGY SHOULD NOT BE ABLE TO COUNT THE CUSTOMER**  
2           **ACTION PROGRAM (CAP) AND OTHER PROGRAMS THAT ARE NOT**  
3           **ADMINISTERED BY FIRSTENERGY AS PART OF THE SHARED**  
4           **SAVINGS THAT CUSTOMERS ARE BEING ASKED TO FUND.**

5  
6    ***Q41.   CAN YOU DESCRIBE THE CUSTOMER ACTION PROGRAM, ENERGY***  
7           ***SPECIAL IMPROVEMENT DISTRICT, AND MERCANTILE CUSTOMER***  
8           ***PROGRAMS?***

9    ***A41.***   The residential CAP "captures energy savings and peak demand reductions  
10           achieved through actions taken by customers outside of utility-administered  
11           programs."<sup>41</sup> FirstEnergy performs surveys and collects data on savings that  
12           customers are achieving on their own and counts those savings toward the net  
13           benefits that are used to determine its profits in the Shared Savings Mechanism.

14  
15           The ESID program captures savings that townships and municipalities achieve by  
16           creating Energy Special Improvement Districts under Ohio Revised Code  
17           1710.061.<sup>42</sup> FirstEnergy proposes to count the savings achieved by ESIDs toward  
18           its statutory benchmark and toward its shared savings profit calculations.

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<sup>41</sup> See Portfolio Plan § 3.2 (page 40).

<sup>42</sup> See Portfolio Plan § 3.6 (page 77).

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1 Like the CAP and ESID programs, the Mercantile Customer Program captures  
2 savings from projects that the mercantile customer (not the Companies) initiated  
3 and directed.

4  
5 ***Q42. DOES FIRSTENERGY CONTRIBUTE TO THE ACHIEVEMENT OF***  
6 ***ENERGY SAVINGS FROM THE CAP, ESID, AND MERCANTILE SELF-***  
7 ***DIRECT PROGRAMS?***

8 ***A42.*** No. FirstEnergy plays no role in customers achieving savings from the CAP and  
9 does not provide any incentives to customers to reduce usage or demand.  
10 FirstEnergy does not administer the ESID programs, does not encourage  
11 townships and municipalities to create ESIDs, and does not otherwise contribute  
12 to any of the savings achieved by these programs. FirstEnergy does not  
13 administer the Mercantile Customer Program and does not contribute to any of the  
14 savings. In each of these programs, the customer achieves savings outside of  
15 FirstEnergy's programs, and FirstEnergy merely counts those savings towards its  
16 benchmark and to increase its profits.

17  
18 ***Q43. ARE CUSTOMERS HARMED BY INCLUDING THESE THREE***  
19 ***PROGRAMS IN THE SHARED SAVINGS MECHANISM?***

20 ***A43.*** Yes. Customers should not be forced to pay a shared savings incentive for  
21 EE/PDR activities where First Energy has had no effect on customers' decisions  
22 to adopt energy efficiency. This takes money from customers for nothing.  
23 Furthermore, the harm to customers is exacerbated by the use of the UCT to

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1 calculate shared savings. The UCT includes only costs incurred by the utility  
2 (*i.e.*, the program costs) and not costs incurred directly by the consumer. In the  
3 case of the CAP, ESID, and Mercantile Customer Programs, customers bear all of  
4 the costs. Thus, when calculating the net benefits of these programs, FirstEnergy  
5 counts all of the savings achieved by the consumer but none of the costs.  
6 FirstEnergy's profits (funded by customers), therefore, are even higher than they  
7 would be if FirstEnergy had run programs to achieve those same savings.  
8 Customers should not pay profits to FirstEnergy for the CAP, ESID, and  
9 Mercantile Customer Programs, and customers especially should not pay more  
10 profit for these programs than they do for programs that FirstEnergy actually  
11 designs and administers.

12  
13 ***Q44. WHAT IS YOUR RECOMMENDATION WITH RESPECT TO THE CAP,***  
14 ***ESID, AND MERCANTILE CUSTOMER PROGRAMS?***

15 ***A44.*** These programs should not be included as part of the shared savings mechanism  
16 because FirstEnergy does not contribute in any way to the savings produced by  
17 these programs. As the PUCO Staff has previously concluded:

18 [A] shared savings mechanism for the First Energy electric  
19 distribution utilities should only be for those activities for which  
20 First Energy has had a material effect in their customers' decisions  
21 in adopting energy efficiency. Only those programs that are under  
22 the direct or indirect supervision or management of the Company  
23 should be able to count toward those savings that exceed their  
24 annual benchmarks.<sup>43</sup>

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<sup>43</sup> See Proposal for Incentivizing Utility Energy Efficiency Performance Submitted on Behalf of the Staff of the Public Utilities Commission of Ohio, Case No. 09-1947-EL-POR (Oct. 24, 2011). See also Opinion

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I agree that a utility should only receive shared savings profits for programs that it develops and administers for the benefit of customers. A properly designed shared savings mechanism encourages a utility to run efficient programs that reduce usage and peak demand and increase the overall benefits for consumers. FirstEnergy's Shared Savings Mechanism violates these core principles by including savings from the CAP, ESID program, and Mercantile Customer Program in its profit calculations. Savings from these programs should not count for purposes of determining which "incentive tier" is used in the Shared Savings Mechanism, and benefits from these programs should be excluded from the calculation of Total Discounted Net Lifetime Benefits for purposes of the Shared Savings Mechanism. To find otherwise is unfair to customers and represents a handout for FirstEnergy at customer expense.

**E. FIRSTENERGY SHOULD NOT BE ABLE TO COUNT BEHAVIORAL PROGRAMS AS PART OF SHARED SAVINGS THAT CUSTOMERS MUST FUND.**

***Q45. SHOULD BEHAVIORAL PROGRAMS BE EXCLUDED FROM THE SHARED SAVINGS THAT CUSTOMERS ARE BEING ASKED TO PAY?***

***A45.*** Yes. Behavioral programs should be excluded from the shared savings mechanism because they do not result in persistent savings (i.e., measure lives

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and Order at 16, Case No. 12-2190-EL-POR (Mar. 23, 2013) (PUCO stating that FirstEnergy would exclude self-direct mercantile energy savings from the shared savings calculation).

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1 from such programs cannot be counted on for more than one or a maximum of  
2 two years) and the measurement of savings from such programs is more difficult  
3 to quantify than other programs that include installation of specific energy  
4 efficient equipment. Behavior-based programs focus on energy savings resulting  
5 from changes in individual customers or organizational behavior and decision-  
6 making, compared to savings from deployment of hardware such as appliances,  
7 HVAC equipment and home insulation. By their nature, behavioral program  
8 savings are short-lived. FirstEnergy provides that the measure life for their  
9 residential behavior program is only one year.<sup>44</sup> In contrast, programs that  
10 involve hardware (like a high efficiency HVAC system) have a measure life of  
11 anywhere from three to 18 years, according to FirstEnergy.<sup>45</sup> These non-  
12 behavioral programs provide savings that benefit customers year after year. I  
13 agree with the PUCO staff's recommendation in FirstEnergy's earlier portfolio  
14 case that "[p]rograms that rely strictly on behavioral changes of customers must  
15 demonstrate the persistence of such savings each year."<sup>46</sup> FirstEnergy admits that  
16 its residential behavioral program has a measure life of just a single year and  
17 therefore does not demonstrate persistence of savings each year.

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<sup>44</sup> See Application, Appendix C-1: Measure Assumptions.

<sup>45</sup> See *id.*

<sup>46</sup> See Proposal for Incentivizing Utility Energy Efficiency Performance Submitted on Behalf of the Staff of the Public Utilities Commission of Ohio at 2, Case No. 09-1947-EL-POR (Oct. 24, 2011).



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1   ***Q46. ARE THERE OTHER REASONS WHY BEHAVIORAL PROGRAMS***  
2       ***SHOULD BE EXCLUDED FROM THE SHARED SAVINGS THAT***  
3       ***CUSTOMERS ARE BEING ASKED TO PAY?***

4   ***A46.*** Yes. Behavioral programs do not rely on hardware or other similar measures, but  
5       instead rely on general customer decision-making. As a result, the actual savings  
6       from behavioral programs are harder to measure and harder to determine whether  
7       the utility, a government agency or other economic or social drives are  
8       responsible for the energy savings. Again, this presents the potential issue of  
9       customers paying the utility for efforts it had little or nothing to do with. It is  
10      relatively simple to calculate the energy savings that result from using an efficient  
11      appliance or lightbulb compared to an inefficient one. But there is no easy way to  
12      reliably determine that a customer made a behavioral change as a result of  
13      receiving a report from a utility about electricity usage. I agree with the PUCO  
14      staff's recommendation that "[e]nergy efficiency savings must be clearly and  
15      easily measurable,"<sup>47</sup> and FirstEnergy's behavioral programs do not meet this  
16      standard. I recommend that savings from behavioral programs be excluded from  
17      the shared savings mechanism.

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<sup>47</sup> See Proposal for Incentivizing Utility Energy Efficiency Performance Submitted on Behalf of the Staff of the Public Utilities Commission of Ohio at 2, Case No. 09-1947-EL-POR (Oct. 24, 2011) ("Energy efficiency savings must be clearly and easily measureable.").

**F. PROGRAMS ADDRESSED IN OTHER DOCKETS SHOULD BE  
EXCLUDED FROM CONSIDERATION IN THIS DOCKET.**

***Q47. ARE THERE OTHER FIRSTENERGY PROGRAMS THAT SHOULD BE  
EXCLUDED FROM THE SHARED SAVINGS THAT CUSTOMERS ARE  
BEING ASKED TO PAY?***

***A47.*** Yes. Programs addressed in other dockets should not be counted for purposes of shared savings that customers pay. FirstEnergy identifies several programs that are addressed in other dockets, including the LED Street Lighting Tariff, Mercantile Customer Program, Transmission and Distribution ("T&D") Upgrades Program, and Smart Grid Modernization Initiative Program. As FirstEnergy contends, these programs are not being addressed in this case and "no further approval is necessary in this docket."<sup>48</sup> Accordingly, FirstEnergy should not be entitled to charge customers for these programs in its shared savings calculation.

Furthermore, to the extent that the T&D Upgrades Program, Smart Grid Modernization Initiative Project, or any other programs include capital investments, the Companies could receive a return on those investments, so allowing shared savings would result in customers paying for profits twice, through two different rate mechanisms. That is unreasonable.

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<sup>48</sup> See Application ¶ 23.

1    **G.     THERE SHOULD BE REASONABLE LIMITS ON THE AMOUNT OF**  
2    **PROFITS (SHARED SAVINGS) THAT CUSTOMERS FUND.**

3  
4    ***Q48.   DO YOU AGREE THAT FIRSTENERGY SHOULD BE ALLOWED TO***  
5    ***INCREASE THE SHARED SAVINGS THAT CUSTOMERS PAY FROM \$10***  
6    ***MILLION A YEAR (AFTER TAXES) TO \$25 MILLION A YEAR (AFTER***  
7    ***TAXES)?***

8    ***A48.*** No. FirstEnergy requests a 150% increase in profits to be paid by customers from  
9    \$10 million per year to \$25 million<sup>49</sup> per year. In this case, FirstEnergy provides  
10   no information on how it arrived at this number, why it is appropriate, why  
11   customers should be asked to pay it, or why it is 150% higher than the previous  
12   cap. There is no justification for such a substantial increase in profits that  
13   customers would pay. The cap should remain at \$10 million per year (at most),  
14   which represents nearly 10% of the total annual proposed program costs.

15  
16   ***Q49.   DO YOU FIND THAT PRESENTATION OF SHARED SAVINGS VALUES***  
17   ***THAT CUSTOMERS ARE BEING ASKED TO PAY IN “AFTER-TAX”***  
18   ***DOLLARS IS APPROPRIATE?***

19   ***A49.*** No. Presenting FirstEnergy's shared savings mechanism cap as “post-tax” values  
20   is deceptive because it does not represent the amount of money that customers  
21   actually will be asked to pay. There should be transparency about what customers

---

<sup>49</sup> As discussed above, I understand that because the \$25 million cap is post-tax, customers could actually pay up to \$39 million a year in profits.

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1 will pay. Using and communicating a \$10 million or \$25 million value is  
2 deceptive because such values are not the amounts that customers will actually be  
3 paying. Instead, the Company should present its shared savings values as “pre-  
4 tax.” Presentation of shared savings incentives in pre-tax dollars is quite common  
5 in other jurisdictions and should be the approach used for the Company going  
6 forward. Furthermore, if the PUCO does conclude that the cap should be \$25  
7 million, the \$25 million number should be the before-tax number, and not the  
8 after-tax number.

9

10 ***Q50. DO YOU FIND THAT THE PROPOSED \$39 MILLION ANNUAL CAP FOR***  
11 ***THE SHARED SAVINGS THAT CUSTOMERS ARE BEING ASKED TO***  
12 ***PAY IS UNREASONABLE?***

13 ***A50.*** Yes. The \$25 million shared savings cap in FirstEnergy's application will actually  
14 cost customers around \$39 million.<sup>50</sup> Charging customers for \$39 million in  
15 profits is excessive because FirstEnergy bears almost no risk under the 2017-2019  
16 Portfolio. The Companies' return (profit) from EE/PDR programs should be  
17 commensurate with the risk associated therewith. The 2017-2019 Portfolio costs  
18 FirstEnergy nothing: consumers pay 100% of program costs plus distribution  
19 revenues that are lost as a result of EE/PDR programs. Despite the lack of any  
20 risk on behalf of the Companies, FirstEnergy asks customers to pay up to an

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<sup>50</sup> See Exhibit RFS-4.

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1 additional \$39 million a year to the Companies in profit if FirstEnergy achieves a  
2 certain amount of energy savings.

3

4 ***Q51. DO YOU SEE ANY ISSUES WITH HAVING A SINGLE SHARED SAVINGS***  
5 ***CAP SPREAD ACROSS ALL OF THE CUSTOMERS SERVED BY THE***  
6 ***THREE COMPANIES?***

7 ***A51.*** Yes. Having a single shared savings cap across all three Companies is unfair to  
8 customers and should not be approved. The Application states that the Shared  
9 Savings Mechanism will include a "cap of \$25 million after-tax per year in total  
10 across the Companies."<sup>51</sup> The Application, however, does not provide any details  
11 on how the \$25 million yearly shared savings cap will be spread across the three  
12 operating Companies. It does not provide any details on how much of the \$25  
13 million yearly cap will be paid by OE's customers, how much by CEI's customers,  
14 and how much by TE's customers.

15

16 If the PUCO approves a single cap spread across all three Companies, then the  
17 amount of profits paid by one Company's customers may be higher or lower  
18 depending not just on the success of those customers' own operating Company's  
19 programs, but on the success or failure of the other two operating Companies'  
20 programs. It seems unreasonable to have the different utilities' customers, all who

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<sup>51</sup> See Portfolio Plan § 7.1.

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1 pay service area specific rates, pay for energy efficiency measures on a  
2 consolidated basis.

3

4 ***Q52. CAN YOU PROVIDE AN EXAMPLE THAT DEMONSTRATES HOW A***  
5 ***SINGLE SHARED SAVINGS CAP SPREAD ACROSS ALL CUSTOMERS***  
6 ***OF THE THREE COMPANIES HARMS CUSTOMERS?***

7 ***A52.*** Yes. A single shareholder incentive cap applied across all three Companies is not  
8 equitable to customers.

9

10 If a single shareholder incentive cap is approved for all three FirstEnergy  
11 Companies, then the amount of profits paid by one Company's customers may be  
12 higher or lower depending not just on the success of those customers' own  
13 operating Company's programs, but on the success or failure of the other two  
14 operating Companies' programs. The following scenarios demonstrate the  
15 inequity that can result from a single cap across all three Companies.

16

17 Scenario 1. Suppose, under the proposed Portfolio, that in 2017, OE, CEI, and TE  
18 all meet their annual and cumulative benchmarks and are all eligible for shared  
19 savings. Suppose that, under the Shared Savings Mechanism, each of OE, CEI,  
20 and TE would receive \$20 million in shared savings, for a total of \$60 million.  
21 Because of the shared savings cap, however, the total would be reduced to \$25

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1 million.<sup>52</sup> Thus, none of the Companies would collect \$20 million, but instead,  
2 each would collect closer to \$8 million from its customers.<sup>53</sup>

3  
4 Scenario 2. Now suppose that OE meets its annual and cumulative benchmarks in  
5 2017, but CEI and TE do not. Suppose that OE's performance is the same as in  
6 Scenario 1 such that it would receive \$20 million in shared savings under the  
7 Shared Savings Mechanism. Because CEI and TE did not meet their benchmarks,  
8 they would not be entitled to any shared savings. But because the total shared  
9 savings across all three Companies is less than the \$25 million cap, OE's  
10 customers would pay the entire \$20 million to OE. In other words, OE's  
11 customers would pay \$20 million in utility profits instead of just over \$8 million,  
12 even though OE's portfolio performance was identical in both scenarios. OE's  
13 customers should not be punished for CEI's and TE's failure to meet their annual  
14 savings benchmarks.

