STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

VERIFIED PETITION OF SOUTHERN INDIANA GAS AND ELECTRIC COMPANY D/B/A VECTREN ENERGY DELIVERY OF INDIANA, INC. REQUESTING THE INDIANA UTILITY REGULATORY COMMISSION TO APPROVE CERTAIN DEMAND SIDE MANAGEMENT PROGRAMS AND GRANT COMPANY AUTHORITY TO RECOVER COSTS, INCLUDING PROGRAM COSTS, INCENTIVES AND LOST MARGINS, ASSOCIATED WITH THE DEMAND SIDE MANAGEMENT PROGRAMS VIA THE COMPANY'S DEMAND SIDE MANAGEMENT ADJUSTMENT	)	**CAUSE NO. 44927**

SUBMISSION OF CORRECTIONS TO REBUTTAL TESTIMONY

Southern Indiana Gas and Electric Company d/b/a Vectren Energy Delivery of Indiana, Inc., by counsel, hereby respectfully submits corrections to the Verified Rebuttal Testimony of witnesses Rina H. Harris, labeled Petitioner's Exhibit No. 9, and Richard G. Stevie, labeled Petitioner's Exhibit No. 12. Please find attached both a clean and redline copy of the corrected pages of Petitioner's Exhibit No. 9. The only correction to witness Stevie's testimony is the addition of a header, including page numbers, after page 2, which was inadvertently. The corrected copies of the Verified Rebuttal Testimony will be included in the evidence offered at the evidentiary hearing in this Cause.

Respectfully submitted,

SOUTHERN INDIANA GAS & ELECTRIC COMPANY D/B/A VECTREN ENERGY DELIVERY OF INDIANA, INC.

/s/ *Michelle D. Quinn*

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that on this 29th day of August 2017 a copy of the foregoing Submission of Corrections to Direct Testimony was served by electronic mail transmission upon the following counsel of record:

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/s/ *Michelle D. Quinn*
Michelle D. Quinn

A. Throughout his testimony, witness Rutter's definition of his proposal changes. Page 14, lines 4-6 states "the sum of the lost revenue recovery and financial incentives realized by the utility must be less than the net benefit calculated in performing the UCT." Then on page 14, lines 10-12, witness Rutter goes even further and states "program costs, lost revenue recovery, and financial incentives awarded should not total more than $19,334,837 (38,669,674 *.5)".

This proposal is flawed in several ways. First, UCT net benefits have already accounted for program costs, thus capping the recovery of program costs based on UCT net benefits is a form of double counting. In other words, since program costs are already accounted for in the calculation, the net benefits of the UCT reflect the difference between the costs avoided by DSM programs and the costs incurred by the utility to deliver the programs:

*(UCT Net Benefits = Utility avoided supply costs - **Program costs** and incentives paid by the utility).*

Second, as stated above, it does not capture the bill savings that occur as part of program implementation. Third, the UCT is focused on determininge potential cost-effectiveness and focuses on future stream of benefits. It would not make sense tfor it to create an annual cash return.

Fourth, the 50-50 allocation, as defined by witness Rutter, ignores the other benefit to customers in terms of the incentives paid to encourage customer participation. Incentives are cash paid directly to participants and are a benefit that is ignored by witness Rutter.

Bottom line is that this high level 50-50 allocation is not reasonable. Besides the fact that it is arbitrary, it ignores other factors that should be considered and is really an apples and oranges comparison of the benefits and costs of EE programs.

Q. Do you agree with witness Rutter that recovery of program costs, lost revenues, and financial incentives should not total more than $19M?

A. No. Apart from the fact that witness Rutter misapplies the use of the UCT test, he is double counting program costs. He ignores the fact that the UCT net benefits are already net of the program costs.

He states on page 14, line 19-22, that recovery of program costs, incremental lost revenues, and performance incentives sought by Vectren South during the plan period amount to 97% of the UCT net benefit. Wwitness Rutter mistakenly includes program costs in the calculation. While Vectren South disagrees with his methodology, if calculated appropriately, recovery of incremental lost revenues and performance incentives would be approximately 20% of the UCT.

