RECEIVED
APRIL 2, 2O15
INDIANA UTILITY
REGULATORY COMMISSION

VECTREN'S RESPONSE COMMENTS TO DRAFT REPORT OF THE INDIANA UTILITY REGULATORY COMMISSION REGARDING 2014 INTEGRATED RESOURCE PLANS

Southern Indiana Gas & Electric Company d/b/a Vectren Energy Delivery of Indiana, Inc. ("Vectren" or "Company") is providing these Response Comments to the March 3, 2015 Draft Report of the Indiana Utility Regulatory Commission ("Commission") Electricity Division Dr. Brad Borum Regarding 2014 Integrated Resource Plans (the "Draft Report"). Vectren has also joined with the Indiana Energy Association ("IEA") comments to address the issues raised in the Draft Report that apply across the industry. These Comments focus primarily on the Draft Report's observations about Vectren's 2014 Integrated Resource Plan (the "IRP").

Vectren appreciates the Commission's input on various aspects of its IRP process. As discussed below, some of the issues identified in the Draft Report are simply a result of misunderstandings that can be easily addressed. Vectren also will fully consider opportunities to enhance both its IRP and stakeholder process. Vectren hopes these comments are beneficial to the Commission in more fully understanding Vectren's IRP.

The Comments mirror the structure of the Draft Report to foster the responsiveness to the specific issues identified by the Commission Staff.

Risk Analysis

Development of Three Basic Portfolio Themes. Vectren's IRP evaluated three basic portfolio themes: a base portfolio which included continued operation of the existing generation fleet; a portfolio that evaluated the impact of retiring Culley Unit 2; and a portfolio that evaluated the impact of adoption of a renewable portfolio standard that required 20% of electricity to be produced with renewable resources. IRP, p. 33. The existing generation portfolio was the starting point because those are the resources Vectren currently operates in order to provide service to customers.. Vectren added the Culley Unit 2 retirement scenario in response to stakeholder input requesting evaluation of the impact of a coal-unit retirement. Culley Unit 2 was selected by Vectren because it is the least efficient coal unit and likely would be the first unit retired. IRP, p. 33. The RPS option was selected as a factor other than growth that could reshape the existing portfolio and also responds to the need to diversify the generation fleet over time.

Vectren recognizes opportunities to enhance the sophistication of its portfolio themes in future IRPs. In a recent proceeding before the Commission (Cause No. 44446), Vectren engaged a consultant to help evaluate the optimal retirement date for its existing generation units based on a variety of factors. Such modeling may be beneficial in future IRPs to develop potential portfolio themes. In addition, Vectren will elaborate on the process for selecting its basic portfolio themes in future IRPs.

Scenario consideration of price trajectories. The Draft Report contends that the scenarios do not take into consideration different trajectories of natural gas price, electricity market price and carbon price. Vectren did evaluate three trajectories for natural gas prices, electricity market prices and carbon costs under various scenarios. This resulted in 144 possible

outcomes. IRP, pp. 205-208. This was a significant increase from the 2011 IRP in the number of alternative scenarios evaluated. . This area may merit a follow up discussion with Staff to insure Vectren has a full understanding of any concerns.

Carbon price. The Draft Report's raises certain concerns regarding the range of carbon price assumptions. While Vectren modeled carbon prices starting at $10-$15 (depending on the scenario), those prices increased throughout the forecast. Real costs increased to $29.08 for the base, $23.34 for the low, and $47.74 for the high end estimate.

The Draft Report also questions whether an attempt should be made to determinet the price at which carbon would render the RPS portfolio the optimal plan or cause a major change in all of the resource plans. Respectfully, Vectren does not believe the IRP process needs to make such a determination. Resource planning is a "utility plan for meeting forecasted annual peak and energy demand, plus some established reserve margin, through a combination of supply-side and demand-side resources over a specified future period." Rachel Wilson, Bruce Biewald, Best Practices in Electric Utility Planning, p. 4 (Regulatory Assistance Project) https://www.google.com/search?rls=com.microsoft:en-us:IE-Address&q=NARUC+resource+planning+RAP&ei=-TYMVfnXI4m1sASJw4CYBw. Consistent with that purpose, Vectren modeled a range of low and high pricing to determine whether deviations from its anticipated pricing point would change the outcome. Going further to try and ascertain whether a particular price for any of the inputs would change the outcome, regardless of how unrealistic the price, might arguably be of some interest, but it would greatly burden the IRP processand is not likely to drive action. The issue may be whether the assumed pricing for scenario purposes is sufficient, which can be evaluated.