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<sup>52</sup> For purposes of simplicity, this example ignores the fact that shared savings is paid on an after-tax basis. The underlying principle of this argument does not rely on tax issues.

<sup>53</sup> The Application does not state how the \$25 million will be allocated across the three Companies if the cap is reached. For purposes of argument, this example assumes that the savings would be split proportionally across the three Companies.

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**Q53. DO YOU HAVE A RECOMMENDATION ON HOW THE CAP FOR THE  
SHARED SAVINGS MECHANISM SHOULD BE STRUCTURED TO  
PROTECT CUSTOMERS?**

**A53.** Yes. Rather than a single cap spread across all three operating Companies, there should be a separate cap for each customer class (low-income residential, non-low-income residential, nonresidential) for each Company. As discussed above, FirstEnergy has not justified a 150% increase in its shared savings cap from \$10 million per year to \$25 million per year. Therefore, the \$10 million total cap under the 2013-2015 Portfolio should remain in place, and this cap should be specified as a “before-tax” cap. The individual caps should be based on the percentage of total three-year cumulative energy savings attributable to each customer class for each Company, as follows:<sup>54</sup>

	<b>OE</b>	<b>CEI</b>	<b>TE</b>
<b>Residential Low Income</b>	\$31,184	\$33,104	\$13,050
<b>Residential Non-Low Income</b>	\$2,038,406	\$1,451,224	\$590,087
<b>Nonresidential</b>	\$2,701,215	\$1,977,751	\$1,163,980

I have attached as Exhibit RFS-3 a summary of the calculations used to derive these proposed caps.

The PUCO should approve a separate shared savings cap for each class of customers for each Company, as opposed to a single cap for all three Companies,

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<sup>54</sup> If the PUCO finds that the total cap should be some number other than \$10 million, then the individual Company caps be adjusted proportionately.



1 to protect customers within one of the Company's customer classes from unfairly  
2 paying an excessive amount of profits to the Companies.

3

4 **V. PROGRAMS THAT ARE NOT COST-EFFECTIVE AND DO NOT**  
5 **PROVIDE SUBSTANTIAL NON-ENERGY BENEFITS SHOULD NOT BE**  
6 **FUNDED BY CUSTOMERS**

7

8 ***Q54. ARE EE/PDR PROGRAMS REQUIRED TO BE COST-EFFECTIVE?***

9 ***A54.*** Yes. In Ohio, the portfolio must be cost-effective, and each individual program  
10 must be cost-effective.<sup>55</sup>

11

12 ***Q55. ARE THERE ANY CIRCUMSTANCES IN WHICH A PORTFOLIO CAN***  
13 ***CONTAIN A PROGRAM THAT IS NOT COST-EFFECTIVE?***

14 ***A55.*** Yes. A utility can include a program that is not cost effective only if the program  
15 "provides substantial nonenergy benefits."<sup>56</sup>

16

17 ***Q56. WHAT ARE NONENERGY BENEFITS?***

18 ***A56.*** "Nonenergy benefits" are "societal benefits that do not affect the calculation of  
19 program cost-effectiveness pursuant to the total resource cost test including but  
20 not limited to benefits of low-income customer participation in utility programs;

---

<sup>55</sup> See OAC 4901:1-39-04(B) ("Each electric utility shall demonstrate that its program portfolio plan is cost-effective on a portfolio basis. In general, each program proposed within a program portfolio plan must also be cost-effective, although each measure within a program need not be cost-effective.").

<sup>56</sup> OAC 4901:1-39-04(B).

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1 reductions in greenhouse gas emissions, regulated air emissions, water  
2 consumption, natural resource depletion to the extent the benefit of such  
3 reductions are not fully reflected in cost savings; enhanced system reliability; or  
4 advancement of any other state policy enumerated in section 4928.02 of the  
5 Revised Code."<sup>57</sup>

6  
7 ***Q57. WHAT TEST IS USED TO DETERMINE WHETHER PROGRAMS ARE***  
8 ***COST-EFFECTIVE?***

9 ***A57.*** The Ohio Administrative Code requires the TRC test to be used to determine cost-  
10 effectiveness of programs.<sup>58</sup>

11  
12 ***Q58. WHAT ARE THE BENEFITS OF USING THE TRC TO MEASURE COST-***  
13 ***EFFECTIVENESS?***

14 ***A58.*** The California Standard Practice Manual states that "The primary strength of the  
15 Total Resource Cost (TRC) test is its scope. The test includes total costs  
16 (participant plus program administrator costs) and also has the potential for  
17 capturing total benefits (avoided supply costs plus, in the case of the societal test  
18 variation, externalities). To the extent supply-side project evaluations also  
19 include total costs of generation and/or transmission, the TRC test provides a  
20 useful basis for comparing demand- and supply-side options. Since this test treats  
21 incentives paid to participants and revenue shifts as transfer payments (from all

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<sup>57</sup> OAC 4901:1-39-01(Q).

<sup>58</sup> OAC 4901:1-39-01(F).

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1 ratepayers to participants through increased revenue requirements), the test results  
2 are unaffected by the uncertainties of projected average rates, thus reducing the  
3 uncertainty of the test results.”<sup>59</sup>

4

5 ***Q59. DOES FIRSTENERGY'S PORTFOLIO CONTAIN PROGRAMS THAT ARE***  
6 ***NOT COST-EFFECTIVE AND YET WOULD BE PART OF RATES THAT***  
7 ***CUSTOMERS ARE BEING ASKED TO PAY?***

8 ***A59.*** Yes. The FirstEnergy 2017-2019 Portfolio includes the following residential  
9 programs that are not cost effective under the TRC test: Direct Load Control,  
10 Behavioral<sup>60</sup>, Audits & Education, School Education, HVAC, Smart Thermostat,  
11 Low Income – New Homes, and Community Connections.<sup>61</sup> The following Table  
12 1 summarizes the TRC results for these programs,<sup>62</sup> along with the program costs  
13 and the projected savings associated with each program for 2017-2019:<sup>63</sup>

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<sup>59</sup> See 2002 California Standard Practice Manual, pages 20-21, published by the California Public Utilities Commission. Available at URL [http://www.calmac.org/events/spm\\_9\\_20\\_02.pdf](http://www.calmac.org/events/spm_9_20_02.pdf).

<sup>60</sup> Behavioral has a TRC score of 1.00 for OE. See MPS Table 8-19. It is not cost effective for CEI and TE. *Id.* Table 8-20, Table 8-21. It may be just barely cost effective, or it may not be cost-effective if the 1.00 score is the result of rounding up.

<sup>61</sup> In addition, the following non-residential programs are not cost effective: Audits & Education – SCI, Custom Buildings – SCI, Government Tariff Lighting (only TE is not cost effective), and Agricultural. See MPS Tables 8-19, 8-20, & 8-21 (pages 107-09).

<sup>62</sup> The Low Income – New Homes and Community Connections programs are low income programs that provide non-energy benefits as required by OAC 4901:1-39-04(B).

<sup>63</sup> See MPS Tables 8-19, 8-20, & 8-21 (pages 107-09); Application Appendix B-1: Program Cost by Program Year (page 4 of 4 for each Company); Application Appendix B-2: Program Savings by Program Year (for each Company).

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Table 1

	OE			CEI			TE		
Program	TRC	Cost	KWh Savings	TRC	Cost	KWh Savings	TRC	Cost	KWh Savings
Direct Load Control	0.69	\$1,003,972	0	0.69	\$591,209	0	0.69	\$162,207	0
Behavioral				0.91	\$4,868,653	73245972	0.88	\$1,938,575	27261834
Audits & Education	0.89	\$3,786,218	8,535,885	0.89	\$2,651,944	9784111	0.89	\$1,092,726	2555802
School Education	0.93	\$2,984,315	9,648,607	0.93	\$1,817,727	7232542	0.93	\$992,181	4002424
HVAC	0.37	\$4,319,275	13,914,103	0.37	\$3,079,548	9611430	0.37	\$1,266,486	4054764
Smart Thermostat	0.55	\$1,958,536	2,449,729	0.54	\$1,533,079	1756986	0.54	\$587,051	720335
TOTALS		<b>\$14,052,316</b>	<b>34,548,324</b>		<b>\$14,542,160</b>	<b>101,631,041</b>		<b>\$6,039,226</b>	<b>38,595,159</b>

***Q60. CAN YOU EXPLAIN IF THESE NON-COST-EFFECTIVE RESIDENTIAL PROGRAMS PROVIDE SUBSTANTIAL NON-ENERGY BENEFITS?***

***A60.*** In my opinion, the Behavioral, Audits & Education, School Education, HVAC, and Smart Thermostat programs do not provide substantial non-energy benefits to low income customers, significantly reduce greenhouse emissions, regulated air emissions, water consumption, or natural resource depletion, or substantially enhance system reliability. These are standard EE/PDR programs that serve primarily to reduce energy usage and demand. There is no evidence that these programs provide any non-energy benefits, let alone "substantial" non-energy benefits, as required by the Ohio Administrative Code.

The Low Income – New Homes and Community Connections programs are for the exclusive benefit of low-income customers. Therefore, these two programs may provide substantial non-energy benefits. Thus, they are not included in my Table 1 above.

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**Q61. DO THESE NON-COST-EFFECTIVE PROGRAMS MAKE UP A  
SUBSTANTIAL PORTION OF THE PORTFOLIO THAT CUSTOMERS ARE  
BEING ASKED TO PAY FOR?**

**A61.** Yes. The following Table 2 compares the costs and energy savings from non-cost-effective residential EE/PDR programs to total costs and energy savings from all residential EE/PDR programs (both excluding low income programs):

Table 2

	Cost of Non-Cost-Effective Residential Programs	Cost of All Residential Programs	% of Costs Not Cost Effective	KWh Savings from Non-Cost-Effective Residential Programs	KWh Savings from all Residential Programs	% of KWh Not Cost Effective
OE	\$14,052,316	\$61,571,440	22.82%	34548324	492,136,164	7.02%
CEI	\$14,542,160	\$43,196,847	33.66%	101631041	350,371,682	29.01%
TE	\$6,039,226	\$18,517,733	32.61%	38595159	142,465,704	27.09%
TOTAL	\$34,633,702	\$123,286,020	28.09%	174,774,524	984,973,550	17.74%

The data in Tables 1 and 2 demonstrate that the Companies propose to spend a substantial portion (28%) of their residential EE/PDR budget on programs that are not cost effective. Among the three Companies, residential customers will pay \$34.6 million in program costs for programs that are not cost effective. This is in addition to over \$70 million in programs costs for non-residential programs that are not cost effective.<sup>64</sup> This is unreasonable and should not be permitted.

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<sup>64</sup> See Application, Appendix B-1: Program Cost by Program Year (page 4). These non-residential programs account for an additional 222,000 MWh of energy savings. See Application, Appendix B-2: Program Savings by Year.

1   ***Q62. SHOULD CUSTOMERS PAY FOR PROGRAMS THAT ARE NOT COST-***  
2       ***EFFECTIVE?***

3   ***A62.*** No. Ohio consumers pay for energy efficiency programs. It is the responsibility  
4       of the program administrator to design programs that provide positive net benefits  
5       for the state and its citizens. This means that utilities should design programs that  
6       return more in quantifiable benefits for consumers for each dollar that consumers  
7       spend. Behavioral, Audits & Education, School Education, HVAC, and Smart  
8       Thermostats are not cost-effective and do not provide substantial non-energy  
9       benefits. They should be removed from the 2017-2019 Portfolio. Customers  
10      should not be required to pay for these programs.

11

12   **VI. CUSTOMERS SHOULD NOT HAVE TO PAY THE COST TO RESTART**  
13       **PROGRAMS AND MEASURES THAT FIRSTENERGY UNILATERALLY**  
14       **CANCELLED FOR 2015 AND 2016**

15

16   ***Q63. IS IT CORRECT THAT FIRSTENERGY CANCELLED ALMOST ALL OF***  
17       ***ITS EE/PDR PROGRAMS FOR 2015 AND 2016?***

18   ***A63.*** Yes. I understand that SB 310 amended R.C. 4928.66(A)(1)(a) to eliminate the  
19       annual energy savings requirements for the years 2015 and 2016 (commonly  
20       referred to as the "freeze"). Utilities had two options for 2015 and 2016: continue  
21       their current portfolio of programs or seek an amendment to their current

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1 portfolio.<sup>65</sup> The other electric distribution utilities in Ohio (AEP Ohio, Duke  
2 Energy, and Dayton Power & Light) all chose to continue their EE/PDR  
3 programs. FirstEnergy was alone in amending its portfolio to cancel substantially  
4 all of its EE/PDR programs.<sup>66</sup>

5

6 ***Q64. WHICH RESIDENTIAL EE/PDR PROGRAMS DID FIRSTENERGY***  
7 ***CANCEL FOR 2015 AND 2016?***

8 ***A64.*** FirstEnergy cancelled the following residential programs and measures for 2015  
9 and 2016:<sup>67</sup>

- 10 • Appliance Turn In (refrigerator, freezer, and room air conditioner  
11 recycling
- 12 • School Education
- 13 • EE Kits
- 14 • Audits & Education (comprehensive audit and on-line audit)
- 15 • Behavioral
- 16 • New Homes (townhouse and duplex, condos, single family, and  
17 multi-family homes)
- 18 • Appliances (clothes washers, freezers, refrigerators, dehumidifiers,  
19 and water heaters)

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<sup>65</sup> See SB 310, § 6, available at [http://archives.legislature.state.oh.us/bills.cfm?ID=130\\_SB\\_310](http://archives.legislature.state.oh.us/bills.cfm?ID=130_SB_310).

<sup>66</sup> See Program Cancellation Application ¶ 3; Case No. 12-2190-EL-POR, Finding and Order (Nov. 20, 2014) (approving the application to amend the portfolio plan).

<sup>67</sup> See *id.*

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- 1           •       Consumer Electronics (monitors, computers, TVs)
- 2           •       Lighting (CFL and LED lamps and fixtures)
- 3           •       HVAC (heat pump, central and room air conditioners, heat pumps,
- 4                 HVAC maintenance, and furnace fans).

5

6   ***Q65. IS FIRSTENERGY PROPOSING TO RESTART EACH OF THESE***  
7       ***RESIDENTIAL PROGRAMS?***

8   ***A65.*** Yes. FirstEnergy proposes that each of these programs be restarted (collectively,  
9       the "Restarted Programs") under the 2017-2019 Portfolio.<sup>68</sup>

10

11   ***Q66. HOW MUCH WILL THE RESTARTED PROGRAMS COST CONSUMERS***  
12       ***UNDER THE PORTFOLIO?***

13   ***A66.*** Collectively, these programs will cost consumers over \$115 million during 2017-  
14       2019.<sup>69</sup> This is an increase of over \$10 million from FirstEnergy's previous  
15       portfolio.<sup>70</sup> This suggests that the cost of restarting the same programs is around  
16       \$10 million.

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<sup>68</sup> See Portfolio Plan § 3.2 (Table 7).

<sup>69</sup> See Application, Appendix B-1 (page 4).

<sup>70</sup> See Ohio Edison Company Energy Efficiency & Peak Demand Reduction Program Portfolio (July 31, 2012) at Exhibit B-4, Case No. 12-2190; The Cleveland Electric Illuminating Company Energy Efficiency & Peak Demand Reduction Program Portfolio (July 31, 2012) at Exhibit B-4, Case No. 12-2190; Toledo Edison Company Energy Efficiency & Peak Demand Reduction Program Portfolio (July 31, 2012) at Exhibit B-4, Case No. 12-2190.



1   ***Q67. WHAT TYPES OF COSTS COULD BE ASSOCIATED WITH RESTARTING***  
2   ***PROGRAMS THAT WERE CANCELLED FOR 2015 AND 2016?***

3   ***A67.*** Restarting programs that were previously cancelled may require FirstEnergy to  
4       incur costs to develop new program plans and evaluation plans (as opposed to just  
5       modifying existing plans), hire and train staff and consultants, develop new  
6       marketing materials for programs to avoid customer confusion, renegotiate  
7       contracts with vendors, and resurrect dormant information technology systems  
8       and update input data. These costs would not have been incurred if FirstEnergy  
9       had not unilaterally eliminated these programs for 2015 and 2016.