Likewise, on page 15, lines 1-2, witness Rutter states, "…Vectren South proposes to collect from customers during the three year plan $72,423,105 or 187% of the…UCT net benefit..." Again, this is a fundamentally flawed statement. The calculation again includes program costs, as it should not, and includes legacy costs tied to previously approved EE Plans without recognizing legacy benefits.

Q. What is the average cost per kWh saved under Vectren South's proposed DSM plan?

A. Witness Rutter's analysis of calculating a program cost of $.65/kWh is inaccurate. The average cost per kWh saved under Vectren South's proposed DSM plan is approximately $.24/kWh, without performance incentives and lost revenues and $.27/kWh including performance incentives and no lost revenues. The cost per kWh represented by Vectren South are cost of the programs or program budget. Wwitness Rutter's analysis significantly overstates the cost per kWh and compares items that cannot be practically compared. His analysis includes historical/legacy LRAM recoveries to calculate cost per kWh for this proposed 2018 – 2020 Plan, but conveniently excludes historical savings to calculate cost per kWh saved.

For a calculation of cost per kWh saved to be meaningful on a cumulative basis (including legacy lost revenues) as witness Rutter proposes, the calculation must include legacy savings. While I disagree with his approach, factoring in legacy savings would result in approximately $0.09-.12/kWh saved (as compared to $.65/kWh). Even this

calculation is conservative as it reflects net savings for all program years and does not include the ongoing kWh savings over the lives of the measures through 2020. ~~The table below demonstrates a conservative estimate of the costs per MWh saved from the EE Plan in this proceeding.~~

While it is sometimes useful to compare total costs to first year savings to be able to gain insight on the relative costs of programs, reviewing the lifetime kWh savings is the correct approach to really understand the cost to customer. Adding in legacy lost revenues into a calculation of cost that only uses future kWh savings ignores the kWh savings associated with those legacy EE programs. Again, this is not a proper comparison. Lastly, this calculation also overlooks the fact in the direct administrative costs, a major component are the incentives offered to the program participants. This is a benefit to participating customers that is not reflected in this cost calculation. As a result, the $0.65 per kWh estimate cited is significantly overstated. A closer estimate is the $0.036 levelized cost per kWh or $.24/kWh for first year savings as cited on witness Stevie's testimony Table RGS-1.

Q. Witness Rutter states (at p. 4) that, "Legacy DSM costs are creating an enormous disincentive to participate in the energy savings programs proposed by Vectren South in the 2018 – 2020 DSM Plan." Do you agree with witness Rutter's opinion regarding the impact of legacy lost revenues on customer decision-making?

A. No, I do not. Legacy lost revenues represent lost sales already counted by participation in prior EE programs. Customers who participate in new measures do not consider legacy costs because the economics of the new measures are based on prospective savings they will enjoy not the costs associated with already adopted measures. There is no evidence to support there is any disincentive to participate in energy efficiency programs resulting from legacy DSM costs. Customers participating in DSM programs save more than non-participants. The existence of legacy costs has no bearing on their savings opportunity. Vectren South's historical performance indicates many years of successful participation, delivery, and meeting or exceeding annual savings targets.

Q. Does the OUCC recommend its new approach based on some stated change in established policy?

VI. VECTREN SOUTH'S COST EFFECTIVENESS TESTS ARE PERFORMED IN COMPLIANCE WITH INDIANA LAW AND INDUSTRY STANDARDS

Q. In witness Rutter's testimony, he states that Vectren South's use of the term "program cost" is inconsistent with Indiana law. Please explain his logic.

