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INDIANA UTILITY

REGULATORY COMMISSION

Petitioner's Exhibit No. 11 Vectren South Page 1 of 14

SOUTHERN INDIANA GAS AND ELECTRIC COMPANY D/B/A VECTREN ENERGY DELIVERY OF INDIANA, INC. (VECTREN SOUTH)

IURC CAUSE NO. 44645

DIRECT TESTIMONY ON REMAND OF RINA H. HARRIS DIRECTOR, ENERGY EFFICIENCY

ON

ELECTRIC DEMAND SIDE MANAGEMENT 2016 – 2017 LOST REVENUES

SPONSORING PETITIONER'S EXHIBIT NO. 11, ATTACHMENTS RHH-1

DIRECT TESTIMONY OF RINA HARRIS

1	I.	INTRODUCTION
2		
3	Q.	Please state your name and business address.
4	Α.	My name is Rina H. Harris, and my business address is One Vectren Square,
5		Evansville, Indiana 47708.
6		
7	Q.	By whom are you employed and in what capacity?
8	Α.	I am employed by Vectren Utility Holdings, Inc. ("VUHI"), the immediate parent company
9		of Southern Indiana Gas and Electric Company d/b/a Vectren Energy Delivery of
10		Indiana, Inc. ("Vectren South" or "Company"), Indiana Gas Company, Inc. d/b/a Vectren
11		Energy Delivery of Indiana, Inc. ("Vectren North") and Vectren Energy Delivery of Ohio,
12		Inc. ("VEDO"). Vectren South has both a gas division and an electric division. I am the
13		Director of Energy Efficiency for VUHI.
14		
15	Q.	What is your educational background?
16	Α.	I received a Bachelor of Science degree in Public Affairs from Indiana University in 2005.
17		I also received a Master of Science degree in Public Affairs from Indiana University in
18		2007.
19		
20	Q.	What is your business experience?
21	Α.	I have been employed by VUHI since 2008 in a variety of positions. Previously, I was the
22		Manager of Gas Conservation and DSM, with responsibility for the management of all
23		aspects of the gas conservation portfolio for all three VUHI regulated utilities and
24		oversight over all evaluation and planning activities. Prior to that, I was the Supervisor of
25		Demand Side Management Evaluation and Planning. As part of my role as Supervisor of
26		DSM Evaluation and Planning, I was responsible for the management of all electric and
27		gas evaluation activities, program planning, and conservation-related market research.
28		Prior to that, I was Senior Conservation Analyst with responsibilities over conservation
29		market research and program satisfaction, benchmarking conservation best practices

29 market research and program satisfaction, benchmarking conservation best practices30 and evaluation. I have also worked in market research as an analyst, with a focus on

- conservation initiatives related to demographic analysis, segmentation, and targeted
 marketing.
- 3

4 Q. What are your present duties and responsibilities as Director of Energy 5 Efficiency?

A. As Director of Energy Efficiency, I am responsible for managing all aspects of electric
and gas energy efficiency ("EE") and demand response ("DR") programs, including the
Direct Load Control ("DLC") program, for the three VUHI utilities. In this position, I
oversee all aspects of implementation, planning, marketing, evaluation and reporting of
the EE and DR Programs.

11

12 Q. Have you previously testified before the Indiana Utility Regulatory Commission 13 ("Commission")?

- 14 Yes. Most recently, I testified in Cause No. 44927 in which the Company sought Α. 15 approval of its 2018 – 2020 Energy Efficiency Plan. In addition, I testified in Cause No. 43405 DSMA 14, which is Vectren South's Demand Side Management Adjustment 16 17 ("DSMA") proceeding, where Vectren South sought approval to recover costs associated with customer participation in Company sponsored EE and DR (including DLC) 18 19 programs and lost revenues resulting from implementation of approved programs. 20 Furthermore, I testified in Cause No. 44598, where Vectren North and Vectren South, 21 collectively, sought approval for their Indiana gas energy efficiency programs, including 22 integrated gas and electric programs.
- 23 24

25 II. <u>PURPOSE</u>

26

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

- A. The purpose of my testimony is to provide support for recovery of lost revenues
 associated with the Vectren South 2016 2017 Electric DSM Plan ("2016 2017 Plan"
 or "Plan").
- 31
- 32 Q. Are you sponsoring any attachments in this proceeding?
- 33 A. Yes. I am sponsoring the following attachment:

- Petitioner's Exhibit No. 11, Attachment RHH-1, which is a presentation that provides
 supplemental information regarding lost revenues.
- 3

4

5

Q. Were your testimony and attachments in this proceeding prepared by you or with your participation?

- 6 A. Yes.
- 7

8 Q. Please summarize the relief Vectren South is seeking in this proceeding.

9 Α. Vectren South seeks to recover all costs associated with offering EE programs in the 10 2016-2017 Plan, including recovery of EE program costs, as defined by the Indiana 11 General Assembly in Senate Enrolled Act 412 ("SEA 412") codified at Ind. Code § 8-1-12 8.5-10 ("Section 10"), which includes performance incentives and lost revenues. Vectren 13 South has requested recovery of lost revenues through the measure life of the programs 14 associated with the 2016-2017 Plan, as it has in previously approved plans. However, 15 Vectren South has considered whether evaluation measurement and verification 16 ("EM&V"), over time, actually has limitations and in order to offer even further customer 17 safeguards, is proposing a modified approach to determining the amount of lost revenue 18 recovery as defined later in my testimony. The proposal relies upon EM&V that matches 19 energy savings to lost revenues. The proposed approach is fair and supports the policy of putting EE on a level with supply side resources, as intended from a financial 20 21 perspective. As witness Albertson discusses in his testimony, the regulatory framework supports life of measure lost revenue recovery if the Commission finds a plan 22 23 reasonable under Section 10.

- 24
- 25

26 III. LOST REVENUES ASSOCIATED WITH THE 2016–2017 PLAN

27

28 Q. What are lost revenues?

A. In its Appellee Brief, the Commission describes lost revenues as "...an estimation of the amount of lost sales attributable to the energy efficiency programs."¹ I agree with that description and while it is conceivable that no party disagrees with it, there are parties to this proceeding that have indicated lost revenues should not be recovered if actual

¹ Appellee's Br. at 7

1 sales, after the effects of EE are included, are sufficient to allow the Company to recover its authorized return.² Vectren South disagrees with that position. The Commission's 2 3 long standing policy has been that the purpose of lost revenue recovery is to return the 4 utility to the position it would have been in absent the implementation of the EE 5 measures. The Commission has long recognized the inherent disincentive associated 6 with utilities encouraging customers to use less of its product and, as set forth in its DSM 7 Rules³, has historically approved the recovery of lost revenues associated with the 8 implementation of EE programs for the life of each measure.

9

Q. Why is lost revenue recovery necessary to support implementation of EE programs?

12 Α. Lost revenue recovery is a verifiable and non-speculative method to make the utility 13 whole, relative to where it would have been financially without energy efficiency 14 programs. It does not, however, unduly reward the utility for declines in electricity sales 15 unrelated to such programs. All else being equal, if an energy efficiency program 16 reduces sales, it reduces revenues proportionately, but fixed costs do not change. Less 17 revenue, therefore, means that the utility is at some risk for not recovering all of its fixed 18 costs. Ultimately, the drop in revenue will impact the utility's earnings for an investor-19 owned utility, or net operating margin for publicly and cooperatively owned utilities.⁴

20

21Q.What dollar amounts (incremental and lifetime) of projected lost revenues are22associated with implementation of the 2016-2017 Plan?

A. Vectren South anticipates that approximately \$2.5 million of incremental lost revenues and approximately \$34.3 million of lifetime lost revenues will be associated with the 2016-2017 Plan. Please see Table RHH-1 below for a breakdown of incremental and lifetime lost revenues associated with the programs included in the 2016-2017 Plan. In addition, Table RHH-1 provides an overview of the weighted average measure life and annual net savings by program. All lifetime dollars are nominal. The present value of the total lifetime lost revenue amount shown above, \$34.3M would be \$23.9M.