10

11   ***Q68. SHOULD CUSTOMERS BE REQUIRED TO PAY FOR COSTS INCURRED***  
12   ***BY FIRST ENERGY AS A DIRECT RESULT OF CANCELLING***  
13   ***PROGRAMS AND THEN RE-STARTING THEM TWO YEARS LATER?***

14   ***A68.*** No. The utility has the responsibility to spend program costs prudently. The  
15       costs associated with ramping down programs and then ramping them up two  
16       years later is not prudent spending. It is not reasonable for customers to pay costs  
17       that are not prudently incurred.

18

19   ***Q69. ARE THERE OTHER STATE REGULATORY COMMISSIONS THAT HAVE***  
20   ***ADDRESSED THE EXTRA COSTS INVOLVED WITH STOPPING THEN***  
21   ***RE-STARTING PROGRAMS?***

22   ***A69.*** Yes. The Washington Utilities and Transportation Commission (WUTC)  
23       examined this issue in the 2012 to 2013 time period in Docket UG-121207. On

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1       October 9, 2013, the WUTC issued a policy statement that included a discussion  
2       of this issue.<sup>71</sup> The policy statement included the following direction on this  
3       issue: “Finally, there may be significant costs associated with discontinuing and  
4       then restarting conservation programs a short time later; utilities do not currently  
5       consider these costs in cost-effectiveness tests.” Accordingly, a utility proposing  
6       to stop offering conservation programs should quantify, and include in its cost-  
7       effectiveness evaluation, the costs of discontinuing and restarting programs.  
8       Specifically, utilities should consider all quantifiable costs of starting and  
9       stopping, including, but not limited to the effects on conservation program  
10      delivery infrastructure, trade ally networks, workforce skills related to installing  
11      energy efficiency measures, administrative costs, and advertising expenses.  
12      Evaluating this data will ensure that a utility will account for the cost associated  
13      with running an intermittent program.

14  
15   ***Q70. WHAT IS YOUR RECOMMENDATION REGARDING THE COSTS***  
16   ***ASSOCIATED WITH RESTARTING THE PROGRAMS THAT WERE***  
17   ***DISCONTINUED IN 2015 AND 2016?***

18   ***A70.*** As I described above, the programs that are restarted will cost an additional \$10  
19      million as compared to FirstEnergy's previous portfolio. The PUCO should order  
20      that this additional \$10 million not be paid by customers but instead should be  
21      paid by FirstEnergy's shareholders.

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<sup>71</sup> See Washington Utilities and Transportation Commission, Docket UG 121-207, Policy Statement On The Evaluation of The Cost-Effectiveness of Natural Gas Conservation Programs, October 9, 2013.

**VII. THE STAKEHOLDER PROCESS SHOULD BE RESTRUCTURED TO  
PROVIDE OPPORTUNITIES FOR PARTIES TO PROVIDE  
MEANINGFUL INPUT**

***Q71. WHAT IS THE ROLE OF STAKEHOLDERS IN THE PORTFOLIO  
DEVELOPMENT PROCESS?***

***A71.*** Stakeholders should have an opportunity to participate in the development and design of EE/PDR programs. They should have an opportunity to provide meaningful input to the utility, to identify best practices, and to participate in all material decisions related to an EE/PDR portfolio.

***Q72. DID YOU REVIEW THE MATERIALS THAT FIRSTENERGY  
DISTRIBUTED TO STAKEHOLDERS PRIOR TO FILING ITS  
APPLICATION?***

***A72.*** Yes. I reviewed two presentations that FirstEnergy prepared, one dated February 9, 2016 (the "February 9 Presentation") and one dated March 22, 2016 (the "March 22 Presentation").

***Q73. PLEASE DESCRIBE THE FEBRUARY 9 PRESENTATION.***

***A73.*** The February 9 presentation is 37 pages long and includes basic information on potential aspects of the 2017-2019 Portfolio, including (a) identifying the 800,000 MWh target, (b) deadlines, (c) a list of best practices, (d) several bullet points describing what the MPS would accomplish, (e) 12 pages of charts with brief

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1 descriptions (some as short as one sentence) of potential sub-programs, and (f) 11  
2 pages of charts listing measures, without any description, from FirstEnergy's  
3 previous portfolio and some measures that FirstEnergy was considering for its  
4 2017-2019 Portfolio. The presentation does not include material information on  
5 proposed costs, program design, or cost recovery mechanisms. Furthermore, as  
6 FirstEnergy acknowledged at the beginning of the presentation, the information  
7 contained therein was "preliminary," "intended to provide generally descriptive  
8 information," and "subject to change."

9

10 ***Q74. PLEASE DESCRIBE THE MARCH 22 PRESENTATION.***

11 ***A74.*** The March 22 presentation included additional information on projected savings,  
12 budgets, and a more definitive list of programs. The program descriptions  
13 remained brief, however, and the information in this presentation is substantially  
14 less detailed than the information in the Application. As in the February 9  
15 Presentation, all information was "preliminary," "intended to provide generally  
16 descriptive or summary information," and "subject to change."

17

18 ***Q75. DO YOU BELIEVE THAT PARTIES COULD MEANINGFULLY***  
19 ***EVALUATE THE PORTFOLIO BASED SOLELY ON THE INFORMATION***  
20 ***PROVIDED IN THE FEBRUARY 9 PRESENTATION AND MARCH 22***  
21 ***PRESENTATION?***

22 ***A75.*** No. The information in these presentations, while helpful, was far less detailed  
23 than the information in the Application. Based on the presentations, parties could,

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1 at best, gain some insight into the general direction of the EE/PDR programs, but  
2 they could not develop positions, make detailed recommendations for changes,  
3 identify which programs should or should not be included, or analyze the costs  
4 and benefits of the programs and measures.

5

6 ***Q76. WHAT CHANGES DO YOU RECOMMEND TO THE STAKEHOLDER***  
7 ***PROCESS?***

8 ***A76.*** In future cases, the PUCO should require FirstEnergy to distribute a draft of its  
9 EE/PDR Application and a draft of the Market Potential Study to the stakeholder  
10 group at least 90 days before the application is filed. A stakeholder group  
11 meeting should be held between two and three weeks after the application and  
12 market potential study are distributed so that parties have ample time to review  
13 the materials before the meeting. Ample time should then be allotted for  
14 stakeholder group members to provide meaningful input to the Companies, to  
15 collaborative to identify best practices, and to participate in all material decisions  
16 related to an EE/PDR portfolio. This will contribute to a more open, informed  
17 collaborative process.

**VIII. FIRSTENERGY SHOULD HAVE CONDUCTED ITS MARKET  
POTENTIAL STUDY PRIOR TO DETERMINING THE NATURE AND  
SCOPE OF ITS PORTFOLIO THAT CUSTOMERS WILL BE FUNDING**

***Q77. WHAT IS A MARKET POTENTIAL STUDY?***

***A77.*** A market potential study ("MPS") is "an assessment of potential energy savings and peak-demand reduction from adoption of energy efficiency and demand-response measures."<sup>72</sup> The MPS is required to include an analysis of technical potential (reduction in energy usage or peak demand that would result if the most efficient measures were adopted, regardless of cost<sup>73</sup>), economic potential (reduction in energy usage or peak demand if the most efficient and cost-effective measures were all adopted<sup>74</sup>), and achievable potential (likely reduction in energy usage or peak demand taking into account barriers to customer adoption, including market, financial, political, regulatory, or attitudinal barriers<sup>75</sup>).

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<sup>72</sup> See OAC 4901:1-39-03(A).

<sup>73</sup> OAC 4901:1-39-01(X).

<sup>74</sup> OAC 4901:1-39-01(H).

<sup>75</sup> OAC 4901:1-39-01(A).

1   ***Q78. IS HAVING AN UP-TO-DATE MARKET POTENTIAL STUDY A BEST***  
2       ***PRACTICE FOR ENERGY RESOURCE PLANNING?***

3   ***A78.*** Yes. The National Action Plan for Energy Efficiency “Guide to Resource  
4       Planning” recommends conducting a market potential study as the first step in the  
5       energy efficiency portfolio planning process.<sup>76</sup>

6  
7   ***Q79. WAS FIRSTENERGY REQUIRED TO COMPLETE A MARKET***  
8       ***POTENTIAL STUDY BEFORE FILING ITS APPLICATION?***

9   ***A79.*** Yes. OAC 4901:1-39-03, entitled "Program Planning Requirements," prescribes  
10       steps that an electric distribution utility must take in developing its EE/PDR  
11       portfolio plan. The first requirement under OAC 4901:1-39-03 is that the utility  
12       must perform an "assessment of potential."

13  
14   ***Q80. PLEASE EXPLAIN THE IMPORTANCE OF HAVING AN UP-TO-DATE***  
15       ***MARKET POTENTIAL STUDY.***

16   ***A80.*** The MPS is an important part of the portfolio design process because it guides the  
17       utility in developing programs that can reasonably and efficiently provide savings  
18       for customers. The MPS identifies the measures and programs that are the most  
19       cost effective and that have the most potential energy efficiency savings.

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<sup>76</sup> National Action Plan for Energy Efficiency, “Guide to Resource Planning with Energy Efficiency”, see Chapter 2, November 2007.

1   ***Q81. DID FIRSTENERGY MAKE MATERIAL DECISIONS REGARDING ITS***  
2                   ***2017-2019 PORTFOLIO PLAN BEFORE THE MARKET POTENTIAL***  
3                   ***STUDY WAS PERFORMED?***

4   ***A81.*** Yes. FirstEnergy agreed to increase its savings target to 800,000 MWh (more  
5           than 150% of the statutory benchmark) before the MPS was performed.  
6           FirstEnergy also agreed to restart all of its prior programs before the MPS was  
7           completed.

8  
9   ***Q82. WHAT IMPACT DID FIRSTENERGY'S DECISION TO INCREASE THE***  
10           ***TARGET TO 800,000 MWH AND TO RESTART ALL PRIOR PROGRAMS***  
11           ***BEFORE THE MARKET POTENTIAL STUDY WAS COMPLETE HAVE ON***  
12           ***THE PORTFOLIO?***

13   ***A82.*** One of the primary benefits of completing a market potential study prior to  
14           making material decisions on EE/PDR programs is that the MPS is designed to  
15           determine whether a particular energy savings target is feasible. The MPS also  
16           includes a cost-effectiveness analysis of all potential programs, which guides the  
17           utility in determining whether each program should be part of the portfolio. The  
18           MPS, therefore, should play an important role in determining the scope of  
19           programs and the targeted energy savings. FirstEnergy decided to substantially  
20           increase the scope of its programs to reach a very high savings target and to  
21           include a variety of programs without the benefits of a completed MPS. Had the  
22           MPS been completed for the 2017-2019 Portfolio Plans, inclusion of over \$100  
23           million in programs that are not cost-effective could have been prevented.



1   ***Q83. WHAT IS YOUR RECOMMENDATION REGARDING THE MARKET***  
2   ***POTENTIAL STUDY?***

3   ***A83.*** I recommend that the PUCO order FirstEnergy to complete a Market Potential  
4   Study for the next program planning cycle in 2019 **before** making decisions on  
5   energy efficiency measures and programs to be included in the EE/PDR Plan for  
6   2020 to 2022, and **before** making its projections of program participants, kWh  
7   and kW savings and program budgets for that time period.

8  
9   ***IX. FIRSTENERGY'S LOW INCOME PROGRAMS SHOULD BE***  
10   ***REEVALUATED AND IMPROVED SO AS TO REACH MORE LOW***  
11   ***INCOME CUSTOMERS***

12  
13   ***Q84. ARE FIRSTENERGY'S PROPOSED LOW INCOME PROGRAMS***  
14   ***PROJECTED TO REACH A ROBUST SHARE OF THE POPULATION OF***  
15   ***LOW INCOME HOUSEHOLDS?***

16   ***A84.*** No. The 2017-2019 Portfolio includes two low-income programs: Community  
17   Connections and Low-Income New Homes. Community Connections is not a  
18   standalone program that FirstEnergy administers. Rather, Community  
19   Connections is a program administered by the Ohio Partners for Affordable  
20   Energy ("OPAE"). OPAE "uses the funds from this program to leverage other  
21   state funded programs through various agencies within the State of Ohio." The  
22   Low-Income New Homes program "provides incentives for the construction of

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1 new energy efficiency housing or major rehabilitation of existing housing for low-  
2 income customers."

3  
4 FirstEnergy projects that 3,341 low-income customers will participate in the  
5 Community Connections program and that 48 will participate in the Low-Income  
6 New Homes programs per year. This is just over 2% of the low-income  
7 customers identified by FirstEnergy, and even less when taking into account low-  
8 income customers above 150% of the poverty line.

9

10 ***Q85. SHOULD FIRSTENERGY'S LOW INCOME PROGRAMS BE***  
11 ***COMPETITIVELY BID?***

12 ***A85.*** Yes. I agree with the PUCO Staff's testimony in FirstEnergy's recent ESP case  
13 that the programs "be competitively bid out as a way to achieve the maximum of  
14 savings per dollar spent by the Companies to acquire the benefits of reducing low  
15 income customers' bills."<sup>77</sup> Competitive bidding is the best way to achieve  
16 maximum savings for customers at the lowest cost.

17

18 ***Q86. WHAT STRUCTURE DO YOU PROPOSE FOR THE COMPETITIVE***  
19 ***BIDDING?***

20 ***A86.*** Bidders should submit bids using a budget that is equal to FirstEnergy's current  
21 proposed budget for the low-income programs. Before soliciting bids,

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<sup>77</sup> See Prefiled Testimony of Gregory C. Scheck at 3-4, Case No. 14-1297-EL-SSO (Sept. 18, 2015).

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1 FirstEnergy should provide the PUCO Staff with its proposed bid structure, and  
2 the bidding process should be subject to PUCO approval. Any request for  
3 proposal should include clear objectives for low income programs, which shall  
4 include, among other things, achieving energy savings and increasing  
5 participation rates for FirstEnergy's low-income program. Each bidder shall be  
6 required to identify, among other things, the total amount of energy that it will  
7 save, the projected number of participants under that budget, and the cost per  
8 lifetime kWh saved and program TRC benefit/cost ratio associated with the  
9 bidder's proposed program.

10  
11 ***Q87. WHAT IS YOUR RECOMMENDATION WITH RESPECT TO LOW-***  
12 ***INCOME PROGRAMS?***

13 ***A87.*** FirstEnergy must substantially improve its effort to develop and design low-  
14 income programs that reach more low-income customers. For the time being, I  
15 recommend that the proposed low-income programs be implemented for 2017.  
16 Throughout 2017, the PUCO should require FirstEnergy to work with the  
17 collaborative group to develop a low income program or programs that are  
18 designed to reach substantially more low-income customers. This new low-  
19 income program or programs should be competitively bid as I describe above.

20  
21 ***Q88. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?***

22 ***A88.*** Yes, it does at this time. However, I reserve the right to update and revise my  
23 testimony as discovery responses and new information become available.

## **CERTIFICATE OF SERVICE**

I hereby certify that a true copy of the foregoing *Direct Testimony of Richard F. Spellman, on Behalf of the Office of the Ohio Consumers' Counsel* was served via electronic transmission this 13th day of September 2016 upon the parties below.

/s/ Christopher Healey  
Christopher Healey  
Assistant Consumers' Counsel

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## EDUCATION

Association of Energy Engineers, Certified Measurement and Verification Professional, 2012

Management II Program, University of Michigan, Graduate School of Business, 1987

M.S. in Business Science, Thomas College, 1980

Amos Tuck Graduate School of Business, 1974-75

B.A., Math/Economics, Dartmouth College, 1974 (graduated with distinction)

## PROFESSIONAL MEMBERSHIPS

Member of Technical Advisory Group for U.S. DOE Uniform Methods Project Protocols – 2011 to present

Association of Energy Service Professionals, Board of Directors of AESP – 2005 to 2010

Chair of AESP Policy Committee – 1997 & 1998, Vice Chair AESP Policy Committee – 1995 & 1996

## EXPERIENCE

Mr. Spellman is the President of GDS Associates and the Chair of the GDS Board of Directors. He has over 40 years of energy industry experience. He has managed electric and natural gas energy efficiency, demand response and renewable energy consulting projects in such states as Alabama, Arkansas, California, Connecticut, Florida, Georgia, Hawaii, Indiana, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire, New Mexico, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Texas, Utah, Vermont, Virginia, and Wisconsin for GDS clients as well as in Canadian provinces. He obtained AEE's Certified Measurement and Verification Professional (CMVP) designation in 2012.