A. First witness Rutter states that the program cost used by Vectren South to calculate the cost and benefit analysis includes direct and indirect costs but does not recognize the cost of other components that the cusotmer is being asked to pay. He goes on to state that Vectren South's definition of program costs does not include other recoveries, such as lost revenues and financial incentives and thus ignores the requirements of IC 8-1-8.5-10 (g) (3). Ww~~w~~itness Rutter is specifically referring to the TRC and UCT/PACT tests. Witness Rutter testified on October 7, 2015 in Cause No. 44645, with this same contention that the lost revenue and financial incentives should be included in the TRC and UCT/PACT test and went so far as to calculate the results based on this analogy. Witness Rutter believes that the RIM test is the only test that comes closest to the intent of IC 8-1-8.5-10, as it is the only test that explicitly recognizes the economic impact of lost revenues within the test.

Q. Please explain why utilities in Indiana have consistently relied upon several cost/benefit tests, in addition to RIM, to evaluate EE programs.

A. Indiana utilities have consistently relied upon several cost/benefit tests[1] because it is widely understood within the EE industry that each of the DSM tests provides a different perspective. Overall, using all five cost-effectiveness tests provides a more comprehensive picture than using any one test alone.

As discussed further by witness Steive in his direct testimony in this proceeding, each one of the tests provides an insight into the cost-effectiveness of the programs from the perspective of different stakeholders: participant (Participant Test), non-participants (RIM), the utility and ratepayers (UCT), and society as a whole (TRC). The use of multiple tests can ensure the development of a reasonable set of energy efficiency programs,

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II. EE COST MODELING UTILIZED IN THE IRP WAS APPROPRIATELY PERFORMED AND IS RELIABLE

Q. Please describe the EE cost modeling that Vectren South utilized for its IRP.

A. To integrate EE into an IRP process, the amount of EE to be included in a resource plan is determined by comparing the cost of EE relative to the cost of other resources. This requires utilities and IRP planners to develop a methodology to project the cost to implement EE programs for a twenty year period. The EE costs include both the program costs as well as the cost to persuade the next customer to install an EE measure. I conducted a study, based on Energy Information Administration ("EIA") data, to evaluate how EE costs are impacted by efforts to induce a higher proportion of customers to adopt EE programs. My analysis supports the common sense conclusion that utilities must spend more money to coax more customers to install EE measures. While my research does not explain what drives the increased cost, it is likely a result of the need to dramatically increase marketing efforts to attract more customers to implement EE measures. Dr. Stanton and Ms. Sommers criticize my methodology and advocate that the IURC conclude it is unreliable. In addition, Dr. Stanton recommends instead that Vectren South assume that EE costs should be held constant in inflation-adjusted terms regardless of the quantity of EE the modeling calls for, even though there is no evidence to support that proposition. Their criticisms of my methodology are misplaced and I continue to believe Vectren South acted reasonably in modeling EE as becoming more expensive as greater quantities are called for in any one year.

Q. Describe your rationale for Vectren South's EE cost modeling approach.

A. Given the development of my econometric models that relate costs to EE market penetration, I first examined what would make sense as an expectation of achievable EE potential based upon a review of the Vectren South market potential study as well as other public studies conducted by EPRI and summarized by ACEEE. I also considered what Vectren South has already achieved as a percent of eligible retail sales since the market potential studies were completed. From this review, I found that a High or Maximum Achievable Potential would fall in a range of 8.8% to 14.8% of eligible sales. When Vectren South decided to allow the IRP model the option to select up to 2% of

retail sales per year for almost 20 years for a total of 40%, it became apparent that this far exceeded reasonable estimates of achievability.

At this point, it became apparent projecting the cost of Vectren South's EE programs to achieve a 40% level of EE over a twenty year period was a significant challenge. Achieving even 1% per year for 20 years was exceeding the estimate of an expected high or maximum achievable level derived from Vectren South's MPS and EPRI and an ACEEE survey of studies. Given that Vectren South had been achieving impacts in the neighborhood of 1% per year and that even that amount was stretching achievability, it was reasonable to model that the second 1% of eligible sales impacts must occur at a higher level of marketing cost than the first 1% of eligible sales. This led to the process for estimating the cost for the second 1% of sales impacts after the first 1% has been achieved.