² CAC Exhibit 1, Direct Testimony of Natalie Mims, Cause No. 44645, pp. 30

³ See 170 IAC 4-8-6 Lost Revenue

⁴ Aligning Utility Incentives with Investment in Energy Efficiency A RESOURCE OF THE NATIONAL ACTION PLAN FOR ENERGY EFFICIENCY NOVEMBER 2007. https://www.epa.gov/sites/production/files/2015-08/documents/incentives.pdf

1 2

Table RHH-1 2016-2017 Plan Projected Incremental and Lifetime

Lost Revenues by Program

									Lost Rev	/enu	e Analysis			_	1		
2016-2017 Filed Plan	6-2017 Filed Plan Weighted NTG (from Net Annu Measure Life Plan) Savings			ual Energy s (MWH)		Total LR/	AM II (ii	ncremental n 000's)	Dollars	Total LRAM Lifetim e Dollars (in 000's)							
Residential			2016	2017		2016	17	2017	Total		2016		2017		Total		
Residential Lighting	8	57%	3,769	3,894	s	149.6	s	155.2	304.7	s	2,482.5	Ş	2,564.8	s	5,047.3		
Home Energy Assessments & Weatherization	6	88%	1,703	1,703	s	67.6	s	67.9	135.5	s	841.4	s	841.4	s	1,682.9		
Income Qualified Weatherization	б	100%	1,283	1,283	S	50.9	s	51.1	102.0	S	633.5	S	633.5	\$	1,267.1		
Appliance Recycling	8	53%	541	541	S	21.5	S	21.6	43.0	S	356.2	S	356.2	S	712.5		
Energy Efficient Schools	8	96%	648	648	S	25.7	S	25.8	51.6	S	427.1	S	427.1	S	854.2		
Residential Efficient Products	16	74%	796	796	S	31.6	S	31.7	63.3	S	1,048.7	S	1,048.7	S	2,097.4		
Residential New Construction	25	86%	126	126	S	5.0	S	5.0	10.0	s	259.8	s	259.8	s	519.6		
Multi-Family Direct Install	6	100%	335	335	S	13.3	S	13.3	26.6	s	165.5	S	165.5	S	331.0		
Residential Behavior Savings	1	100%	6,205	5,577	S	472.3	s	424.5	896.8	S	468.0	S	420.6	S	888.5		
Residential Smart Thermostat Demand Response	15	100%	858	0	\$	34.0	s	1	34.0	s	1,059.5	s	÷	s	1,059.5		
Conservation Voltage Reduction	15	100%	0	1,482	S		S	59.0	59.0	Ş		S	1,829.7	S	1,829.7		
Total Residential	6.6		16,265	16,385	\$	871.5	\$	855.2	1,726.7	\$	7,742.3	\$	8,547.3	\$	16,289.7		
Commercial																	
Small Business Direct Install	10	98%	5,881	5,881	S	153.7	S	154.3	308.0	s	3,186.8	S	3,186.8	s	6,373.5		
Commercial & Industrial Prescriptive	11	80%	5,528	5,528	S	145.5	s	146.1	291.6	S	3,319.0	S	3,319.0	S	6,638.0		
Commercial & Industrial New Construction	13	95%	474	507	S	12.7	S	13.7	26.4	S	343.1	S	367.4	S	710.6		
Commercial & Industrial Custom	11	99%	2,532	2,877	S	64.8	S	74.0	138.8	S	1,478.2	S	1,679.7	S	3,157.9		
Multi-Family Energy Efficient Retrofit	16	100%	202	202	S	5.3	S	5.4	10.7	S	177.4	S	177.4	S	354.8		
Conservation Voltage Reduction	15	100%	0	875	S		s	23.9	23.9	S		S	739.3	S	739.3		
Total C&I	10.9		14,616	15,870	\$	382.1	\$	417.3	799.3	\$	8,504.6	\$	9,469.6	\$	17,974.1		
Total Portfolio	8.5		30,881	32,256	\$	1,253.6	\$	1,272.5	2,526.0	\$	16,246.9	\$	18,016.9	\$	34,263.8		

3 4

5 Q. Please explain how Vectren South calculates lost revenues.

Lost revenues are calculated by multiplying per participant evaluated kWh and kW 6 Α. 7 savings by the number of actual participants in a program (by measure in many cases), 8 by month, and by rate class. The evaluated savings incorporate adjustments to 9 installation rates, free ridership, and spillover, among other things. This calculation is 10 tracked and updated on a monthly basis as program participation data is provided 11 monthly. Vendor participation data is aligned with Vectren South's customer billing 12 system to determine the rate schedule allocation for each participant.

13

14 Monthly energy savings are multiplied by evaluated savings of each participant and then divided by 12 to determine monthly energy savings. 15

16

- 1 Once the net savings is established (by program/measure, by month, by rate class), the 2 calculation/model will carry those savings forward for the duration of the measure life.
- 3

4

The evaluated savings of an energy efficiency program is then multiplied by the portion of the rate that collects a utility's fixed cost of service to determine lost revenue recovery.