Mr. Spellman has completed impact, process and market effects evaluations for utilities, public benefits organizations and government clients. He has served since 2009 as the Project Manager for the Statewide Evaluator team for the Commonwealth of Pennsylvania for the Pennsylvania Public Utilities Commission PUC. He has also served in project management positions for energy efficiency and demand response implementation projects for electric utility clients, Wisconsin Focus on Energy and Efficiency Maine. From 1999 to December 2002, Mr. Spellman served as the Program Manager for the Wisconsin Focus on Energy Commercial and Industrial pilot energy efficiency programs (Systems Benefit Charge funded) implemented in a 23-county area in Northeast Wisconsin, and he served as the Deputy Project Director for the \$60 million Wisconsin Focus on Energy Business Program from March of 2001 until June of 2003. He also served as the Deputy Program Manager for the Efficiency Maine Small Business Program from 2003 through 2007. He has served as the Chair of the Policy Topic Committee of the Association of Energy Services Professionals (AESP) and he served as a member of the Board of Directors of AESP from 2005 to 2010.

Prior to joining GDS in 1993, he was employed at Central Maine Power Company (CMP) for sixteen years. He managed CMP's \$26 million portfolio of energy efficiency programs. He also worked on CMP's market transformation program efforts with appliance and building standards, energy efficient lighting and motors, new construction and renewable energy programs. He worked on national market transformation programs such as the Super Efficient Refrigerator Program and the EPA's Green Lights and Energy Star Programs. Finally, he has a solid track record testifying for clients before Commissions and legislative committees on energy issues. He was also the chairperson of the New England Power Pool DSM Planning Committee for several years, and worked on a wide range of regional DSM and renewable energy projects in New England during his sixteen years at CMP.

His education includes a BA degree with distinction in Math/Economics from Dartmouth College (graduated cum laude) and a Masters in Business Science from the Thomas College Graduate School of Business. He is a graduate of the University of Michigan Graduate School of Business Administration Management II Program (1987) and the Electric Council of New England Skills of Utility Management Program (1986). In 1974 Mr. Spellman was awarded a research grant by the Richard King Mellon Foundation to study how colleges and universities in the Northeast were responding to the 1973-1974 U.S. energy crisis.

***Specific Experience Includes:***

**GDS Associates, Inc., President, 1993 to Present**

At GDS Associates, Mr. Spellman has directed and completed numerous management consulting, IRP, renewable energy, DSM planning and implementation, market research, load research and market planning assignments for the firm's clients, which include electric and natural gas utilities, municipal utilities, electric cooperatives, government agencies, and large commercial and industrial organizations.

Listed below are examples (not an exhaustive list) of specific evaluation, measurement and verification (EM&V) projects completed by Mr. Spellman at GDS (1993 to present). Further descriptions of these projects are provided in the qualifications and experience section of this proposal.

1. Program Manager, Pennsylvania Statewide Evaluation (SWE) Team for the Pennsylvania Public Utilities Commission, 2009 to 2017.
2. Energy Efficiency Subject Matter Expert for British Columbia Hydro, 2016
3. DSM program EM&V and benchmarking to the National Rural Electric Cooperative Association (2016)
4. Evaluation support for the Arkansas Office of the Attorney General (2014 to 2015)
5. Impact evaluation of Multi-Family Energy Efficiency Program for Austin Energy (Texas), 2013
6. Evaluation of Austin Energy Weatherization Assistance Program, 2013
7. Evaluation of Austin Energy Home Performance with Energy Star Program, 2013
8. Technical and regulatory support for evaluation, measurement and verification, setting energy efficiency savings goals – support for the Florida Public Service Commission, 2008 to 2009
9. Evaluation technical support to the Staff of the North Carolina Utilities Commission, 2008 to present
10. Evaluation technical support to the Staff of the Georgia Public Service Commission, 2007 to present
11. Impact Evaluation of Efficiency Maine Residential Lighting Program, 2007
12. Evaluation of Bonneville Power Administration's Non Wires Solution Program, 2007
13. Impact evaluation of Massachusetts Energy Star Homes Program, 2005
14. Impact Analysis of KeySpan Energy Delivery Residential Energy Efficiency Program, 2003
15. Impact Analysis of KeySpan Energy Delivery Residential Low Income Energy Efficiency Program, 2004
16. Program evaluation support for the New York State Energy Research and Development Authority, 2001 to 2003

Listed below are examples of consulting projects completed by Mr. Spellman relating to energy efficiency technical, economic and achievable potential studies:

1. **Pennsylvania Public Utility Commission, Technical utility Services Bureau** –GDS was retained by the Pennsylvania PUC to prepare a detailed report with findings on the technical, economic, achievable and program potential for electric energy efficiency measures and programs in the State of Pennsylvania. The Commission also retained GDS to complete a demand response potential study too. The final reports for the electric energy efficiency and demand response potential studies were completed on February 25, 2015.
2. **Pennsylvania Public Utility Commission, Bureau of Conservation, Economics and Energy**

**Planning** – In September 2011 GDS was retained by the Pennsylvania PUC to prepare a detailed report with findings on the technical, economic, achievable and program potential for electric energy efficiency measures and programs in the State of Pennsylvania. The final report was completed on May 10, 2012. The final report presented the technical, economic, and achievable potentials of Energy Efficiency measures for the Commonwealth of Pennsylvania for the period 2013-2022.

3. **Vermont Department of Public Service** – GDS was retained by the Vermont Department of Public Service to conduct a thorough assessment of the cost effective achievable potential for electric energy efficiency and conservation resources in the State of Vermont. GDS collected and analyzed extensive information on over 100 energy efficiency and conservation measures, developed supply curves to show the achievable potential and completed a final report in May 2011. The GDS Team also examined the amount of energy efficiency savings that could be achieved given different budget scenarios for Efficiency Vermont. The GDS Team also conducted an analysis of the electric rate and electric bill impacts from these various budget scenarios.
4. **PowerSouth** – GDS was retained by PowerSouth to conduct an assessment of the cost effective achievable potential for several electric energy efficiency and demand response measures in the PowerSouth service area. GDS collected and analyzed extensive information on selected energy efficiency measures and demand response measures, developed supply curves to show the achievable potential and completed a report by July 1, 2011.
5. **Maryland Natural Gas Potential Study** – In the spring of 2011, the Maryland Energy Administration (MEA) identified the need to determine the potential for natural gas energy efficiency savings in Maryland, and to identify the types of natural gas energy efficiency programs and measures that could save the most natural gas and be the most cost effective for the State of Maryland. The need for this analysis was initially created by the Maryland Energy Efficiency Act of 2008, which requires a study of the feasibility of setting energy savings targets in 2015 and 2020 for natural gas companies. MEA contracted with GDS in June of 2011 to conduct this natural gas energy efficiency potential study for the State of Maryland. As part of the project, GDS conducted analysis and prepared a technical-economic-achievable-program potential study documenting a base estimate of natural gas energy efficiency potential to determine the feasibility of setting energy savings targets in 2015 and 2020 for natural gas companies in Maryland. GDS presented alternative scenarios in low and high cases in terms of market potential and determined what likely can be achieved for market penetration in 2015 and 2020. This included information regarding required programs or market approaches addressing technologies, threshold incentive levels (by market or segment) pricing strategies, trade ally involvement and communications efforts. An implementation plan was also developed that recommended programs for 2015 and provided detailed recommendations on “best practice” strategies, program designs, requisite budgets, incentives and expected market penetration. GDS completed this study in November 2011.
6. **Consolidated Edison of New York** – Consolidated Edison Company of New York retained GDS to prepare an assessment of the natural gas energy efficiency potential in its service area and to develop a portfolio of natural gas energy efficiency programs. GDS developed this Gas Efficiency Plan for Con Ed, and the Plan was filed with the New York Public Service Commission in March 2009. The program plans included detailed benefit/cost calculations using the Total Resource Cost test. The plan also included a detailed plan for evaluation of each individual program, including details on the scope and method of measurement and verification activities pursuant to the Commission’s rules and regulations.
7. **District of Columbia Energy Office** – In September 2007, GDS Associates and Ed Meyers Consulting completed a detailed assessment of energy use in the District of Columbia, and developed findings and recommendations for cost effective electric and natural gas energy efficiency programs for the District. The report included detailed information on residential

energy measures recommend for consideration in the upcoming Comprehensive Energy Plan IV for DC (CEP-IV) as well as energy efficiency programs and measures for DC Government facilities. The report found that the effectiveness of the District's programs can be increased working with the Metropolitan Washington Council of Governments (MWCOC) to leverage resources with federal agencies and coordinate policies and programs throughout the region to produce mutually targeted results. Such regional cooperation also reduces administrative costs per program unit delivered, as costs are amortized over more clients served. One particularly promising opportunity may involve regional government purchasing of energy efficiency products, where each governmental unit would gain from regional quantity discounts. The report determined the successful energy conservation programs can yield about 6,000 new jobs in the District of Columbia over a fifteen-year period. DC's job creation totals in energy efficiency can be boosted for DC residents through First Source Employment Agreements and LSDBE requirements, when businesses receive tangible benefits from the DC government (for example, low-interest loans or down payment assistance).

8. **New Hampshire Public Utilities Commission** - In 2008, GDS in partnership with RLW Analytics, Research Into Action and RKM Research and Communications was retained by the New Hampshire Public Utilities Commission to conduct a thorough assessment of the potential for electric and natural gas energy efficiency in the state of New Hampshire. To support the energy efficient potential analysis, the GDS Team conducted residential and small commercial telephone surveys and large C&I site visits. The data collected will help determine key study inputs such as equipment saturations and baseline efficiency levels. The GDS Team has identified hundreds of electric and natural gas energy efficiency measures which are being analyzed to identify cost-effective measures. Estimates of the technical, economic and achievable electric and natural gas savings potential over the next ten years and the cost necessary to achieve these savings will then be developed.
9. **Hoosier Energy** - GDS was retained by Hoosier Energy to conduct a thorough assessment of the cost effective achievable potential for electric energy efficiency and demand response measures in service area of Hoosier Energy in southern Indiana. GDS collected and analyzed extensive information on over 200 energy efficiency measures and 25 demand response measures, developed supply curves to show the achievable potential and completed a report by December 2008.
10. **Brazos Electric Cooperative** - GDS was retained by Brazos Electric Cooperative to conduct a thorough assessment of the cost effective achievable potential for electric energy efficiency and demand response measures in the service area of this large electric cooperative in Eastern Texas. GDS collected and analyzed extensive information on over 200 energy efficiency measures and 25 demand response measures, developed supply curves to show the achievable potential and completed a draft report by September 2008.
11. **Arkansas Electric Cooperative Corporation** - GDS was retained by Arkansas Electric Cooperative Corporation to conduct a thorough assessment of the cost effective achievable potential for electric energy efficiency and demand response measures in the service area of this large electric cooperative in Arkansas. GDS collected and analyzed extensive information on over 200 energy efficiency measures and 25 demand response measures, developed supply curves to show the achievable potential and completed a draft report by September 2008.
12. **Central Maine Power Company (CMP)** - As a subcontractor to La Capra Associates, GDS was retained by CMP to conduct an assessment of the potential for cost-effective electric energy efficiency and demand response as an alternative to transmission system expansion in 5 sub-areas of the CMP service area. GDS collected and analyzed extensive information on over 100 energy efficiency and conservation measures, developed supply curves to show the achievable potential and is in the process of developing a draft findings report.
13. **Bonneville Power Administration (BPA)** - GDS was retained by BPA to conduct an assessment of



their Non-Wires Solutions initiative development process and the current state of the initiative. The BPA Non Wires Solutions Program assesses the feasibility of energy efficiency and demand response programs as an alternative to building new electric transmission lines in the BPA service area. GDS reviewed program materials and reports, designed an interview guide and conducted in-depth, interviews with key BPA staff. Our analysis identified program strengths, weaknesses and potential improvements in key program areas including design, implementation, planning, cost impact & allocation and resources. A final report was delivered on June 8, 2007.

14. **Reading Municipal Light Department (Reading, Massachusetts)** - GDS was retained by the RMLD to assess the technical, economic, and market potential for reducing (avoiding) electricity use and peak demand, and reducing fossil-fueled electricity use and peak demand, in RMLD's service territory by implementing a wide range of end-use efficiency measures and renewable energy resource technologies. GDS collected and analyzed extensive information on over 100 energy efficiency, conservation and demand-response measures and renewable energy technologies, developed supply curves to show the achievable potential and is in the process of developing a draft report.
15. **Concord Municipal Light Department, Concord, Massachusetts** – GDS completed a detailed study for the potential for energy efficiency and renewable energy technologies for the Concord Municipal Light Department (CMLD). GDS's specific responsibilities for this project include identification and analysis of demand-side alternatives, including distributed generation and other demand response technologies (i.e., direct load control).
16. **North Carolina Electric Membership Corporation (NCEMC)** - GDS was retained by the NCEMC to conduct a thorough assessment of the cost effective achievable potential for electric energy efficiency and conservation resources in service area of the North Carolina Electric Membership Corporation (NCEMC). GDS collected and analyzed extensive information on over 200 energy efficiency and conservation measures, developed supply curves to show the achievable potential and completed a final report in 2007.
17. **Central Electric Power Cooperative Inc. (CEPCI)** - GDS was retained by the CEPCI to conduct a thorough assessment of the cost effective achievable potential for electric energy efficiency, conservation and demand response resources in the service area of CEPCI. GDS collected and analyzed extensive information on over 200 energy efficiency and conservation measures, developed supply curves to show the achievable potential and completed a final report in August 2007.
18. **Maine** – GDS completed a technical potential study for high efficiency residential lighting equipment for the Efficiency Maine Residential Lighting Program. GDS conducted this study for the Maine Public Utilities Commission in 2007.
19. **North Carolina Public Utilities Commission** -GDS was retained by the North Carolina PUC to conduct an assessment of the cost effective achievable potential for electric energy efficiency and conservation resources in the State of North Carolina. GDS collected and analyzed extensive information on over 100 energy efficiency and conservation measures, developed supply curves to show the achievable potential and completed a final report in December 2006.
20. **Vermont Department of Public Service** - GDS was retained by the Vermont Department of Public Service to conduct a thorough assessment of the cost effective achievable potential for electric energy efficiency and conservation resources in the State of Vermont. GDS collected and analyzed extensive information on over 100 energy efficiency and conservation measures, developed supply curves to show the achievable potential and completed a final report in January 2007. GDS also conducted market research with energy services providers in Vermont to collect information on baseline levels of energy efficiency in the State.
21. **Big Rivers Electric Corporation – 2005 Energy Efficiency Technical Potential Study - Kentucky** - During 2005, GDS completed a study of the technical and maximum achievable cost effective

economic potential of energy efficiency measures and programs for the service area of the Big Rivers Electric Corporation, a large Generation and Transmission electric utility in Ohio. This technical and economic potential study was completed as part of the comprehensive analysis of supply-side and demand-side options for the latest BREC Integrated Resource Plan filing with the Kentucky Public Service Commission.

22. **Public Service of New Mexico** – GDS completed this natural gas DSM technical and achievable potential study in May 2005. This study presents estimates of the maximum achievable cost-effective potential for natural gas Demand-Side Management (DSM) opportunities in the service area of Public Service of New Mexico. The main output of this study is a concise, fully documented report on the opportunities for achievable, cost effective natural gas energy efficiency programs in New Mexico.
23. **Utah Energy Office and Questar Gas Company** – GDS completed this natural gas DSM technical and achievable potential study in June 2004. This study presents estimates of the maximum achievable cost-effective potential for natural gas Demand-Side Management (DSM) opportunities in the State of Utah. The main output of this study is a concise, fully documented report on the opportunities for achievable, cost effective natural gas energy efficiency programs in Utah. This study assessed the impacts that gas DSM measures and programs can have on natural gas use, assesses the economic costs and benefits of DSM programs, and assesses the revenue impacts to Questar Gas Company. The final report also includes an assessment of the environmental impacts of the achievable DSM options identified in this study.
24. **Energy Efficiency Potential in Georgia – Study for the Alliance to Save Energy** – GDS completed this study for the Alliance to Save Energy in July 2004. This study provides estimates of the maximum achievable cost effective potential in the State of Georgia for several “top-ranked” energy efficiency programs. In addition, GDS presented expert witness testimony on behalf of the ASE before the Georgia Public Service Commission that covered the following issues:
  - The potential net present value dollar savings to ratepayers in Georgia due to the implementation of cost effective energy efficiency programs.
  - The cost effectiveness of these energy efficiency programs.
  - Energy efficiency tariffs that could be implemented in Georgia to save energy.
  - Up-to-date information on energy efficiency and DSM success stories and energy savings in other regions of North America and the technical potential for DSM in Georgia.
  - Improvements that could be made in the DSM measure screening process in Georgia.
  - Recommendations for DSM cost recovery and shareholder incentive mechanisms.
25. **Energy Efficiency Potential in Florida – Study for the Alliance to Save Energy and the Southern Alliance for Clean Energy** – GDS completed this study for the Alliance to Save Energy in July 2004. This study provides estimates of the maximum achievable cost effective potential in the State of Florida for several “top-ranked” energy efficiency programs
26. **Connecticut Energy Conservation Management Board** – In March 2003, GDS was retained by the Connecticut Energy Conservation Management Board to conduct a thorough assessment of the cost effective maximum achievable technical potential for energy efficiency and conservation resources in the State of Connecticut and two sub-regions of the State. GDS collected and analyzed extensive information on over 250 energy efficiency and conservation, and developed supply curves to show the maximum achievable potential. GDS completed the final report in June 2004.
27. **Alliant Energy Corporate Services** - As an update to an assessment of potential customer-sited/distributed generation technology applications in all categories (residential, small/large commercial, industrial, and agricultural) conducted by GDS in 2001, Alliant requested that modeling assumptions be reviewed and revised, as necessary. In addition, the Distributed/Onsite Generation Screening (DOGS) tool was reviewed by MN Department of

Commerce as part of a filing in 2001 and they requested expansion of applicable technologies and fuels, including: bio-diesel and methane from landfills and digesters to fuel reciprocating engines; methanol, ethanol, gasoline, and methane for electricity production from fuel cells. The revised model results will be used to estimate the market potential for distributed/onsite generation within Alliant's Minnesota service territories.