The key point is the assumption that to achieve the next 1%, Vectren South would have to dramatically step up its marketing effort to essentially double the annual impact achievement. This would require expanded advertising campaigns and putting "boots on the ground" to personally reach out to customers. Barriers to customer investment in EE are a major hurdle to be overcome. The bottom line is that raising the cost for the second 1% is a reasonable assumption given that the first 1% per year for twenty years represents a level of achievement above what is reasonable for a high or maximum achievable level.

Q. How were Vectren South's EE costs modeled?

A. As a starting point, the cost of the energy efficiency programs approved in Cause No. 44645[1] were used for the 2017 DSM resource options. The Company's EE 2016 portfolio was designed to achieve approximately 36,000 MWH impacts on a net of free-rider basis at a cost of $0.235 per first year kWh[2] or $.03322 per kWh on a levelized basis.

The growth rate applied was developed from two separate econometric models of the EIA data as described in the study provided with my direct testimony in Petitioner's

[1] The Commission issued an Order in Cause No. 44645 on March 23, 2016 and the Order was appealed. On March 7, 2017, well after Vectren South's IRP was completed, the Indiana Court of Appeals issued a Memorandum Decision vacating the Order and remanding it back to the Commission for additional findings.
[2] This value is estimated using the total cost of the program and dividing by the first year of EE savings.

Exhibit RGS-2. The results from the two models were averaged to produce a growth rate in cost of 4.12% per 1% of retail sales achievement or 1.04% per 0.25% EE block. With this first 1% of retail sales, Vectren South would achieve an amount of energy efficiency that exceeds an expected high achievable level over the next 20 years. As a result, it modeled the second 1% of retail sales at a higher marketing cost than the first 1% of retail sales. In other words, for the first 1% during the full planning period, Vectren South allowed the model to achieve 20% of eligible retail sales, which is more than what it should reasonably expect to achieve in the market place. The effort being undertaken is as if Vectren South were achieving the full 1% for 20 years or 20% of the market at a base level of cost. To get the next 1%, one has to step up to a higher marketing cost that assumes you have already achieved the first 1%. The next 1% is incremental to the first 1%. It is assumed that Vectren South will have to dramatically expand its marketing effort to essentially double the annual impact achievement. This would involve expanded advertising and possibly in person contact to get customers to take action. Essentially the second 1% has to be more expensive, not cheaper, than the first 1%.

As a result, the starting cost for the second 1% of blocks is the ending cost (in real dollars) for the first 1%. Then, a different growth rate is applied for the remaining set of four 0.25% blocks available each year or the next 1% of retail sales available for selection. The process of computing the applicable growth rate was similar to that of the first 1%. This resulted in a growth rate of 1.72% per additional 1% of retail sales impacts or 0.43% per 0.25% block. So, this assumes that once the first four blocks have been selected in a year by the IRP, the cost increases first to the cost of the last block of the 1% of retail sales and then by 0.43% per 0.25% block for the 5^{th} to 8^{th} blocks. These growth rates form the basis for projecting how the block costs change for all the blocks available for selection by the IRP process.

Q. Please describe why this approach is a credible and appropriate method to escalate costs as penetration increases.

A. My research into this topic was based upon an academic interest, namely to see if there was a way to estimate how EE program costs change as market penetration increases. While I had no preconceived notion of the outcome, I did find evidence that costs rise as EE market potential is penetrated. In general, I think one would naturally expect that as

a fixed resource is being consumed (*i.e*., EE potential), the incremental cost could be expected to rise to get that next percentage of the market.

As pointed out in the CAC's testimony, there is no EE literature setting forth a method or process to estimate these costs, costs that are one of the key components to let an IRP model identify a cost-effective level of EE impacts. As a result, I view my analysis of this issue as a first step, hopefully one that will be improved upon in time as others dig into this issue. It was based upon a methodology and a thoughtful approach that provided a reasonable projection of costs.