5 6

7

8

We are providing this detailed explanation of Vectren South's calculation of lost revenues in order to assist stakeholders in understanding Vectren South's calculation, with the ultimate goal of increasing confidence in the reliability of the calculation.

- 9 10
- 11

Q. Is it reasonable to collect lost revenues for programs implemented pursuant to the 12 2016-2017 Plan for the life of the measure?

- 13 Α. Yes. The measure life is an important input to the cost/benefit testing used to determine 14 the cost effectiveness of a particular program or measure. Consequently, utility revenues 15 continue to be reduced over time by energy efficiency measures or programs each year 16 for the life of the measure. It is reasonable to match the ability to recover lost revenues 17 for the programs over the same life which is used to determine a program's cost 18 effectiveness.
- 19

20 In addition, Vectren South's programs undergo a rigorous, independent, third-party 21 Evaluation, Measurement and Verification (EM&V) process to determine the actual 22 program savings which are used to determine cost effectiveness of programs and also 23 serve as the basis for the lost revenue calculation. Only the kWh and KW demand 24 savings determined to directly result from the evaluation are used to recover lost 25 revenues. The EM&V process is further discussed by Petitioner's witness S. Khawaja.

26

27 IV. EVALUATION MEASUREMENT & VERIFICATION SUPPORT OF 2016-2017 PLAN 28 PROGRAMS

29

30 Q. Please describe how EM&V results are applied in the calculation of lost revenues.

Α. 31 Evaluation for all programs in the 2016-2017 Plan will be conducted by an independent 32 evaluator. EM&V activity will occur every year for all programs offered during the prior

- year. In general, the independent evaluator will perform three types of evaluations, a
 process evaluation, impact evaluation, and market effects assessment.
- 3

Those EM&V results, including savings, demand, and net to gross (NTG) ratios, are then applied to the calculation of lost revenues retrospectively for the evaluated program year. The lost revenues for the evaluated year are reconciled annually with updated results and reported in the next DSMA filing.

8

9 Q. Is the EM&V process a rigorous and reliable source for determining energy 10 savings?

- A. Yes. As discussed in Petitioner's witness Khawaja's testimony, evaluators perform many
 different types of analysis to estimate energy savings for EE programs, including billing
 analysis, regression analysis, REM/Rate analysis, etc. The rigorous and reliable impact
 evaluation produces a statistically valid estimate of actual savings. The EM&V process
 is further discussed in Petitioner's witness Khawaja's testimony in this proceeding.
- 16

17 Q. In this proceeding has Vectren South's recovery of lost revenues been approved? 18 A. Yes.

19

Q. Does Vectren South agree that recovery should be capped at the lesser of 4 years or life of measure?

- A. No. A hard cap set at a particular number of years is arbitrary and has no correlation to
 the effective useful life established by TRMs and/or evaluations.
- 24

Q. Is there a valid basis to entirely detach lost revenue recovery from life of the measure?

- A. No. The purpose of lost revenue recovery is to remove the financial harm the utility
 incurs by reducing consumption of its product while fairly limiting that recovery so that
 customers may still benefit from energy efficiency programs. Revenues are reduced by
 life of the installed measures and savings continue to reduce sales for the life of the
 measure.
- 32

Q. Is there a reasonable method of modifying the lost revenue recovery calculation that preserves the link between lost revenue recovery and measure life?

- A. In my experience, Vectren South's lost revenue calculation already provides a
 conservative basis for the recovery of lost revenues, as it uses net energy and demand
 savings assumptions based on EM&V results, which accounts for a number of factors
 that reduce the savings. However, in the interest of further ensuring customers only pay
 for lost revenues that are a result of EE measures, Vectren South, with the assistance of
 Cadmus, is proposing a methodology that provides even greater assurance customers
 are paying only for lost revenues that result from EE measures.
- 10

11

Q. Please describe the proposal to determine lost revenue recovery.

- A. Vectren South proposes a modified method of recovering lost revenues for all programs based on: (1) the weighted average measure life ("WAML") of the plan period, and (2) a 10% reduction in annual savings. Using this method, Vectren South would recover the reasonable amount of lost revenues associated with the weighted average measure life of its EE programs or the measure life, whichever is less. The WAML of the portfolio would be re-evaluated and adjusted with each EE filing.
- 18

19Q.What is a WAML and why is Vectren South proposing to use it as a basis for lost20revenue recovery?