28. **Massachusetts GasNetworks** – In January of 2004, GDS was hired by GasNetworks (a network of several natural gas utilities in Massachusetts) to develop benefit/cost analyses and energy savings potential estimates for GasNetworks' regional market transformation and demand-side management programs. Benefit/cost ratios and energy savings potential estimates were developed for several regional gas energy efficiency programs using a spreadsheet model, and similar data were developed for each program for each service area for each natural gas utility participating in this study.
29. **Northern Utilities (Gas Company)** – In 2002 GDS was hired by Northern Utilities to prepare benefit/cost analyses and energy savings potential estimates of a portfolio of energy efficiency programs proposed for implementation in their New Hampshire service area. This project was completed during September 2002 and a final report was filed with the New Hampshire PUC. A workshop was conducted at the NH Public Utilities Commission early in 2003 to review cost-effectiveness methodologies and key model input/output requirements.
30. **KeySpan Energy Delivery (Gas Company)** – In 2002 GDS was hired by KeySpan Energy Delivery – New Hampshire to prepare benefit/cost analyses and energy savings potential estimates of ten energy natural gas energy efficiency programs proposed for implementation in the KeySpan New Hampshire service area. This project was completed during September 2002 and a final report was filed with the New Hampshire PUC that month.
31. **Big Rivers Electric Corporation – 2002 Energy Efficiency Technical Potential Study - Kentucky** - During 2002, GDS completed a study of the technical and economic potential of energy efficiency and load management measures and programs for the service area of the Big Rivers Electric Corporation, a large Generation and Transmission electric utility in Ohio. This technical and economic potential study was completed as part of the comprehensive analysis of supply-side and demand-side options for the latest BREC Integrated Resource Plan filing with the Kentucky Public Service Commission.
32. **City of Grand Island, Nebraska – Municipal Utility – Energy Efficiency Technical Potential Study** - GDS completed a study of the technical and economic potential for energy efficiency and load management measures and programs for the service area of this large municipal electric utility in Nebraska. This technical and economic potential study was completed as part of the comprehensive analysis of supply-side and demand-side options for an Integrated Resource Plan for this utility.
33. **City of Lafayette, Louisiana – Municipal Utility – Energy Efficiency Technical Potential Study** - GDS completed a study of the technical and economic potential for energy efficiency and load management measures and programs for the service area of this large municipal electric utility in Louisiana. This technical and economic potential study was completed as part of the comprehensive analysis of supply-side and demand-side options for an Integrated Resource Plan for this utility.
34. **New York State Energy Research and Development Authority (NYSERDA) - Energy \$mart<sup>SM</sup> Program Evaluation Services:** In the fall of 1999, GDS was retained by NYSERDA to be the prime evaluation contractor for the New York Energy \$mart<sup>SM</sup> program. During the years 2000, 2001, 2002, and 2003, GDS has been responsible for providing energy efficiency program and measure data collection, analysis, and report writing services to NYSERDA in support of their overall evaluation and market assessment efforts, and to determine actual savings of the programs. To date, GDS team evaluation activities have included development of a Gap Analysis for the purpose of setting priorities and allocating evaluation resources to the various New York Energy

\$mart<sup>SM</sup> project areas; and numerous evaluation activities leading to development of a draft and final Program Evaluation Status report which provided the New York Public Service Commission with sufficient information to determine the future of SBC-funded public benefits programs beyond its initial three-year transition period which ended July, 2001.

35. **Distributed Generation Technical Potential Assessment for Minnesota and Iowa:** During the fall of 2001, GDS assessed the technical potential of customer-sited distributed generation technology applications for Alliant, a major investor owned utility located in the MidWest. The analysis covered the residential, small/large commercial, industrial, and agricultural sectors. GDS developed a Distributed/Onsite Generation Screening spreadsheet model to determine the cost-effectiveness of various distributed generation options; used the model to assess the potential for various customer groups and then scaled results using customer profiles. Model results were also used to estimate the technical potential for distributed/onsite generation within Alliant's Minnesota and Iowa service territories.
36. **Renewable Electric Energy and Peak Demand Savings Methodology Reviews - Wind Power and Photovoltaics Programs:** GDS performed detailed reviews of NYSERDA's methodologies for estimating electric energy savings and peak demand reduction benefits associated with NYSERDA's Wind Power Research & Development Program and two Photovoltaic (PV) programs. These Savings Methodology reviews entailed three-components: 1) a review of the current method used by NYSERDA for estimating savings (including algorithms and inherent assumptions), 2) a review of the methods and assumptions used by other utilities and program administrators for estimating savings from similar programs being implemented elsewhere in the country, and 3) a presentation of key findings and recommendations.
37. **Evaluation Services for Commercial/Industrial Program Areas and Technical Assistance Reviewing Engineering Analyses- Efficiency Vermont:** GDS Associates is the lead contractor in a team that has been hired to assist the VT DPS in evaluating a statewide portfolio of energy efficiency programs targeted to the Commercial and Industrial market sectors. The GDS team is also providing technical engineering and review assistance, on an "on-call" basis, to the administrator of Vermont's energy efficiency programs.
38. **Development and Implementation of Five-Year Energy Efficiency Plan – Boston Edison:** GDS Associates was retained by Boston Edison to assist BECo staff with the development of program designs, evaluation plans, technical potential estimates and budgets for the Company's Five Year Energy Efficiency Plan. For this project GDS performed energy efficiency technology screenings to identify potentially viable measures for utility funding/support, and developed the program designs for a number of new initiatives, including over a dozen new market transformation programs. GDS also conducted cost effectiveness screening for all of the new DSM initiatives included in the plan.
39. **Energy Efficiency Technical and Market Potential Analysis:** This report presented the results of a technical and market potential study for energy efficiency options for the East Texas Electric Cooperative, Inc. (ETEC). The purpose of this report was to review energy efficiency options that comply with the Public Utility Commission of Texas (PUCT) orders issued in Northeast Texas Electric Cooperative (NTEC), Sam Rayburn Electric Cooperative (SRG&T) and Tex-La Electric Cooperative of Texas (Tex-La) rate cases. This study presented cost effectiveness findings and recommendations on energy efficiency options and programs for ETEC and its member generation and transmission electric cooperatives (NTEC, SRG&T, and Tex-La). In this study, GDS evaluated the cost effectiveness of over 90 energy efficiency options and found many of them to be cost effective according to the Total Resource Cost Test.
40. **Technical and Market Potential Analysis for Load Management and Energy Efficiency Options:** GDS was retained to update energy efficiency and load management technical and market potential analyses completed in the mid 1990's time period, and to develop recommendations relating to cost effective DSM programs for electric cooperatives in East Texas. This study

identified energy efficiency and load management (DSM) options that were viable based on economic tests presented in the California Standard Practice Manual for Economic Analysis of Demand-Side Management Programs. DSM options that had a Total Resource Cost test benefit/cost ratio greater than 1.3 and a positive net present value for the participant were ones that were recommended by GDS for further program development.

**Central Maine Power Company - Manager of Marketing Services/Marketing and Product Development, August 1990 to May 1993**

From 8/90 to 8/92 - Responsible for managing the design and implementation of CMP's residential, commercial, and industrial demand-side management programs. Also responsible for corporate market research, five-year DSM implementation plans, testifying on DSM topics before regulatory agencies, and for participating in integrated resource planning activities. Accountable for managing a \$26 million DSM budget and a staff of 50 persons. Served on three person lead team from 1989 to 1992 to develop CMP's first integrated resource plan. During 1991 traveled to Czechoslovakia and Poland to provide consulting to foreign utilities on DSM issues.

From 8/92 to 5/93, responsible for identifying and developing marketing strategies for products and services which would improve the competitiveness of CMP's customers, increase the efficiency of energy use, increase CMP's profitability, and which would reduce the rate of growth of electricity prices for all customers. Directly responsible for the design of renewable energy and demand-side management programs, integrated resource planning, research on new technologies, and managing marketing and product development staff. Also provided consulting services to utilities in New Zealand, Australia, and Bulgaria relating to DSM program design and implementation.

**Central Maine Power Company - Director of Market Research and Forecasting, June 1986 to August 1990**

Responsible for managing twenty-five professional employees. Duties included supervising DSM program impact and process evaluation activities, short and long range load forecast development, local area energy and peak load forecasts, market and load research, economic forecasting, and developing and updating DSM assumptions for use in the Company's long range planning models. Also participated in the development of the first Power Partners RFP, and in the evaluation and selection of proposals submitted in response to this RFP.

**Central Maine Power Company - Corporate Economist, May 1985 to May 1986**

Responsible for monitoring and forecasting energy and economic trends in the CMP service area and in the New England Region. Duties included development of corporate short-term kWh sales and revenue forecasts, market research studies, and CMP's energy management strategy. Instrumental in promoting the use of state-of-the art PC-based computer models for integrated resource planning (UPLAN). Authored a second report on CMP's DSM strategy in April 1986. Also responsible for supervising several analysts.

**Central Maine Power Company - Staff Economist, May 1977 to May 1985**

(5/77 to 5/78) Joined CMP in May 1977 and worked in the Customer Services Department. Responsibilities included short-term forecasting, annual appliance saturation surveys, preparation of the 1977 and 1978 long-range energy and peak load forecasts, and impact evaluation of demand response programs (including Kilowatt-Savings Time demand response program).

(5/78 to 12/80) In May of 1978, selected to join a new group, the Corporate Financial Model Staff, to develop a new corporate financial model for CMP. Had major responsibility for development of a revenue forecasting model, and assisted with development of models to produce income statement,



balance sheet, and sources and uses of funds forecasts. In addition to corporate model development, responsibilities included short-term forecasting and market research.

(12/80 to 5/85) In December of 1980, moved to CMP's Research Department for five years. Responsible for all corporate market research, short-term kWh sales and revenue forecasts, economic analyses and forecasts, and forecasts of key corporate planning assumptions. Prepared and published CMP's first DSM strategy study in March 1985.

## OTHER SELECTED PROFESSIONAL ACTIVITIES

- ⑤ Member of Technical Advisory Group (TAG) for the U.S. Department of Energy Uniform Methods Project (UMP), 2011 to present.
- ⑤ Board of Directors, Association of Energy Services Professionals (AESP), 2005 to 2010
- ⑤ Member of the Association of Energy Service Professionals (1993 to Present), Vice Chairman of the Policy Committee (1995-1996), Chair of Policy Committee (1997 and 1998)
- ⑤ Panel Leader, 1992 American Council for an Energy Efficient Economy (ACEEE) Summer Study on Building Energy Efficiency.
- ⑤ Chairman of the NEPOOL Demand-Side Management Planning Committee, September 1989 to September 1990, August 1991-July 1992.
- ⑤ Vice Chairman of the NEPOOL Demand-Side Management Committee - January to August 1989, July 1990 - July 1991.
- ⑤ Member of the NEPOOL Demand-Side Management Task Force (1986-1988).
- ⑤ Member of the Load Research Committee of the Association of Edison Illuminating Companies (1988-1991).
- ⑤ Alternate to the NEPOOL Governor's Liaison Committee (1986-1988).
- ⑤ State Forecast Analyst for the NEPOOL Load Forecasting Model (1979-1986).
- ⑤ Maine Model Manager of the New England Economic Project economic forecasting model, 1983-1986.
- ⑤ Member of the Statistical Research Committee of the Electric Council of New England (Chairperson 1982-1983, member 1977-1986).
- ⑤ Member of the Edison Electric Institute Economics Committee (1986-1991).
- ⑤ Past member of the International Association of Energy Economists.

## PUBLICATIONS:

1. Spellman, Richard F., *Modeling of Energy Management Strategies with the Utility Systems Analysis Model*, paper presented at the International Load Management Conference, November 1984, Chicago, Illinois
2. Spellman, Richard F., *Use of Computer Models and Load Research Data for Developing Energy Management Strategies*, paper presented at the Fifth Annual Northeast Load Research Conference, September 10-12, 1986, Farmington, Connecticut
3. Spellman, Richard F., *Potential Market Penetration of DSM Programs at Central Maine Power*, paper presented at Third National Conference on Utility DSM Programs, June 16-18, 1987, Houston, Texas
4. Spellman, Richard F., *Demand-Side Management Market Penetration: Modeling and Resource Planning Perspectives from Central Maine Power Company*, paper presented at the Fourth National Conference on Utility DSM Programs, May 2-4, 1989, Cincinnati, Ohio

5. Spellman, Richard F., *Using Program Evaluation Data for Long-Range Resource Planning at Central Maine Power Company*, paper presented at the Canadian Electrical Association's Conference on Enhancing Electricity's Value to Society, October 22-24, 1990, Toronto, Canada
6. Spellman, Richard F., *Demand-Side Management from a North American Perspective*, Keynote Address to the International Energy Agency Conference on Advanced Technologies for Electric Demand-Side Management, written for Joe C. Collier, Jr., President and Chief Executive Officer of Central Maine Power Company, paper presented in Sorrento, Italy on April 3, 1991
7. Leamon, Ann K., and Spellman, Richard F., *From the Bottom Up: T&D and DSM*, paper presented at the 5th National Demand-Side Management conference, July 30 - August 1, 1991, Boston, Massachusetts
8. Haeri, M. Hossein, and Spellman, Richard F., *Integration of Evaluation Results into the Resource Planning Process*, paper presented at the 5th National Demand-Side Management Conference, July 30 - August 1, 1991, Boston, Massachusetts
9. Spellman, Richard F., *Does Fuel Switching Make Sense for an Electric Utility?*, paper presented at the 1992 International Energy Efficiency and DSM Conference, October 22, 1992, Toronto, Ontario
10. Spellman, Richard F., and Brunette, Marguerite, *Market Research for the Design, Implementation, and Evaluation of a Compact Fluorescent Lighting Program*, paper presented at the EPRI/EUMRC Market Research Symposium, November 17-20, 1992, Dallas, Texas
11. Spellman, Richard F., Forum For Applied Research and Public Policy/Fall 1992, *Energy Management: A View from Maine* (Journal Article)
12. Spellman, Richard F., *DSM Incentives Plus Electric Rate Adjustment Mechanisms Equal Bottom Line Impact*, paper presented at the 6th National Demand-Side Management Conference, March 24-26, 1993, Miami Beach, Florida
13. Spellman, Richard F., Van Wie, David A., Peaco, Daniel E., Lawrence, and Dennis R., *Optimizing Demand-Side and Supply Resources Using Linear Programming*
14. Spellman, Richard F., Utility Experience With Load Management in Texas, EPRI/Houston Lighting and Power Co. Load Management Conference, May 3, 1994, Houston, Texas.
15. Spellman, Richard, F., The Role of DSM in the Privatized Electricity Sector in England and Wales, and New Zealand, Paper Presented at the Association of Demand-Side Management Professionals Annual Meeting, Orlando, Florida, December 1994.
15. Spellman, Richard, F., Energy Services in A Global Environment, Paper Presented at the Association of Energy Services Professionals Annual Meeting, Phoenix, Arizona, December 1995.
16. Spellman, Richard, F., Value Added Services as Profit Centers in Texas, Paper Presented at the Association of Energy Services Professionals Annual Meeting, Beverly Hills, California, December 1996.
17. Spellman, Richard, F., "Preparing for Competition by Updating Corporate Marketing Strategies", Paper Presented at the Association of Energy Services Professionals Annual Meeting, Boca Raton, Florida, December 1997.
18. Megdal, Lori, Spellman, Richard, F., Johnson, Bruce "Methods and Measurement Issues for a DSM Evaluation versus a Market Transformation Market Assessment and Baseline Study", Paper Presented at the 1999 Energy Program Evaluation Conference, Denver, Colorado, August 1999.
19. Spellman, Richard F., Shel Feldman, Bruce Johnson, Lori Megdal, "Measuring Market Transformation Progress & the Binomial Test: Recent Experience at Boston Gas Company", Paper presented at the ACEEE Summer Study on Building Energy Efficiency, August 2000.
20. Spellman, Richard F., Giffin, Thomas M., Sheil, Jolene A., Nicol, John, "Experience and Lessons from the Wisconsin Industrial Focus on Energy Program: Transformation in Industrial Energy

- Efficiency Markets”, presented at American Council for and Energy Efficient Economy Summer Study on Energy Efficiency in Buildings, Tarrytown, New York. July 25-27, 2001
21. Spellman, Richard F., Shel Feldman, Bruce Johnson, Lori Megdal, “Transition Strategies for Market Transformation Programs: Recent Experience at KeySpan Energy Delivery”, Paper presented at the December 2001 12<sup>th</sup> National Energy Services Conference.
  22. Rooney, Thomas; Spellman, Richard; Rufo, Michael; Schlegel, Jeff; “Estimating the Potential for Cost Effective Electric Energy and Peak Demand Savings in Connecticut”, Paper presented at the 2004 American Council for an Energy Efficient Economy Summer Study in Pacific Grove, California, August 2004.
  23. Spellman, Richard F., Goldfarb, Lynn K., Barnes, Harley, “Using Market Research to Improve Program Design and Delivery of Residential Lighting Programs in the US Northeast Region”, Paper presented at the 15<sup>th</sup> National Energy Services Conference, December 7, 2004, Clearwater Beach, Florida.
  24. Spellman, Richard F.; Goldfarb, Lynn K.; Huber, Jeffrey; “IS THERE A POTENTIAL NATIONAL MARKET FOR TRADING ENVIRONMENTAL CREDITS BASED ON THE ENVIRONMENTAL SAVINGS ACHIEVED THROUGH ENERGY EFFICIENCY SAVINGS?”, Paper presented at the 16<sup>th</sup> National Energy Services Conference, December 2005.
  25. Spellman, Richard F.; Rooney, Thomas; Burks, Jeffrey; Bean, Stephen; “Potential for Natural Gas Savings in the Southwest”, Paper presented at the 2006 ACEEE Summer Study on Building Energy Efficiency, held at Pacific Grove, California.