Q. Have Dr. Stanton and Ms. Sommers identified any concerns with your analysis?

A. No. They make several faulty and unfounded assertions and conclusions about my research and cost projection both in Dr. Stanton's testimony and the paper co-written by Dr. Stanton and Ms. Sommer (the "CAC Paper").[3] They raise several concerns with my methodology and the data I rely upon, but these concerns are largely based on their inability to replicate my analysis. Dr. Stanton and Ms. Sommer fail to replicate my analysis because they apparently did not utilize the same econometric technique I utilized and included the wrong data from the sources I relied upon. The CAC Paper raises several other criticisms that I will also address. Dr. Stanton and Ms. Somers propose to simply replace my analysis with their bias, which is that the cost of offering EE is the same regardless of how much is offered.

Q. Dr. Stanton contends that "[i]f a regression cannot be replicated, it must be because either the data have been recorded incorrectly or described incorrectly, and/or the regression methodology was described incorrectly." CAC Exhibit 1, p. 11, lines 14-17. Do you agree with Dr. Stanton?

A. I agree with Dr. Stanton that these are two reasons why a regression may not be replicable. Another reason it may not be replicable is because the replicator is utilizing the wrong econometric technique or using the wrong data. While Dr. Stanton was able to replicate the regression analysis for my analysis of 2012 data, she was able to come close but not actually replicate my analysis of 2010-2012 data. Dr. Stanton and Ms. Sommer's inability to replicate my regression is not a result of a problem with my

[3] Sommer Attachment EAS-2. Stanton, Elizabeth and Anna Sommer. "No Evidence for Energy Efficiency Market Saturation Leading to Higher Costs." (2017), pages 3. Attachment EAS-2.

regression, but their apparent use of the wrong econometric technique and incorrect data.

Q. What econometric technique did you utilize?

A. I did not utilize a simple regression as Dr. Stanton tried to use. Instead, I used a more involved technique called fixed effects (or panel data). The fixed effects approach enables isolation of the effects for the fundamental relationships between the dependent and independent variables[4] while accounting for the size differences when faced with wide variability in the relative size of the data points (e.g., not all states in the country are the same size) in a cross-section. In this case, the fixed effects approach demonstrates whether there is a relationship between the dependent variable[5] (real cost (inflation adjusted)) and the independent or explanatory variables (EE market penetration, electric price, unemployment rate and program size). This econometric technique is often used in EE measurement and verification studies that rely on a billing analysis. It is not apparent that Dr. Stanton employed this technique from a review of her data request response.

Q. Are there other reasons Dr. Stanton and Ms. Sommers cannot replicate your analysis?

A. Yes. Dr. Stanton also used an incorrect variable in trying to replicate my analysis of 2010-2012 data. The variable Stanton included was "EE Cost." Since the model was estimated over three years of data, the correct variable would have been EE Cost adjusted for inflation or EE Cost in real dollars. In short, her analysis ignored the impact of inflation on costs.

Q. Dr. Stanton and the CAC Paper claim that you utilized incorrect data in your analysis. Is their assertion correct?

A. No. In fact, it is Dr. Stanton and Ms. Sommer that are using incorrect data. In reviewing their data provided in response to a data request[6], I discovered that their data for state level retail sales includes errors for several states. The errors occur because they did

[4] An independent/explanatory variable is the variable that is controlled or changed and effects the dependent variable. Program size is an example of an independent variable.
[5] A dependent variable is what is measured during an experiment. It responds to and depends on the independent variable. The cost of EE is an example of a dependent variable.
[6] 44927--CAC Exhibit 1 Attachment EAS-2 Workbook--8-7-17.xlsx

not account properly for those states that have deregulated electricity markets. A review of the CAC Paper data set reveals that to obtain total retail energy sales for a state, it summed the kWh sales using data for individual energy suppliers. However, some of those suppliers are retail marketers, the energy sales for which are already counted in the utility level sales. This ends up double counting those sales. For example, the 2012 retail sales figure compiled by the CAC Paper for the state of Ohio is 232,879,998 megawatt hours ("MWh"). The correct value is 152,456,864 MWh. The CAC Paper's value is 52.7% too high. While the EIA uses data from Form 861 to report retail sales, the EIA also reports the data from Form 861 in a separate table, to provide information on total electric energy by state. I noted this as an issue in my research paper and utilized the separate table in my analysis. Since this is a key variable that affects the calculation of the program size, the market penetration, and the electric price variables in the model, all their regression models are incorrect. After discovering this error, I have not investigated the rest of their data to determine if there are other errors in their data.