- A. WAML is the average life, weighted by savings in years, of all the various measures installed or actions taken in a portfolio of programs. In using this approach, Vectren South first determines the weighted average life of each program by weighting the energy savings for each measure included in the program. Next, the Company calculates the weighted average measure life of a portfolio by weighting the energy savings of each program included in the portfolio. To determine individual measure lives ("ML"), Vectren South uses the latest TRM or evaluation.
- 28

Capping recovery of lost revenues based upon WAML is reasonable because it limits lost revenue recovery based on the average equipment life and measure persistence of the entire program plan.

32

1 In addition, only 90% of annual savings would be recovered, reflecting the statistical 2 certainty EM&V providers can obtain for lost revenues. As explained by witness 3 Khawaja, the EM&V process utilizes at minimum a 90% confidence interval (an industry 4 accepted standard). It is difficult to achieve 100% confidence, and as such, Vectren 5 South is proposing a 10% degradation of annual savings within its lost revenue 6 calculation. All inputs in the WAML (less 10% for statistical certainty) are grounded on 7 evaluation and TRMs and provide a methodical cap to lost revenue recovery.

- 8
- 9

Why is a cap based upon WAML more appropriate than a three (3) or four (4) year Q. 10 cap proposed by the CAC?

11 Α. Reasonable opportunity for program cost recovery is a necessary condition for utility 12 sponsored EE program spending. Failure to recover these costs produces a direct 13 dollar-for-dollar reduction in utility earnings, all else being equal. A three or four-year cap 14 is arbitrary and is not tied to EM&V, cost effectiveness or any study suggesting a four-15 year cap is a reasonable time period. A four-year cap would incent utilities to offer 16 programs with a shorter measure life, as it is in the utility's best interest to recover its 17 fixed costs associated with the life of the measure. This could discourage further investment and eliminate many programs with longer measure lives. 18

19

20 Furthermore, utility revenues lost to company sponsored energy efficiency programs are 21 already understated because the benefits of market transformation--resulting from 22 increased awareness, increased stocking of EE products and better trained trade allies, 23 and spillover-take place over many years. In addition, utilities do not recover lost 24 revenues from free riders. For those reasons, allowing a utility to collect lost revenues 25 based upon verified savings for the life of the measure is reasonable. Providing a cap 26 based upon the WAML, with a 10% reduction in savings to account for the verification 27 uncertainty that exists simply provides even greater assurance of a reasonable recovery 28 approach.

29

30 Q. Discuss the impact and financial harm of a 4 year cap on Vectren South.

Α. 31 For the 2016-2017 Plan, a 4 year cap would cause approximately \$20M of financial 32 harm to Vectren South in lost revenues over the life of the programs. Table RHH-2 33 illustrates that 58% of lost revenues would be lost with a 4 year cap. The \$20M lost recovery is based on net kWh LRAM savings. Please see slides 4 through 8 of
 <u>Petitioner's Exhibit No. 11</u>, Attachment RHH-1, which provides detailed information on
 the amount of lost revenue that would be unrecovered by Vectren South under a 4 year
 cap.

- 5
- 6

Table RHH-2 2016-2017 Impact of 4 Year Cap on Lost Revenues

Total 2016-201	7 Plan		
4 Year Cap Im	pact		
		LRAM \$	LRAM
	LRAM MWH	(in mil's)	Impact
Total LRAM through Measure Life	529,928	\$34.3	
LRAM recovered (4-year cap)	217,203	\$14.4	42%
LRAM lost (4-year cap)	312,725	\$19.9	58%
Total LRAM	529,928	\$34.3	

8

7

9

Q. Do you agree that the estimate of lost revenues by its nature becomes less precise, less accurate and less certain over time?

12 Α. While future savings of an installed measure is more uncertain than the savings in year 13 one, there are metrics that are taken into consideration that provide confidence and 14 reliability of future savings. First, the measure life provided by most TRM's (including IN 15 TRM), followed up by evaluations, (ultimately used in lost revenue calculations), 16 incorporates measure persistence. Measure persistence takes into account early 17 retirement, failure of equipment, and any other reason the measure would be removed or discontinued. Specifically, the Indiana TRM defines measure life as "the life of an 18 19 energy consuming measure, including its equipment life and measure persistence."