**Direct Testimony of Richard F. Spellman:**

1. On Behalf of Central Maine Power Company, Before the State of Maine Public Utilities Commission, Docket Nos. 85-48, 85-82, 85-83, filed July 7, 1986. Subject Matter: Economics of Commercial and Industrial Conservation Programs in the CMP Service Area
2. On Behalf of Central Maine Power Company, Before the State of Maine Public Utilities Commission, Docket Nos. 88-111 and 87-261, filed November 6, 1987. Subject Matter: DSM Assumptions for Central Maine Power Company in Long Term Avoided Cost Filing.
3. On Behalf of Central Maine Power Company, Before the State of Maine Public Utilities Commission, Docket Nos. 88-111 and 87-261, filed June 22, 1988. Subject Matter: DSM Potential and Cost Effectiveness in the CMP Service Area.
4. On Behalf of Central Maine Power Company, Before the State of Maine Public Utilities Commission, Docket No. 89-68, filed May 19, 1989. Subject Matter: Review and explain the basis for the updated short-term kWh sales forecast on which CMP’s revised Attrition Study is based.
5. On Behalf of Central Maine Power Company, Before the State of Maine Public Utilities Commission, Docket No. 89-68, filed October 24, 1989. Subject Matter: Review and explain the basis for the short-term kWh sales forecast on which CMP’s Attrition Study is based.
6. On Behalf of Central Maine Power Company, Before the State of Maine Public Utilities Commission, Docket No. 91-213, filed November 15, 1991. Subject Matter: Present CMP’s conclusions regarding the advisability of inaugurating a residential space heat conversion program in the Company’s service territory.
7. On Behalf of Central Maine Power Company, Before the State of Maine Public Utilities Commission, Docket No. 91-213, filed July 31, 1992. Subject Matter: Present updated information regarding the advisability of inaugurating a residential space heat conversion program in the Company’s service territory.
8. On Behalf of Tex-La Electric Cooperative of Texas, Inc. Before the Public Utilities Commission of Texas, Docket No. 12289, filed July 1993. Subject Matter: Tex-La’s DSM activities and updating of TEX-LA Energy Efficiency Plan.



9. On Behalf of Tex-La Electric Cooperative of Texas, Inc. Before the Public Utilities Commission of Texas, Docket No. 12289, filed July 1993. Subject Matter: Rebuttal testimony relating to TEX-LA's DSM activities.
10. On Behalf of H.E. Butt Grocery Company, Before the Public Utilities Commission of Texas, Docket No. 12820, Filed October 17, 1994. Subject Matter: Proposed modifications to Central Power and Light DSM Programs.
11. On Behalf of The Coalition of Cities and The City of Houston, Before the Public Utilities Commission of Texas, Docket No. 12065, filed November 15, 1994. Subject Matter: Proposed changes to Houston Lighting and Power Company's DSM programs.
12. On Behalf of the Georgia Public Service Commission Staff IRP Adversary Team, Before the Georgia Public Service Commission, Docket NO. 5602-U, filed May 8, 1995. Subject Matter: Proposed modifications to DSM programs proposed by Georgia Power Company in Integrated Resource Plan filed by the Company in January 1995.
13. On Behalf of the Georgia Public Service Commission Staff IRP Adversary Team, Before the Georgia Public Service Commission, Docket NO. 5601-U, filed May 8, 1995. Subject Matter: Proposed modifications to DSM programs proposed by Savannah Electric and Power Company in Integrated Resource Plan filed by the Company in January 1995.
14. On Behalf of the Sam Rayburn G&T Electric Cooperative, Inc., Before the Public Utilities Commission of Texas, Docket No. 14893, filed September 1995. Subject Matter: Description of SRG&T Compliance with prior Commission orders relating to SRG&Ts DSM activities.
15. On Behalf of the Sam Rayburn G&T Electric Cooperative, Inc., Before the Public Utilities Commission of Texas, Docket No. 14893, filed January 1996. Subject Matter: Rebuttal testimony relating to SRG&Ts DSM activities.
16. On Behalf of the Sam Rayburn G&T Electric Cooperative, Inc., Before the Public Utilities Commission of Texas, Docket No. 14893, filed March 1996. Subject Matter: Surrebuttal testimony relating to SRG&Ts DSM activities.
16. On Behalf of the Georgia Public Service Commission Staff IRP Adversary Team, Before the Georgia Public Service Commission, Docket Nos. 6315-U and 6325-U, filed April 5, 1996. Subject Matter: Evaluation of Benefits and Costs of Residential Load Management Program Proposed by Georgia Power Company.
17. On Behalf of Green Mountain Power Company, Before the Vermont Public Service Board, Docket No. 5983, filed December 8, 1997. Subject Matter: Rebuttal Testimony relating to the effectiveness of the Company's historical DSM activities.
18. On Behalf of the Georgia Public Service Commission Staff IRP Adversary Team, Before the Georgia Public Service Commission, Docket NO. 8708-U, filed May 29, 1998. Subject Matter: DSM programs proposed by Georgia Power Company in Integrated Resource Plan filed by the Company in 1998.
19. On Behalf of the Georgia Public Service Commission Staff IRP Adversary Team, Before the Georgia Public Service Commission, Docket NO. 8709-U, filed May 29, 1998. Subject Matter: Proposed modifications to DSM programs proposed by Savannah Electric and Power Company in Integrated Resource Plan filed by the Company in January 1995.
20. On Behalf of the Georgia Public Service Commission Staff IRP Adversary Team, Before the Georgia Public Service Commission, Docket No. 8709-U, filed May 29, 1998. Subject Matter: Proposed modifications to DSM programs proposed by Savannah Electric and Power Company in Integrated Resource Plan filed by the Company in January 1998.
21. On Behalf of the Georgia Public Service Commission Staff IRP Adversary Team, Before the Georgia Public Service Commission, Docket No. 13305-U, filed May 11, 2001. Subject Matter: DSM

- programs proposed by Georgia Power Company in Integrated Resource Plan filed by the Company in January 2001.
22. On Behalf of the Georgia Public Service Commission Staff IRP Adversary Team, Before the Georgia Public Service Commission, Docket No. 13306-U, filed May 11, 2001. Subject Matter: Proposed modifications to DSM programs proposed by Savannah Electric and Power Company in Integrated Resource Plan filed by the Company in January 2001.
  23. On Behalf of the Alliance to Save Energy, Before the Georgia Public Service Commission, Docket Nos. 17687 & 17688-U, filed May 14, 2004. Subject Matter: Proposal for new energy efficiency programs to be paid for and implemented by Savannah Electric and Power Company and Georgia Power Company (this was intervenor testimony filed in the Integrated Resource Plan dockets heard before the Georgia Commission during 2004).
  24. On Behalf of the Southern Alliance for Clean Energy, Before the Georgia Public Service Commission, Docket Nos. 4822-U & 19279-U, filed November 12, 2004. Subject Matter: Provided comments on the rules of the Georgia Commission relating to the methodology for the calculation of electric energy and capacity avoided costs that would apply to renewable energy producers in the State of Georgia.
  25. On behalf of the Public Staff of the North Carolina Utilities Commission, Before the North Carolina Public Service Commission, Docket No. E-7, Sub 831, June 26, 2008, Subject Matter: The purposes of this testimony were the following: (1) to determine whether the SAVE-A-WATT (SAW) approach was in the public interest of the ratepayers of Duke Energy Carolinas, LLC (Duke or the Company); (2) to determine whether the SAW program administrator costs per lifetime kWh saved were reasonable and whether projected utility margins for energy efficiency and demand response resources under the proposed SAVE-A-WATT approach were reasonably based; (3) to determine whether the SAW approach would achieve the maximum achievable cost-effective potential for kilowatt-hour (kWh) and kilowatt (kW) savings in the Company's service area in North Carolina.; (4) to determine whether any additional cost-effective energy efficiency and demand response programs should be included in the Company's Energy Efficiency Plan; (5) to determine whether an alternative to SAW exists that provides superior electricity and dollar savings to the Company's ratepayers at a much lower cost to them.
  26. On behalf of Communities Against Regional Interconnect, Before the State of New York Public Service Commission, Case No. 06-T-0650, Filed January 9, 2009, Subject Matter: The purpose of this testimony were the following: to present the achievable, cost effective non-route alternatives to construction of the New York Regional Interconnect (NYRI) project and to demonstrate that with the implementation of the proposed non-route alternatives there is no real need for the NYRI project.
  27. On behalf of Connecticut Natural Gas Corporation, Before the State of Connecticut Department of Public Utility Control, Docket No. 08-12-06, Filed January 16, 2009, Subject Matter: The purposes of this testimony were the following: (1) describe how the new Connecticut Natural Gas (CNG) energy efficiency programs will strengthen the partnership with customers through expanded communication and outreach, consistent with the state's policy encouraging energy efficiency; (2) present an overview of existing CNG energy efficiency programs; (3) present information on best practice natural gas energy efficiency programs in other States; (4) describe CNG's proposal to expand energy efficiency program offerings; (5) provide a summary of proposed budgets, energy savings and cost effectiveness of proposed program offerings; (6) describe staffing needs to support the proposed programs; (7) present information on the impact of proposed programs on natural gas use per customer; (8) describe the regulatory mechanism for recovery of program costs.
  28. On behalf of the Southern Connecticut Gas Company, Before the State of Connecticut Department

of Public Utility Control, Docket No. 08-08-17, Filed January 20, 2009, Subject Matter: The purposes of this testimony were the following: (1) describe how the new Southern Connecticut Gas Company (SCG) energy efficiency programs will strengthen the partnership with customers through expanded communication and outreach, consistent with the state's policy encouraging energy efficiency; (2) present an overview of existing SCG energy efficiency programs; (3) present information on best practice natural gas energy efficiency programs in other States; (4) describe SCG's proposal to expand energy efficiency program offerings; (5) provide a summary of proposed budgets, energy savings and cost effectiveness of proposed program offerings; (6) describe staffing needs to support the proposed programs; (7) present information on the impact of proposed programs on natural gas use per customer; (8) describe the regulatory mechanism for recovery of program costs.

29. On Behalf of the Public Interest Advocacy Staff of the Georgia Public Service Commission, Docket Nos. 31081 & 31082, filed May 2010. Subject Matter: Reviewed energy efficiency and demand response programs included in the 2010 Georgia Power Company Integrated Resource Plan and made recommendations for an enhanced portfolio of such programs. Also made recommendations relating to DSM cost recovery and financial incentives for the Company's shareholders.
30. On Behalf of the Public Interest Advocacy Staff of the Georgia Public Service Commission, Docket Nos. 36498 & 36499, filed May 2013. Subject Matter: Reviewed energy efficiency and demand response programs included in the 2013 Georgia Power Company Integrated Resource Plan and made recommendations relating to the Company's proposed portfolio of DSM programs. Also made recommendations relating to DSM cost recovery and financial incentives for the Company's shareholders.
31. On Behalf of Steel Dynamics, Inc., Before the Indiana Utility Regulatory Commission, Docket No 44310, filed June 2013. Subject Matter: The purpose of this testimony was to address why the Commission should approve a structured self-direct demand side management program for large customers served by jurisdictional electric utilities and such a program should be structured.
32. On Behalf of the Arkansas Attorney General, Before the Arkansas Public Service Commission, Docket Nos. 07-075-TF, 07-076-TF, 07-077-TF, 07-078-TF, 07-081-TF, 07-0082-TF, 07-085-TF. Subject Matter: IN THE MATTER OF THE REQUEST FOR APPROVAL OF ITS QUICK START ENERGY EFFICIENCY PROGRAMS AND THE TARIFF RELATED TO THE PROGRAMS OF UTILITIES IN ARKANSAS, filed on May 2, 2014. The purpose of this testimony was to provide detailed recommendations on how seven electric and natural gas utilities in Arkansas could address flaws in the evaluation, measurement and verification procedures used to determine accurate program kWh and kW savings, the need for these utilities to follow-up and implement detailed recommendations made in program evaluations and to discuss necessary steps to address non cost effective programs. t.
33. On Behalf of the Arkansas Attorney General, Before the Arkansas Public Service Commission, Docket Nos. 07-075-TF, 07-076-TF, 07-077-TF, 07-078-TF, 07-081-TF, 07-0082-TF, 07-085-TF. Subject Matter: IN THE MATTER OF THE REQUEST FOR APPROVAL OF ITS QUICK START ENERGY EFFICIENCY PROGRAMS AND THE TARIFF RELATED TO THE PROGRAMS OF UTILITIES IN ARKANSAS, filed on May 8, 2015. The purpose of this testimony was to provide detailed recommendations on how seven electric and natural gas utilities in Arkansas could improve the efficiency and cost effectiveness of proposed DSM programs based on EM&V results achieved to date and based on recommendations made by the independent third party evaluations and the Independent Evaluation Monitor (IEM).
34. On Behalf of the Public Interest Advocacy Staff of the Georgia Public Service Commission, Docket No. 40161, filed May 6, 2016. Subject Matter: Reviewed the Company's IRP testimony and exhibits, IRP plan and data responses filed in this IRP proceeding. The developed, submitted and

presented testimony with recommendations relating to the Company's treatment of DSM resources in the IRP process, the proposed portfolio of DSM programs included in the IRP and presented the Commission's current policy on treating DSM resources as a priority resource in the IRP process of a utility.

35. On Behalf of the Public Interest Advocacy Staff of the Georgia Public Service Commission, Docket No. 40162, filed May 6, 2016. Subject Matter: Reviewed the Company's testimony, DSM plan and data responses filed in this DSM proceeding. Then filed and presented testimony with recommendations relating to DSM cost recovery and financial incentives for the Company's shareholders for successful implementation of energy efficiency programs.