Combined Heat and Power ("CHP"). Vectren did not separatelymodel CHP in this IRP. One of its larger customers is pursuing a CHP project. Vectren's understanding of that project indicates that CHP is probably not a realistic outcome at this point in time for most of Vectren's customers. However, Vectren does recognize the potential of CHP and will consider how to integrate this into modeling in future IRPs.

OVEC. Vectren has not historically modeled OVEC through its IRP because Vectren's contractual relationship with OVEC affords Vectren very little discretion over how the OVEC facility is operated. Vectren will review its relationship with OVEC to make sure it understands its options related to OVEC's operations and its sales to Vectren.

Culley Unit 2 Retirement: Vectren acknowledges that Culley Unit 2's age and efficiency render it particularly vulnerable to future environmental rules or other risks that would warrant against making future capital investments. This analysis makes it unlikely that Vectren would make substantial capital investments in Culley Unit 2 to keep it operating. However, the model shows that continuing to operate Culley Unit 2, at least in the next few years, will provide Vectren flexibility to evaluate the potential of load additions under the High (Large Load) Demand Forecasts. Again, to the extent the Staff has further expectations related to this analysis, a meeting to obtain such further input should be considered.

Allow The Model To Solve For Resources Beyond 2-3 Years. Vectren has recent experience developing models that enable it to evaluate the optimum time to retire its base load units. This methodology was explored in Cause No. 44446. Vectren will be incorporating this type of analysis into future IRPs.

RECEIVED
APRIL 2, 2015
INDIANA UTILITY
REGULATORY COMMISSION

Summary of Comments from Other Parties: The Draft Report summarizes the responses from other stakeholders regarding Vectren's Risk analysis. Vectren has already responded to those in comments filed with the Commission. For the convenience of Staff, a copy of the original submission is attached here to as Exhibit 1.

Load Forecasting

Vectren will focus these Comments primarily on responding to the Areas for Discussion on page 39- 40 of the Draft Report.

CDD and HDD 24 Hr Avg. Vectren's approach for averaging the daily minimum and maximum Heating Degree Days ("HDDs") and Cooling Degree Days ("CDDs") is consistent with the approach used by the National Oceanic and Atmospheric Administration ("NOAA") and also the approach utilized in Vectren's last base rate case. The resulting calculations are typically very close to the 24 hour average. Over the last twenty years, the difference between the average of the daily minimum and maximum, compared to the 24 hour average, is 0.4 degrees Fahrenheit.

Footnote 73 on CDDs. HDDs and CDDs are accounted for in the residential and general service (small commercial) models. CDDs are included in the large modeling, but HDDs are not because HDD has an insignificant impact on the large customer sales.

10-year Estimate for Residential Forecast. Ten years should be sufficient to use for modeling sales and demand. According to Itron, Vectren's load forecasting consultant, ten years of monthly data provides a sufficient number of observations and degrees of freedom from a statistical perspective to produce a good forecast. Additionally, SAE data (EIA saturations and efficiencies) was not as strong prior to that time period. As a rule of thumb, about 60 data points are sufficient (about 5 years of monthly data). Vectren's use of 10 years includes 120 data points and therefore provides significant certainty.

Residential Forecast Saturations and Efficiencies. The Energy Information Administration ("EIA") data was tailored to Vectren's service territory. Vectren has conducted a statistically valid independent analysis to verify the data. In the summer of 2013, Vectren conducted an appliance saturation survey with a representative sample of residential customers. Itron conducted an analysis comparing our survey results to the East North Central Census Region and the East South Central Census Region. Although Vectren's territory resides in the southern most portion of the north region, Itron showed that model results were improved by applying Vectren market share data to the south region forecast. See page 92 of the IRP for a discussion of this evaluation.