20 Persistence is further discussed in detail in witness Khawaja's testimony.

- 21
- 22

Q. Please describe sources in Indiana besides the TRM that define measure life.

A. The Evaluation Framework⁵, created under the direction of the Evaluation Subcommittee
 of the Indiana Demand Side Management ("DSM") Coordination Committee, developed

⁵ Vectren South currently uses the statewide EM&V Framework developed by the Demand Side Management Coordination Committee ("DSMCC") as the basis for its evaluation activities.

- the Evaluation Framework manual as a key resource document for planning and
 conducting evaluation efforts in Indiana. The Evaluation Framework manual contains
 Appendix C: Establishing Effective Useful Life ("EUL") Values and Remaining Useful
 Life. The EUL, is explained in the manual as follows and is consistent with the measure
 life definition in the Indiana TRM 2.2:
- 6 The effective useful life (EUL) of an energy efficient measure is the 7 average number of years over which a measure is expected to provide 8 savings. The effective useful life is set at the estimated point at which 9 50% of an installed technology type is expected to remain installed and 10 working in the participant's facilities. Measure lives can vary greatly. An 11 air conditioner installed in a business can last 30 or more years if it is well 12 maintained. In other facilities it may be removed after three years during a 13 remodeling or major equipment up-grade activity. However, it is not 14 uncommon to find measures still installed and performing well beyond 15 their estimated useful life and in some cases for twice the estimated effective useful life. This is because the EUL is set at the average number 16 of vears the technology is expected to perform. 17
- 18 19
- 20 **Q.** Why is understanding the definition of measure life important as related to lost 21 revenue recovery?
- A. The measure life is the average/median life over many data points, or customer
 experiences, of a particular EE program. It takes into consideration variations in the
 useful life of an EE measure among different types of customers by developing an
 average. An LED could last 5 years in one home, 11 years in another and 30 years in
 another with an average of 15 years. Vectren South's lost revenue calculation uses
 the average measure life for individual measures and programs to ensure accurate lost
 revenue tracking.
- 29

30 Q. How is the measure life determined for energy efficiency measures?

- A. Vectren South utilizes the IN TRM 2.2 and other regional TRM's (if a particular measure
 is not available in the IN TRM) to establish measure lives for each measure within
 Vectren South's portfolio. Vectren South also evaluates measure lives periodically.
- 34
- In the first quarter of 2017, Vectren South's independent, third-party evaluator
 benchmarked a sample size of approximately 50% of all measures included in the 2016-

2017 Plan⁶. This analysis indicated 96% of the evaluated measure lives used in Vectren
 South's 2016-2017 DSM filing are closely aligned with the latest evaluation results.
 Twenty five percent (25%) of Vectren South's measures were actually found to be under
 the benchmark measure life. These results demonstrate Vectren South's conservative
 approach to utilizing measure life in its 2016-2017 Plan.

6

Q. What is the weighted average measure life of Vectren South's 2016-2017 EE programs?

- 9 A. The average residential program life is 6.6 years, while commercial and industrial
 10 program averages much higher -- at 11 years. Vectren South's overall portfolio average
 11 life is 9 (rounded from 8.5) years.
- 12

Q. Discuss the impact on Vectren South of allowing recovery of 90% of the savings over the WAML or measure life, whichever is shorter, for the 2016-2017 Plan.

15 For the 2016-2017 Plan, this approach would reduce lost margin recovery by Α. approximately \$8.4M over the life of the programs included in the 2016-2017 Plan as 16 17 compared to recovery simply at the measure life. Table RHH-3 illustrates that lost revenues would be reduced by 24% with a 9 year weighted average cap plus 10% 18 19 savings reduction. This approach would equate to a 7.7 year measure life cap. The 20 \$8.4M lost revenue recovery is based on net kWh LRAM savings. Please see slides 6 21 through 8 of Petitioner's Exhibit No. 11, Attachment RHH-1, which provide detailed 22 information on the amount of lost revenues that would be unrecovered by Vectren South 23 under the alternative cap proposed.

30 31

⁶ The benchmark analysis utilized Estimated Useful Life ("EUL") data from WI Focus on Energy, Indiana Technical Resource Manual ("TRM"), IL TRM, and Midwest utility proprietary EUL data.