Exhibit RFS-2: GDS Associates, Inc. Survey of DSM Shareholder Incentive Mechanisms by State (June 2016)

State	Penalties	Description of DSM Shareholder Incentive Mechanism	ACEEE Ranking	Data Sources	Source Website
Massachusetts	If the utility company or aggregator does not meet its burden, the department may levy a fine of not more than the product of \$0.05 per kilowatt-hour times the shortfall of kilowatt-hours saved, which shall be paid to the Massachusetts clean energy technology center within 60 days after the end of the year in which the department levies the fine. The fine shall not impact ratepayers.  Note: This is a programmatic penalty not an energy saved penalty.	Incentive is based on electricity savings and value. Performance metrics were removed for the 2016-2018 plans. Incentive Pool is \$100M total for elec utilities (Minimum threshold for % of savings target is 75%; maximum is 125%) Note: This is based on a 3 year plan structure. Payout rate = \$0.0105518 per dollar benefit & \$0.0109515 per dollar of net benefit.	1	MA Public Utilities Commission	<a href="http://www.mass.gov/eea/pr-2016/massachusetts-3-year-energy-efficiency-plan-approved.html">http://www.mass.gov/eea/pr-2016/massachusetts-3-year-energy-efficiency-plan-approved.html</a>  See page 70 of Order <a href="http://www.mass.gov/eea/docs/dpa/electric/2016-2018-3-yr-plan-order.pdf">http://www.mass.gov/eea/docs/dpa/electric/2016-2018-3-yr-plan-order.pdf</a>
California	Penalties have been removed for the ESPI program currently in place  If a EE program reaches 75% of goal, maximum incentive is 75% of total	Complicated four part program including Lifecycle savings performance award (weighted 2/3 kWh savings and 1/3 demand savings)(Capped at 9% total resource program spending). Ex ante review and compliance (capped at 3% less admin expenses). Non-resource management fee (capped at 3% ono-resource spending less admin). Codes and standards management fee (capped at 12% of budget).	2	California Public Utilities Commission	<a href="http://www.cpuc.ca.gov/NR/rdonlyres/7f928f5c-d20c-46c3-bc3b-792fbb61a4fd/0/2013ESPIPerformanceStatementReport_DISTRIBUTED.docx">http://www.cpuc.ca.gov/NR/rdonlyres/7f928f5c-d20c-46c3-bc3b-792fbb61a4fd/0/2013ESPIPerformanceStatementReport_DISTRIBUTED.docx</a>
New York*	None	For 2012 through 2015, there is a two tier incentive level. Utilities will be eligible for incentives for achievement of their targets and statewide goals. The incentive pool is \$36 million for electric utilities with \$24 million available to be earned through individual company performance and \$12 million earned for statewide achievement. For 2016 REV case 14-M0101 the Commission did not vote to require ESM (earning sharing mechanisms) in REV proceedings.	9	ACEEE (American Council for an Energy Efficient Economy) & Institute for Electric Innovation (The Edison Foundation)	CA Decision 10-12-049 and ACEEE state policy database <a href="http://www.edisonfoundation.net/ie/Documents/IEI_stateEepolicyupdate_1214.pdf">http://www.edisonfoundation.net/ie/Documents/IEI_stateEepolicyupdate_1214.pdf</a>
Oregon	None (The Energy Trust of Oregon, rather than a private utility company, implements Energy Efficiency programs in Oregon. The lost revenue recovery and shareholder incentives.	None	4	Oregon Public Utility Jason Eisendorfer-Utility Director	<a href="http://energytrust.org/">http://energytrust.org/</a>
Vermont	None	Efficiency Vermont works on a three year performance period. Efficiency Vermont works with the Vermont Public Service Department to develop Quantitative Performance Indicators (QPIs) to measure the programs' success. These metrics must be met in order to earn the maximum performance award at the end of a three-year period. Allowed to earn 3.4% to 4.3% of program costs as compensation.  2015-2017 compensation increased to 4.1% to 6% or \$4,442,682 with a 50-50 split between operations fee and performance incentives.	3	Order of Appointment for Vermont Energy Investment Corporation	<a href="http://psb.vermont.gov/sites/psb/files/projects/FEU/jrp2013/FEU-2013-01%20Order%20of%20Appointment%20for%20VEIC.pdf">http://psb.vermont.gov/sites/psb/files/projects/FEU/jrp2013/FEU-2013-01%20Order%20of%20Appointment%20for%20VEIC.pdf</a>  <a href="http://psb.vermont.gov/docketsandprojects/ea/7466/orders">http://psb.vermont.gov/docketsandprojects/ea/7466/orders</a>
Washington	Utilities are penalized \$50/megawatt for each megawatt the company falls below the target for utilities serving more than 25,000 customers.	No reward is in place or proposed by regulated electric utilities.	8	WA Utilities and Transportation Commission/ State Legislature, ACEEE	<a href="http://apps.leg.wa.gov/RCW/default.aspx?cite=19.285&amp;full=true#19.285.040">http://apps.leg.wa.gov/RCW/default.aspx?cite=19.285&amp;full=true#19.285.040</a> <a href="http://www.nwenergy.org/category/issues/937/">http://www.nwenergy.org/category/issues/937/</a>
Rhode Island	None	Shareholder incentive mechanism: 1.25% of spending budget for achieving 75% of savings target in a sector and increase linearly to 5% for achieving 100% - 6.25% for achieving 125% of the savings target. 30% of current incentives are set aside for achievement of summer annual MW demand saving goals. Overall target equat to 3.5% of eligible annual budget and 1.5% of annual spending.	4	RI Public Utilities Commission	<a href="http://www.rtipac.org/eventsactions/docket/3635-NECOrd18152(2.17.05).pdf">http://www.rtipac.org/eventsactions/docket/3635-NECOrd18152(2.17.05).pdf</a> <a href="http://www.rtipac.org/eventsactions/docket/4627-NGrd-2015-EEPP10-31-19.pdf">http://www.rtipac.org/eventsactions/docket/4627-NGrd-2015-EEPP10-31-19.pdf</a>
Connecticut	None	The incentive, referred to as a "management fee," can be from 1-8% of the program costs before taxes. The threshold for earning the minimum incentive (1%) is 70% of the goal. At 100% of the goal, the incentive would be 5%. At 130% of goals, it would be 8%.	6	ACEEE Institute for Electric Innovation (The Edison Foundation)	<a href="http://www.energibct.com/sites/default/files/120201-080812%20final%20decision.pdf">http://www.energibct.com/sites/default/files/120201-080812%20final%20decision.pdf</a>
Minnesota	None	Electric utilities receive an incentive starting at least when they achieve energy savings equal to 0.4 percent of their retail sales. When utilities achieve energy savings of 1.5% of retail sales, the incentive averages \$0.07 per kWh. Electric utilities' incentives have two caps: 20% of net benefits and \$0.0875 per kWh, whichever occurs first (Xcel Energy, Interstate P&L, Otter Tail Power). Minnesota Power can receive up to 30% of net benefits. Incentives are based on gross savings	10	MN Public Utilities Commission Docket E-G-999/CI-08-133	<a href="https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?methid=showPump&amp;documentId=7b7b916d008-09c1-4084-8c13-852c2f8c38e9%7d&amp;documentTitle=201212-52007-01">https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?methid=showPump&amp;documentId=7b7b916d008-09c1-4084-8c13-852c2f8c38e9%7d&amp;documentTitle=201212-52007-01</a>
Maine	None	Maine's efficiency programs are implemented by a government agency, no shared savings mechanism. There are statutory provisions allowing decoupling and incentives, they are currently being implemented.	14	ACEEE	35-A MRSA section 3195, subsection 3195 <a href="http://www.mainelegislature.org/legis/statutes/35-A/title35-Asect103.html">http://www.mainelegislature.org/legis/statutes/35-A/title35-Asect103.html</a>
Hawaii	None	Under the Public Benefits Administrator (PBFA) Contract, the PBFA has the ability to earn \$700,000 by achieving 100% of performance indicator targets or a portion based on the percentage met. If PBFA exceeds its target, up to an additional \$133,000 could be awarded.	19	Hawaii Public Utilities Commission (Annual Report 2012)	<a href="https://hawaiienergy.com/images/resources/AnnualPlans_ProgramYear2015.pdf">https://hawaiienergy.com/images/resources/AnnualPlans_ProgramYear2015.pdf</a>
Arizona	None	Varies depending on the utility. TEP and APS use performance incentives capped at \$0.0125/kWh time first-year annual kWh saved.	17	AZ Corporation Commission	<a href="http://database.aceee.org/state/utility-business-model">http://database.aceee.org/state/utility-business-model</a>

State	Penalties	Description of DSM Shareholder Incentive Mechanism	ACEEE Ranking	Data Sources	Source Website
New Hampshire	None	Performance incentive of up to 7.5% of total program budgets for meeting cost-effectiveness and savings goals. (Superior performance could get up to 10% of budget). Must achieve 55% of predicted lifetime savings for 7.5%, under 55% receives 6%. No one component of the incentive can represent more than half of the maximum incentive (to encourage a diverse portfolio).	20	NH Public Utilities Commission	<a href="http://www.puc.nh.gov/Regulatory/Docket/2012/12-262/ORDERS/12-262-202013-09-06%20ORDER%20NO.%2025-569.PDF">http://www.puc.nh.gov/Regulatory/Docket/2012/12-262/ORDERS/12-262-202013-09-06%20ORDER%20NO.%2025-569.PDF</a> <a href="http://www.puc.nh.gov/Electric/NH%20EnergyEfficiencyPrograms/14-216/14-216%202014-12-11%20PSN%20Att-PSN20Settlement%20Agreement.pdf">http://www.puc.nh.gov/Electric/NH%20EnergyEfficiencyPrograms/14-216/14-216%202014-12-11%20PSN%20Att-PSN20Settlement%20Agreement.pdf</a>
Nevada	None	Upon the request of the electric utility or intervening party or upon a motion of the Commission, the Commission may authorize an electric utility to include in the amount recovered (pursuant to subsection 1 of NRS 704.785) for an individual program for energy efficiency or conservation financial incentives to support the promotion of the participation of the customers of the electric utility in the program for energy efficiency or conservation	31	NV Revised Statutes	<a href="https://www.leg.state.nv.us/register/2015/register/8046-15A.pdf">https://www.leg.state.nv.us/register/2015/register/8046-15A.pdf</a>
Ohio	-An amount per day under/non-compliance relative to period of report equal to that prescribed, OR  -An amount equal to the existing market value of one renewable energy credit per MWh	Shared Savings incentives are based on the adjust net benefits using the UCT and lifetime savings, ranging from 0% to 13% (greater than 115% of goal) beyond the performance benchmark. Caps are \$10M for First Energy, \$20M for AEP, \$13.5M for Duke. <b>From 2013 AEP Stipulation</b> there will be an 87% savings mechanism to AEP Ohio Customers and 13% to AEP Ohio. <b>For First Energy</b> , The Incentive Mechanism will apply separately to each of the Companies and will trigger only if a Company exceeds both its annual and cumulative energy savings targets as set forth in Section 4928.66 (A)(1)(a). Revised Code, in any given year as determined by Ohio law and the Ohio Administrative Code. Based on these criteria, if a Company did not achieve its cumulative benchmark in a previous year, the Incentive Mechanism would not trigger in the current year unless the total cumulative energy efficiency savings were enough to cover both the annual target and the amount of the prior year's cumulative deficit. <b>Duke Program ONLY</b> : The EE-PDR Program Incentive (PI) amount shall be computed by multiplying the net resource savings expected from the approved programs which are to be installed during the upcoming twelve-month period times the allowed shared savings percentage. The allowed shared savings percentages are as follows: 0% for 100% or less, 7.5% for 100% - 110%, 10% for 110% - 115%, 15% for greater than 115%. Net resource savings are defined as program benefits less the cost of the program based on present value of Company's avoided costs over the expected life of the program. Other utilities recover through the DSM rider.	27	Ohio Laws and Rules, ACEEE	<a href="http://codes.ohio.gov/orc/4928.66">http://codes.ohio.gov/orc/4928.66</a>
Pennsylvania	If an EDC fails to meet the energy and peak load savings targets specified in Act 129, then the EDC shall be subject to a civil penalty not less than \$1 million and not to exceed \$20 million for failure to achieve the required reductions in	None	17	Pennsylvania Public Utility Commission	<a href="http://www.puc.state.pa.us/pcdocs/1182750.pdf">www.puc.state.pa.us/pcdocs/1182750.pdf</a>
North Carolina	None	The amount of the pre-income-tax PPI initially to be recovered for the entire DSM/EE portfolio for a vintage year shall be equal to 11.5% multiplied by the present value of the estimated net dollar savings associated with the DSM/EE portfolio installed in that vintage year, calculated by DSM/EE program using the UCT (and excluding Low Income Programs and other specified societal programs).	24	North Carolina Utilities Commission	<a href="http://starw.linac.net/NCUC/portal/home/PSC/DocketDetails.aspx?DocketID=959594-5940-4473-aaf1-555194843386">http://starw.linac.net/NCUC/portal/home/PSC/DocketDetails.aspx?DocketID=959594-5940-4473-aaf1-555194843386</a>
Indiana	If Southern Indiana Gas and Electric Company does not achieve its performance targets, they are met with 1% penalty	For Southern Indiana Gas and Electric Company, the incentive level is capped at 12% of program costs for achieving 100-120% of goal. A negative incentive level of -4% is applied for achieving 49% or less of goal. (Min threshold is 65-70% savings) For Duke Energy - Tiered structure. No cap on total earned. Nothing earned until achieving 75% of goal, with a graduated plan increasing from 6% to 12.13% over 110% of goal achieved. Vectren - 10% cap on incentive ; I&M - 15% cap on incentive.	38	Indiana Utility Commission	<a href="http://www.in.gov/ure/files/439551_order_043014.pdf">Indiana Utility Regulatory Commission-Order No. 43427 pg. 35</a> <a href="http://www.in.gov/ure/files/439551_order_043014.pdf">Duke Program - http://www.in.gov/ure/files/439551_order_043014.pdf</a> <a href="http://www.in.gov/ure/files/ord_444866(2).pdf">I&amp;M Program - http://www.in.gov/ure/files/ord_444866(2).pdf</a>
Texas	None, must achieve 100% of goal to qualify for a bonus	Beginning with the 2012 program year, a utility that exceeds 100% of its demand and energy reduction goals shall receive a bonus equal to 1% of the net benefits for every 2% that the demand reduction goal has been exceeded, with a maximum of 10% of the utility's total net benefits. Capped at 20% of total program costs for each utility. Net benefits are based on avoided cost which was 4.6 cents in 2014 (10.4 in 2013)	26	Texas Administrative Code	<a href="http://www.puc.texas.gov/agency/rules/subrules/electric/25.181/25.181.pdf">http://www.puc.texas.gov/agency/rules/subrules/electric/25.181/25.181.pdf</a>
Montana	None	Commission can add up to 2% added to the rate of return on common equity permitted on the utility's other investments.	31	MT Public Service Commission	MCA § 69-3-712
Georgia	None	Still under discussion June 2016 but most likely will remain the same as follows: Georgia Power will receive an Additional Sum of 8.5% of the NPV of the actual net benefits of verified net kWh savings as determined by the Program Administrator test from the certified DSM programs, with no cap, provided that following the annual determination of verified net kWh savings. If the annual incremental kWh savings is less than 50% of that initially projected, the Additional Sum shall be 0.5% for demand response measures and 3% for energy efficiency measures. If the Additional Sum exceeds program costs, the portion of Additional Sum that exceeds the program cost shall be calculated based on 4% of actual net benefits of verified net kWh savings as determined by the Program Administrator test from certified DSM programs.	37	GA Public Service Commission	Docket #36499
South Carolina	None	Varies depending on the utility. Progress Energy Carolinas incentive is 8% of net program savings for DSM and 13% net program savings for energy efficiency using the utility cost test. South Carolina Electric and Gas incentive is 6% of net program benefits. Duke Energy Carolinas is allowed to recover all program costs, recovery of net lost revenues incurred for up to thirty-six, and receive 11.5% of net savings achieved through its portfolio of EE/DSM.	40	SC Public Service Commission Edison Foundation	<a href="https://lms.psc.sc.gov/Attachments/Order/abcd4412-155d-141f-256889c8d4e0420">https://lms.psc.sc.gov/Attachments/Order/abcd4412-155d-141f-256889c8d4e0420</a> Philip Riky-Energy Advisor at SC PSC (Docket # 2010-299-E/2010-161-E/2009-261-E) <a href="https://tariff.psc.sc.gov/uploads/revision/ChangesFile/8534555C-A1C5-1347-514D4CAC32D8F218.PDF">https://tariff.psc.sc.gov/uploads/revision/ChangesFile/8534555C-A1C5-1347-514D4CAC32D8F218.PDF</a>
Kansas	None	None	45	KS Corporation Commission	Director- Michael Wegner <a href="http://database.aceee.org/state/kansas">http://database.aceee.org/state/kansas</a>