Q. Does your analysis include sufficient data to be reliable?

A. Yes. My methodology employed two approaches: a cross-sectional analysis (across states) and a cross-sectional time-series analysis (across states and time). Both were employed to provide alternate views on how costs could change as market penetration of EE changes. It was important to undertake more than one view given the potential uncertainty associated with this issue. Further, statistical analyses using a cross-section of state level or even census region data is rather common. While Stanton/Sommer contend[7] that "…Stevie's methodology suffer(s) from well-known reliability issues arising from very small datasets…", all regulated state data sets were included in this analysis. Besides, the analytical results reveal statistical significance. The assertion that the dataset is small is without foundation and underscores their lack of understanding/misinterpretation of the research methodology employed.

It should also be pointed out that cross-sectional analyses have traditionally provided a better view for the long-run relationship since it covers a wider range of potential outcomes than using just time-series data for one entity. Regional economic analyses are regularly performed through cross-sectional studies across states. Cross-sectional studies actually provide a better view of the long-run relationship between cost and

[7] Sommer Attachment EAS-2, page 6 to 7.

impacts than other approaches. By observing results across a data set at a point in time, especially one where there is a lot of variation in the level of EE achievement, one gains better insight into how costs can change at different levels of achievement. Stanton's contention that the model relies on too few data points is just not valid.

Q. How do you respond to Stanton/Sommer concerns regarding the lack of data on measure life in the Energy Information Administration's ("EIA") Form 861 data?

A. My methodology did not rely on measure life. Instead, I focused on the rate of growth in total cost for new incremental EE impacts. The CAC Paper contends that the lack of information on the life of efficiency measures means there is no way to measure the cost of saved energy because this year's efficiency savings are not the only savings that will arise from this year's efficiency costs. If one were comparing the cost of EE directly to the cost of a generating unit, the approach recommended by the CAC Paper might be appropriate with some adjustment.

Q. Do you agree with Stanton/Sommer's definition of "levelized cost" on page 3 of the CAC Paper?

A. No. Stanton/Sommer apparently do not understand the correct method to develop unit cost estimates of EE. They define the term "'levelized' cost" as taking the total cost divided by the lifetime energy savings. This is totally incorrect and will lead to serious underestimates of the cost of EE. It is not a levelized cost and would grossly misrepresent the cost of EE relative to a levelized cost for other resources. Rather, the typical approach to computing the levelized cost per unit is to compute an annual levelized total cost (computed much like a mortgage payment for a house) and dividing that cost by one year of EE impacts. That produces a levelized cost per unit that can be used to compare to unit costs of other resource options. However, my research paper did not need to include unit costs since it was focused on the rate of change in total costs for incremental additions to market penetration.

Q. The CAC Paper contends that program costs on a per kWh basis should be utilized as the dependent variable rather than program costs. Do you agree with this criticism?

A. No. On the surface, this might appear to be a cosmetic recommendation; however, it reveals a fundamental error in estimating econometric models. The CAC Paper would

have cost per kWh as a dependent variable in the model with the kWh impacts as one of the explanatory or independent variables. This results in the dependent variable being a function of itself. Such an approach escalates the value of the r-squared[8] and reflects circular reasoning, which leads to misleading results and conclusions. This is not a reliable approach and is seriously flawed. When using a volumetric variable as an explanatory variable, a more appropriate method is to use total cost as the dependent variable as I have done. Then the unit costs are derived by dividing the total cost by the volume using the results of the econometric model.

Q. The CAC Paper asserts that the model results show a weak statistical correlation between greater energy efficiency and increasing prices. Do you agree?