9 Year Cap Impact + 10% S	avings Red	uction	
		LRAM \$	LRAM
	LRAM MWH	(in mil's)	Impact
Total LRAM through Measure Life	529,928	\$34.3	
LRAM recovered (9-year cap)	444,013	\$28.8	
Less 10% further reduction of savings	44,401	<i>\$2.9</i>	
LRAM recovered (9-year cap + 10% savings reduction)	399,611	\$25.9	76%
LRAM lost (9-year cap + 10% savings reduction)	130,317	\$8.4	24%

Table RHH-3 2016-2017 Impact of 9 Year Cap on Lost Revenues

* 9 Year Cap Impact is based off the current 2016-2017 Filed Plan's weighted measure life of 9 years.

- 3 4
- 5

6 V. <u>CONCLUSION</u>

7

8 Q. Does this conclude your direct testimony?

9 A. Yes, it does at this time.

VERIFICATION

I, Rina H. Harris, Director, Energy Efficiency at Southern Indiana Gas & Electric Company d/b/a Vectren Energy Delivery of Indiana, Inc., affirm under the penalties of perjury that the statements and representations in the foregoing Direct Testimony are true to the best of my knowledge, information and belief.

e. H. Herris

Rina H. Harris Dated: June 13, 2017



This presentation is used for the 2016-2017 CN 44645 Remand.

2011 8.486 4.7 \$ 6
2012 33.857 26.5 \$ 2.5
2013 81,566 89.7 \$ 4.9
2014 126,613 141.7 \$ 7,4
2015 152,003 170.8 \$ 9,9

The above figures represent Vectren South's historical lost revenues recovery by year for the years 2011-2015.



The incremental lost revenues are \$2.53M for the 2016-2017 Plan.

									Lost Rev	/enu	e Analysis				
2016-2017 Filed Plan	Weighted Measure Life	Net Annu Saving	Total LRAM Incremental Dollars (in 000's)					Total LRAM Lifetime Do (in 000's)				Dolla			
Residential	1 1		2016	2017		2016		2017	Total		2016	12	2017	Total	
Residential Lighting	8	57%	3,769	3,894	s	149.6	s	155.2	304.7	\$	2,482.5	\$	2,564.8	s	5,047.3
Home Energy Assessments & Weatherization	6	88%	1,703	1.703	s	67.6	\$	67.9	135.5	\$	841.4	s	841.4	s	1,682.9
Income Qualified Weatherization	6	100%	1,283	1,283	\$	50.9	\$	51.1	102.0	\$	633.5	\$	633.5	\$	1,267.1
Appliance Recycling	8	53%	541	541	S	21.5	\$	21.6	43.0	s	356.2	s	356.2	\$	712.5
Energy Efficient Schools	8	96%	648	648	S	25.7	\$	25.8	51.6	\$	427.1	\$	427.1	\$	854.2
Residential Efficient Products	16	74%	796	796	S	31.6	\$	31.7	63.3	\$	1,048.7	\$	1,048.7	s	2,097.4
Residential New Construction	25	86%	126	126	S	5.0	\$	5.0	10.0	\$	259.8	\$	259.8	\$	519.6
Multi-Family Direct Install	6	100%	335	335	S	13.3	\$	13.3	26.6	\$	165.5	\$	165.5	\$	331.0
Residential Behavior Savings	1	100%	6,205	5,577	S	472.3	\$	424.5	896.8	\$	468.0	\$	420.6	\$	888.5
Residential Smart Thermostat Demand Response	15	100%	858	0	s	34.0	\$	8	34.0	\$	1,059.5	\$		s	1,059.5
Conservation Voltage Reduction	15	100%	0	1,482	\$		\$	59.0	59.0	S		\$	1,829.7	S	1,829.7
Total Residential	6.6		16,265	16,385	\$	871.5	\$	855.2	1,726.7	\$	7,742.3	\$	8,547.3	\$	16,289.7
Commercial															
Small Business Direct Install	10	98%	5,881	5,881	S	153.7	\$	154.3	308.0	\$	3,186.8	s	3,186.8	\$	6,373.5
Commercial & Industrial Prescriptive	11	80%	5,528	5,528	\$	145.5	\$	146.1	291.6	\$	3,319.0	\$	3,319.0	\$	6,638.0
Commercial & Industrial New Construction	13	95%	474	507	S	12.7	\$	13.7	26.4	\$	343.1	\$	367.4	\$	710.6
Commercial & Industrial Custom	11	99%	2,532	2,877	S	64.8	\$	74.0	138.8	\$	1,478.2	\$	1,679.7	\$	3,157.9
Multi-Family Energy Efficient Retrofit	16	100%	202	202	S	5.3	\$	5.4	10.7	\$	177.4	\$	177.4	\$	354.8
Conservation Voltage Reduction	15	100%	0	875	\$	-	\$	23.9	23.9	\$		\$	739.3	\$	739.3
Total C&I	10.9		14,616	15,870	\$	382.1	\$	417.3	799.3	\$	8,504.6	\$	9,469.6	\$	17,974.1
Total Portfolio	8.5		30,881	32,256	\$	1,253.6	\$	1,272.5	2,526.0	\$	16,246.9	\$	18,016.9	\$	34,263.8