State	Penalties	Description of DSM Shareholder Incentive Mechanism	ACEEE Ranking	Data Sources	Source Website
Wisconsin	None	Utilities get cost recovery for funding Focus on Energy. For utility proposed programs, utilities can earn a rate of return equivalent to new capital investments or propose other shared savings mechanisms, such as decoupling and lost revenue recovery. This has not been pursued by utilities at this time.	22	ACEEE / MEEA	<a href="http://www.aceee.org/sites/default/files/publications/researchreports/U111.pdf">http://www.aceee.org/sites/default/files/publications/researchreports/U111.pdf</a> and <a href="http://www.mwalle.com/policy/WIUtilityRateStructure">http://www.mwalle.com/policy/WIUtilityRateStructure</a>
Michigan	None	<b>Consumers:</b> If they exceed 100.1% to 115% of lifetime savings goal for the year, they can receive between 53%-80% of financial incentive cap. Five other additional incentives exist for increasing the number of participants year-over-year for specific programs and exceeding the low income program goal. Descriptions can be seen on page 16 of the linked pdf.		Consumers Energy filing to the MI Public Service Commission	<a href="http://efile.mps.state.mi.us/efile/docs/17771/0031.pdf">http://efile.mps.state.mi.us/efile/docs/17771/0031.pdf</a>
	None	<b>DTE Energy:</b> They earn an incentive equal to 8% of financial incentive cap based on exceeding the lifetime energy savings goal by any amount greater than 100.1% with a USCRT of 1.25 or greater, not including low income programs. They earn an increasing incentive of up to 12% of financial incentive cap by commensurately saving up to 115% of the required lifetime savings goal. There are additional incentives for achieving specific program related goals.	14	DTE filing to the MI Public Service Commission	<a href="http://www.dleg.state.mi.us/mps/orders/notices/2015/17762.pdf">www.dleg.state.mi.us/mps/orders/notices/2015/17762.pdf</a>
Iowa	None	None (just cost recovery)	12	MEEA (Midwest Energy Efficiency Alliance)	<a href="http://mwalle.com/policy/IAUtility">http://mwalle.com/policy/IAUtility</a>
Illinois	Either \$665,000 or \$335,000 penalty depending on utility size for missing target in 2nd year, in 3rd year same fine and implementation moves to IPA	None	10	Illinois General Assembly	<a href="http://database.aceee.org/state/illwa">http://database.aceee.org/state/illwa</a>
Tennessee*	None	None	31	ACEEE	<a href="http://database.aceee.org/state/tennessee">http://database.aceee.org/state/tennessee</a>
Alabama	None	Alabama Power is able to recover a "reasonable rate of return" on efficiency program spending through a rate rider. Docket 31045 Rule 29)	41	AL Public Service Commission/ACEEE	<a href="http://database.aceee.org/state/alabama">http://database.aceee.org/state/alabama</a>
Mississippi	None	Allowed and amount is determined on a case-by-case basis. Commission allows for performance returns through shared savings (2010-AD-2 Rule 29) "In addition, if the utility seeks Commission approval to earn a return on energy efficiency investments and the utility seeks to recover these costs through the EECR, then the utility all in corporate these costs into its filing. Any return on investment calculation shall be based on the reporting year. The EECR shall be adjusted to reflect reconciliation of any over- or under-recovery for the prior year and the approved budget for the current Program Year."	47	MS Public Service Commission	<a href="http://www.bsc.state.ms.us/insiteconnect/insiteview.aspx?model=INSITE_CONNECT&amp;queue=CTS_ARCHIVED&amp;docid=310904">http://www.bsc.state.ms.us/insiteconnect/insiteview.aspx?model=INSITE_CONNECT&amp;queue=CTS_ARCHIVED&amp;docid=310904</a>
Louisiana*	None	Performance incentive is still to be determined during the Quick Start program. The filing from 2014 stated parties had 12 months to determine a mechanism but that has passed without a follow up filing. Energy in New Orleans has a rate rider incentive based on equity value that engages at 75% of goal up to 125% of goal.	48	ACEEE	<a href="http://database.aceee.org/state/louisiana">http://database.aceee.org/state/louisiana</a>
Arkansas	None	Incentives are available if the company achieves 80-120% of energy savings goals where the Company receives 10% of the total portfolio net benefits. For savings above 100% of target, the 10% of net benefits is capped at sliding scale of 4-8% of program spending.	31	ACEEE	<a href="http://www.abscservices.info/ee.aspx">http://www.abscservices.info/ee.aspx</a> (See SARP Notebook for full calculations) <a href="http://www.abscservices.info/pdf/08/08-137-u-135-1.pdf">http://www.abscservices.info/pdf/08/08-137-u-135-1.pdf</a>
Florida	None	The commission is authorized to allow an investor-owned electric utility an additional return on equity of up to 50 basis points for exceeding 20 percent of their annual load-growth through energy efficiency and conservation measures. \$366,82(9) of FEECA. No rewards or penalties have been granted at this time.	27	Florida Energy Efficiency and Conservation Act (FEECA)	<a href="http://www.floridaps.com/publications/pdf/electricgas/FEECA2014.pdf">http://www.floridaps.com/publications/pdf/electricgas/FEECA2014.pdf</a>
Oklahoma	None	Beginning in 2015, utilities will only be allowed to collect an incentive if the portfolio achieves 80% of the individual utility's goal and the portfolio has a TRC score higher than 1.0. Utilities will still be able to earn an incentive on programs with a TRC result of less than 1.0, but only if the portfolio as a whole passes the test. If savings beyond 100% of the utility savings goal are achieved, 15% of net benefits will be paid. The rule is not explicit in a maximum threshold for the total incentive, only the minimum.	38	OK Corporation Commission	<a href="http://www.aceweb.com/pu/puragelectric.htm">http://www.aceweb.com/pu/puragelectric.htm</a>
Virginia	None	The legislation states that an electric utility may recover projected and actual costs of energy efficiency programs, including a margin recoverable on operating expenses, which is equal to the general rate of return on common equity. The SCC can only approve such recovery if it finds that the program is in the public interest.	31	Virginia Code	\$56-585.1.A.5.c
West Virginia*	None	Request for recovery of lost revenues was denied in 2013 and 2014	45	ACEEE	<a href="http://www.psc.state.wv.us/corps/WebDocNet/ViewDocument.cfm?CaseSelect=H0D-2013-6638-NoType-%27WebDocNet622">http://www.psc.state.wv.us/corps/WebDocNet/ViewDocument.cfm?CaseSelect=H0D-2013-6638-NoType-%27WebDocNet622</a>
Kentucky*	None	Based on shared savings mechanism. AEP can earn an incentive of up to 10% of net savings after program costs while Duke and LG&E can earn up to 15% of net resource savings. No cap. Determined on a case-by-case basis.	29	ACEEE	<a href="http://www.aceee.org/sites/default/files/documents/lee_ku_dsm_ee_app_011714.pdf">http://www.aceee.org/sites/default/files/documents/lee_ku_dsm_ee_app_011714.pdf</a> <a href="https://www.duke-energy.com/pdfs/Sheet_No_75_RIDERDSM(U).pdf">https://www.duke-energy.com/pdfs/Sheet_No_75_RIDERDSM(U).pdf</a>
Missouri	None	Incentives are done on a case by case basis for approval per planning period, only rule is that it must be based on a % (typically 7-15) of net benefits. The calculation is quite complicated with several steps involved, individual for each filing, utilities may propose alternatives.	44	MO Public Service Commission	<a href="https://www.effs.psc.mo.gov/mpsc/commoncomponents/viewdocument.aspx?DocId=935836333">https://www.effs.psc.mo.gov/mpsc/commoncomponents/viewdocument.aspx?DocId=935836333</a>
New Jersey*	None	None	16	ACEEE	<a href="http://database.aceee.org/state/new-jersey">http://database.aceee.org/state/new-jersey</a>
Maryland*	None	Senate bill 2015 was introduced to allow for incentive funding mechanism, no incentives to date.	7	ACEEE	<a href="http://database.aceee.org/state/mar/land">http://database.aceee.org/state/mar/land</a>
Delaware	None	Shared savings agreements exist through SEU with program participants, but utility incentive sharing is voluntary.	24	Delaware Sustainable Energy Utility	<a href="http://database.aceee.org/state/delaware">http://database.aceee.org/state/delaware</a>
District of Columbia*	Penalties applied to Sustainable Energy Utility (SEU) if it fails to meet required performance benchmarks.	SEU implements energy efficiency programs in DC under the Clean and Affordable Energy Act. Financial incentives are given to SEU if it surpass performance benchmarks set in the contract.	14	ACEEE	<a href="http://aceee.org/energy-efficiency-sector/state-policy/district%20of%20columbia/182/all/191">http://aceee.org/energy-efficiency-sector/state-policy/district%20of%20columbia/182/all/191</a>

State	Penalties	Description of DSM Shareholder Incentive Mechanism	ACEEE Ranking	Data Sources	Source Website
Nebraska	None	None (There are 16 publicly-owned and four investor-owned natural gas utilities in Nebraska. Nebraska's natural gas utilities do not offer energy efficiency programs at this time.)	42	Nebraska Energy Office	Public Info Officer (402) 471-3064 <a href="http://database.aceee.org/state/nebraska">http://database.aceee.org/state/nebraska</a>
North Dakota	None	None (While the PSC does not require utilities to implement energy efficiency programs, regulated utilities are required to meet their power needs through least-cost planning, which includes the consideration of Demand Side Management (DSM) programs)	51	North Dakota Public Service Commission	Mike Diller, Director of Economic Regulation <a href="http://database.aceee.org/state/north-dakota">http://database.aceee.org/state/north-dakota</a>
South Dakota*	None	MidAmerican = Capped at 30% of approved annual spending, must achieve 100% of goal with a max return at 150% of goal.	48	ACEEE	<a href="https://psc.sd.gov/commission/dockets/electric/2007/e07-015/022509e1.pdf">https://psc.sd.gov/commission/dockets/electric/2007/e07-015/022509e1.pdf</a>
Wyoming*	None	None	50	ACEEE	<a href="http://database.aceee.org/state/wyoming">http://database.aceee.org/state/wyoming</a>
Colorado*	None	If Public Service meets or exceeds 100% of goals, it receives a pre-tax bonus of \$5 million; \$3.2 million for reaching 80-99% of goal. Additionally, 5% net benefits for reaching 100% of savings goals, 1% more for each 5% to max 15% at 150%, \$30 million cap.	12	ACEEE	Proceeding Number 13A-0686EG, Decision Number C14-07331 <a href="http://swenergy.org/Data/Sites/1/media/documents/news/news/file/13-00176920Corrected%20Certifications%20of%20Stipulation.pdf">http://swenergy.org/Data/Sites/1/media/documents/news/news/file/13-00176920Corrected%20Certifications%20of%20Stipulation.pdf</a>
New Mexico*	None	SWPSC = 2015 is capped at \$600,000 with an adjustment for spending, goals, and low-income spending. Expected return in about \$530,000 on a budget of \$7,853,614 or 6.97%. ElPasoEC = 7% of EPE's actual Program expenditures for each calendar year (ranges from \$373,215 in 2014 to \$402,601 in 2016) PNM = 7.6%	31	ACEEE	<a href="http://swenergy.org/Data/Sites/1/media/documents/news/news/file/SPS_2014-15_DSM_Plan_Stipulation_13-00286-UT.pdf">http://swenergy.org/Data/Sites/1/media/documents/news/news/file/SPS_2014-15_DSM_Plan_Stipulation_13-00286-UT.pdf</a> <a href="http://swenergy.org/Data/Sites/1/media/documents/news/news/file/13-00176920Corrected%20Certifications%20of%20Stipulation.pdf">http://swenergy.org/Data/Sites/1/media/documents/news/news/file/13-00176920Corrected%20Certifications%20of%20Stipulation.pdf</a> <a href="http://swenergy.org/Data/Sites/1/media/documents/news/news/file/Direct%20Stipulation%20and%20Exhibits%20of%20Stipulation.pdf">http://swenergy.org/Data/Sites/1/media/documents/news/news/file/Direct%20Stipulation%20and%20Exhibits%20of%20Stipulation.pdf</a>
Idaho*	None	None	29	ACEEE	<a href="http://database.aceee.org/state/idaho">http://database.aceee.org/state/idaho</a>
Utah*	None	None (In March 2009, the Utah Legislature passed HJR 9, a Joint Resolution on Cost-effective Energy Efficiency and Utility Demand Side Management. This resolution recognizes the multifaceted benefits of utility energy efficiency and sets non-binding energy savings goals of at least 1 percent per year for Utah's electric corporations and at least 0.5 percent per year for Utah's natural gas utility corporations.)	23	ACEEE	<a href="http://database.aceee.org/state/utah">http://database.aceee.org/state/utah</a>
Alaska*	None	None (In 2010, House Bill 306 established Alaska's state energy policy, which included an aggressive renewable electricity goal, as well as a goal to reduce per capita electricity use in the state by 15% by 2020. This goal has not yet been translated into specific requirements for utilities to achieve specific savings levels, and therefore is not yet considered an energy efficiency resource standard (EERS).)	42	ACEEE	<a href="http://database.aceee.org/state/alaska">http://database.aceee.org/state/alaska</a>

\*GDS was not able to reach Commission Staff for verification in these 15 states



Exhibit RFS-3: Allocation of Shaved Savings Caps to Distribution Utilities and Sectors

Projection of Cumulative Annual MWH Savings for 2017 to 2019				
	Ohio Edison (OE) - Three Year MWH Savings	Cleveland Electric Illuminating (CEI) - Three Year MWH Savings	Toledo Edison (TE) - Three Year MWH Savings	Total Three Year MWH Savings
Total Residential	499,664,888	358,363,924	145,616,398	1,003,645,210
Residential Low Income	7,528,724	7,992,242	3,150,694	18,671,660
Residential Non-Low Income	492,136,164	350,371,682	142,465,704	984,973,550
Nonresidential	652,159,178	477,491,924	281,021,888	1,410,672,990
Total - All Sectors	1,151,824,066	835,855,848	426,638,286	2,414,318,200

Percent of Total Cumulative Annual MWH Savings for 2017 to 2019 Represented for Each Sector for Each EDC				
	Ohio Edison (OE) - Three Year MWH Savings for OE Divided by Total MWH Savings for all three utilities for all sectors (%)	Cleveland Electric Illuminating (CEI) - Three Year MWH Savings for CEI Divided by Total MWH Savings for all three utilities for all sectors (%)	Toledo Edison (TE) - Three Year MWH Savings for TE Divided by Total MWH Savings for all three utilities for all sectors (%)	Total Three Year MWH Savings by Sector Divided by Total MWH Savings for all three utilities for all sectors (%)
Residential Low Income	0.3%	0.3%	0.1%	0.8%
Residential Non-Low Income	20.4%	14.5%	5.9%	40.8%
Nonresidential	27.0%	19.8%	11.6%	58.4%

Proposed Shared Savings Incentive Cap for 2017 to 2019 for Each Sector for Each EDC Based on a Total Incentive Cap of \$10 Million				
	Ohio Edison (OE) - Shared Savings Incentive Cap	Cleveland Electric Illuminating (CEI) - Shared Savings Incentive Cap	Toledo Edison (TE) - Shared Savings Incentive Cap	Total - Shared Savings Incentive Cap
Residential Low Income	\$31,184	\$33,104	\$13,050	\$77,337
Residential Non-Low Income	\$2,038,406	\$1,451,224	\$590,087	\$4,079,717
Nonresidential	\$2,701,215	\$1,977,751	\$1,163,980	\$5,842,946

Note: This numbers in this Exhibit have not been adjusted to remove projected MWH savings for programs that are not projected to be cost effective.

**NRDC Set 1**  
**Witness: Eren G. Demiray**

Case No. 16-0743-EL-POR

In the Matter of the Application of Ohio Edison Company, The Cleveland Electric  
Illuminating Company, and The Toledo Edison Company For Approval  
of Their Energy Efficiency and Peak Demand Reduction Program Portfolio  
Plans for 2017 through 2019

RESPONSES TO DATA REQUESTS

**NRDC Set 1** Regarding FirstEnergy's \$25 million "after-tax" shared savings cap referenced on p. 100 of  
**– INT-032** Attachment A to the Application, please answer the following:

- a) Approximately what would that amount be "pre-tax"? Please use the Companies' best current estimate of its likely future tax rates in answering this question. If it cannot estimate what such future tax rates will be, please answer assuming its most recently determined tax rate.
- b) Does the proposed cap apply to the sum of shared savings from all three FirstEnergy subsidiary companies?

**Response:** a) Approximately \$39M based on the Companies' current composite income tax rate.  
b) Yes, as stated in Section 7.1 of the Companies' Plan, the \$25 million after-tax cap is per year in total across the Companies.

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**9/13/2016 3:19:31 PM**

**in**

**Case No(s). 16-0743-EL-POR**

Summary: Testimony Direct Testimony of Richard F. Spellman on behalf of the Office of the Ohio Consumers' Counsel electronically filed by Ms. Gina L Brigner on behalf of Mr. Christopher Healey