A. No. Dr. Stanton and the CAC Paper[9] point to the following:

- Graph of the data shows no apparent relationship between cost and market penetration
- Larger programs have larger cost and smaller programs have smaller costs
- Removing problematic data points shows the results are not robust

I'll get to the graph in a minute, but it is most useful to point-out that even the CAC Paper's model of 2012 data (Stanton Attachment EAS-2, page 8) reveals that the coefficient relating cost to cumulative impacts is noted as marginally statistically significant. So, in spite of all their comments and disagreement with my analysis, even they find that there is some evidence that costs will increase with increasing market penetration.

The CAC Paper's graph on page 6 purports to imply there is no relationship between cost and market penetration (assuming their data is correct—as noted above Dr. Stanton's attempt to replicate my analysis incorporated faulty data). However, there is no recognition of the differences in size of the states in their data. Allowance must be made for this difference in size; otherwise, it would be impossible to see any visual relationship. This is again the reason for employing the fixed effects modeling approach instead of using a simple trend line or regression analysis. The fixed effects technique allows one to account for size differences in order to see if there is an underlying

[8] Statistical measure of how well the regression line approximates to the real data points. A number value of 1 indicates a perfect fit.
[9] Stanton/Sommer, pages 5 to 12.

relationship between cost and market penetration. Also, I do not believe, based on a review of the workpapers supporting the analysis, that the dollars were adjusted for inflation to put the dollars from each of the three years on the same basis.

Q. Dr. Stanton testified that she found four main errors in the application of my regression findings to efficiency cost projections. How do you respond?

A. Yes. In her testimony on page 19 (lines 11 to 16), Dr. Stanton lists the following critiques of my energy efficiency cost projection approach:

(1) the basis for his efficiency cost growth factors are artificially inflated;

(2) he uses his regression results selectively; and

(4) he confuses the effects of changes over time with the effects of differing policy choices within a single year.

I address each of her critiques below.

Q. How do you respond to Dr. Stanton's opinion that the basis for your efficiency cost growth factors is artificially inflated?

A. Stanton fails to really support her statement that the cost factors are artificially inflated. Instead, Stanton calls the methodology "non-standard" and "surprising." Given that this effort to project EE program costs is new, there is no "standard" to use. The CAC Paper (p. 12) also takes issue with the averaging of coefficients from two models. They seem unwilling to consider that this area of research has a lot of uncertainty and that there may be information that can be obtained from multiple models. This would also be true if the model was evaluated on the same data, but with alternate mathematical specifications. Averaging results from different models is a standard approach that in the face of uncertainty helps one triangulate on a more reasonable estimate.

Q. How do you respond to Dr. Stanton's opinion that you use your regression results selectively?

A. With regard to Stanton's second comment on selective use of the coefficients, Stanton is referring to a concern that I did not include the price variable coefficient in the cost projection process. I chose to exclude the variable for two reasons. First, only one of the price variables was potentially statistically significant. The second one was not. As a result, it did not seem appropriate to include the impact of this variable. And second,

after reviewing the recent history of Vectren South's average retail price of electricity, I found that it was essentially flat in nominal terms and declining in real terms. So, if I had included it, it would have increased the cost rate projection. I chose to be more conservative by excluding it.

Q. How do you respond to Dr. Stanton's opinion that you confuse the effects of changes over time with the effects of differing policy choices within a single year?

A. With regard to Dr. Stanton's fourth comment on policy choices and intra-annual cost changes within a single year, I do not find this concern substantive. To allow for a continuous flow of the cost projection, I simply interpolated across the blocks within a year. This would have no impact on the selection of energy efficiency in the IRP analysis. In fact, it would make it easier for the first two blocks in a year to be selected since they would be lower in cost than if I had applied the growth rate at an annual level to all the blocks. It makes perfect sense to interpolate the estimates of the costs using the growth rate to allow a smooth transition from one year to the next.

Q. What is the basis for Dr. Stanton's and Ms. Sommers' claim that the cost results of your methodology are clearly higher than what would be expected?