The above table shows the measure life and savings by program for the 2016-2017 Filed Plan and the calculated incremental and lifetime lost revenues associated with the plan.

	Total 2016-2017 Plan											
	Measu	re Lifetime Sa	ving	s	Cap Analysis							
	MWH Savings	MW Demand	LRAM \$ in mil's		LRAM \$ in mil's		4 Ye LRA Recov	ar Cap M \$'s /ered in nil's	% Recovered	LRA in	M Lost mil's	% Lost
Residential	198,855		\$	16.3	\$	7.8	48%	\$	8.5	52%		
Commercial	331,073	51	\$	18.0	\$	6.6	37%	\$	11.4	63%		
otal	529,928	50.5	Ś	34 3	¢	14.4	12%	ć	(10.0)	58%		

A 4-year cap would result in the under recovery of lost revenues of approximately \$20M for the 2016-2017 Filed Plan, over the life of the measures.

		Total 2016-201	7 Plan			
		4 Year Cap Im	pact	-		
	Line		LRAM MWH	LRAM \$ (in mil's)	LRAM Impact	
Year Cap	⇒ 1	Total LRAM through Measure Life	529,928	\$34.3		
Scenario		IRAM recovered (4 year cap)	217 202	¢14.4	479/	
	3	LRAM lost (4-year cap)	312,725	\$19.9	58%	
	4	Total LRAM	529,928	\$34.3	5670	
erage Life	. 5	Total IBAM through Measure Life	529.928	\$34.3	inpuer	
Scenario	\$ 5	Total LRAM through Measure Life	529,928	\$34.3		
+ 10%	6	LRAM recovered (9-year cap)	444,013	\$28.8		
eduction	7	Less 10% further reduction of savings	44,401	\$2.9		
	8	LRAM recovered (9-year cap + 10% savings reduction)	399,611	\$25.9	76%	
	10	LRAM lost (9-year cap + 10% savings reduction)	130,317	\$8.4	24%	
Based The dolla	off the rs in ab	*9 Year Cap Impact is based off the current 2016-2017 Filed current 2016-2017 Filed Plan's we ove table are nominal.	Plan's weighted n	asure life of 9 asure life	e of 9 years.	CTRE

Vectren South's preference is not to have a cap; however, if a cap, based on the weighted average measure life, was imposed and a further 10% confidence reduction adjustment to kWh and KW demand, then lost revenues would be reduced by \$8.4M for the 2016-2017 Plan or 24%.



The above chart reflects how a 4-year cap would harm Vectren South. The approximately \$20M lost revenues recovery is based on net kWH LRAM savings. If the 2016-2017 weighted average measure life of 9 years is used, Vectren South would still lose \$5.5M and the 10% further kWh and KW demand reduction would be an additional \$2.9M or a total of \$8.4M.



The above chart reflects how a 9-year cap with 10% savings impacts lost margins. If the 2016-2017 weighted average measure life of 9 years is used, Vectren South would lose \$5.5M and the 10% further kWh and KW demand reduction would be an additional \$2.9M or a total of \$8.4M.



The above chart depicts the lost revenues associated with the 4 year cap and also the 9 year cap. The full impact for the 4 year cap begins in 2021, while the 9 year cap begins in 2026. These figures are based on the 2016-2017 Plan savings and associated measure lives.



The above chart illustrates the legacy evaluated LRAM as of December 30, 2015 through 2030 or after 99% of LRAM is recovered. It also shows the 2016 and 2017 Plan lost revenues through the same time-frame. It does not show incremental beyond years 2017. The figures above do not reflect any cap or reduction.



The above chart shows each Residential program and their associated kWh savings by year. This demonstrates the level of savings and the measure life span that they cover.



The above chart shows each Commercial & Industrial program and their associated kWh savings by year. This demonstrates the level of savings and the measure life span that they cover.