A. I don't know because they don't explain the basis for what they believe is expected. The CAC Paper claims[10] that the result of errors and omissions of my analysis is "higher energy efficiency costs than would otherwise be expected in utility planning and, consequently, less efficiency chosen in optimal resource planning." There is no basis for this assertion. I am concerned that it demonstrates an inherent bias in Dr. Stanton's and Ms. Sommer's review when confronted with information that conflicts with their paradigm. They hope/believe that driving higher levels of EE will not cost more money, even when their own analysis contradicts that belief. My analysis, and Vectren South's experience, contradicts this aspiration.

III. <u>TESTIMONY OF MS. SOMMER</u>

Q. Are there areas of Ms. Sommer's testimony that you intend to address?

[10] Stanton Attachment EAS-2. Stanton/Sommer, page 2.

A. Yes. There are two areas of Sommer's testimony dealing with market potential studies and with Sommer's alternate approach to determine if a DSM plan is consistent with an IRP.

Q. Ms. Sommer takes issue with your comment that Vectren South's decision to model EE at 40% of retail sales is far above estimates of even technical market potential. How do you respond?

A. Ms. Sommer makes three main points related to this issue, which I discuss. First, she points to market potential estimates in the ACEEE report that I referenced in my direct testimony and indicates that there are three studies in the list of studies with the 16 to 21 years time horizon with technical potentials above 40%. In coming up with her numbers of studies exceeding 40%, it appears that Sommer included information from the next table, which is for the planning period of 10 to 15 years. Looking just at the table for the 16 to 21 years planning period, which is the one I reviewed, two of the 11 studies listed with a technical potential have an estimate above 40%. Nine do not. In addition, instead of focusing on the maximum values, I focused on an average which is roughly 30%. EE impacts of 40% of retail sales offered into the Vectren South IRP are 33.3% higher than the average technical market potential study. It is more appropriate to use the average value than extremes when considering planning issues.

Second, Sommer provides quotes from the report that give the impression that the author believes that market potential studies are useful tools for short term planning, but less reliable for quantifying potential savings in the long run. However, there is another quote on the same page (page 2) she references that contradicts her assertion:

> "Potential studies are also useful as part of the long-term integrated resource planning (IRP) process."

It is possible that the quotes cited by Ms. Sommer were limitations of the use of the market potential study for long-term program implementation planning, not IRP planning. Third, Sommer critiques the EPRI study I referenced by stating that it focuses on existing programs and best practices. One should be careful about assuming that there will be technological improvements that can raise the EE potential estimates. To be even handed, system planners do not assume technological improvements that will suddenly create new cheaper central station generating stations. I think EPRI's approach was prudent to build market potential estimates on proven technologies and programs.

Q. Please summarize Ms. Sommer's alternative to determine whether a DSM plan is consistent with an IRP?

A. In her testimony on pages 20 to 22, MS. Sommer offers this alternative that basically involves estimating the avoided costs associated with a decrement in load attributed to energy efficiency. Sommer would insert the EE as a decrement into the IRP at a zero cost and compute the avoided cost. This would be repeated for several additional decrements. She indicates this would determine the appropriate level of savings in the IRP.

Q. How do you respond?

A. This approach leaves a lot to be desired. First, while on the surface this appears reasonable since it is employing the same type of approach as is used to estimate the value of a cogeneration plant or independent power producer, there is no discussion on how it determines the appropriate level of savings. If EE is kept at zero cost, how can one determine what is cost-effective in the IRP? Presumably, the avoided costs from the load decrement would have to be inserted into a cost-effectiveness screening tool to assess whether or not the amount of EE was cost-effective. More clarity on that step would be useful. Second, the approach would not, as Sommer claims, eliminate the need for a DSM cost projection. That step has to occur to be able to assess cost-effectiveness even in a screening tool. This becomes even more relevant the further out in time one goes. And third, one would still need to try and figure out the best timing for the EE impacts to be chosen. One cannot do that if they are given a zero cost. Bottom line, while this might appear to provide a better approach, it is actually more complicated and convoluted. It is far better to let the IRP model perform a simultaneous solution across all resources, including the EE impacts.

IV. CONCLUSION

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.