Estimation Period for General Service and Large Customer Models. The estimation period for both the General Service and the large sales models was January 2004 through December 2013. This is 108 monthly data points for each model.

Large Sales Model use of output as a driver. Output, as listed in the Large Sales Model driver (IRP, p. 80) refers to manufacturing output. The industrial economic model variable is a weighted between manufacturing employment (30%) and manufacturing output (70%).

Organic Energy-Efficiency Trends. The IRP uses the term organic as naturally occurring

energy efficiency trends drive by market or codes and standards. In other words, this is energy efficiency growth that is not driven by utility sponsored programs.

Street Lighting Forecast. As shown in Table 5-2 on page 60 of the IRP, street lighting accounts for a very small portion of Vectren load, less than 0.5%. Moreover, street lighting load is forecasted to decline over time, which accounts for increased efficiency. Given the very small impact on the overall load, we do not see a need for greater sophistication with this forecast.

Economic Driver Changes. Vectren worked with Itron to update the Moody's Economy.com forecast to develop the high modeled sales forecast. Vectren did not purchase scenario based forecasts from Moody's Economy.com.

Changes to Low Load Forecast. The low forecast was not driven by changes to the economic variables in the model. The low forecast includes alternate assumptions for several factors. The low forecast includes a greater impact of customer owned distribution generation. It includes a higher level of conservation. Additionally, it assumed that a new potential large customer would choose to locate in the Vectren territory and build a combined heat and power system to generate the majority of its power.

Interactions Among the Residential, General Service and Large Customers. The same economic forecast was used from Moody's Economy.com for the residential, General Service and Large forecasts. The variables within the forecast are all related. For example, as the economy improves, more businesses come to the area, driving increases for General Service and large sales. With more jobs, the population grows, expanding the residential customer base, which drives the residential sales forecast.

Any Steps Vectren Intends to Take to Improve Databases, Specifications of Variables, Models, and Processes In the Next IRP. Vectren continues to work with Itron to further enhance our sales and demand models. For example, in the 2011 IRP, Itron built a demand model that linked directly with our sales forecasts. In 2014, Itron helped Vectren further integrate the sales models into the demand forecast with SAE specifications within the demand forecast and helped integrate changes to the large sales forecast to match our expectations from our large customers. In 2014, Vectren listened to stakeholder concerns and worked with Navigant consulting to incorporate a distributed generation forecast, which lowered Vectren's sales and demand forecasts. We will continue to work with outside consultants and stakeholders on sales forecasts, inputs and assumptions.

Consideration of DSM.

Vectren appreciates the positive feedback on its IRP process and IRP relating to modeling of demand side management ("DSM"). Vectren needs to communicate further with Staff to better understand the concern in the Draft Report on greater stakeholder Involvement. The following specific areas for discussion were identified in the Draft Report.

Modeling DSM as a Resource. The Draft Report expresses concern that the 1% embedded DSM and the 0.5% incremental amounts of DSM were a cap after 2019. Draft Report, p. 41. To clarify, for 2020 and beyond 0.5% of eligible DSM was embedded into the sales forecast. The model was allowed to select an additional 1% of eligible sales. In the base case, no additional resources were needed to meet customer load. Also, in 2018-2019 when

the model DSM limit was set to 2% based on the market potential study, the model did not select this final block of DSM under any scenario. Thus even under the more expansive risk analysis, DSM was not selected in addition to what was included in the IRP.

Clarification of savings percentages. The 2014 DSM Plan yielded savings of 1.2% of sales and was building toward the goal of reaching 2% by 2019. After Senate Enrolled Act 340 was enacted, Vectren designed the 2015 Plan to deliver similar programs offered in the 2014 DSM Plan however adjusted the planning target to 1% of eligible sales (adjusted to reflect opt-out customers). Savings from these opt-out customers are no longer available to Vectren as a resource plan.

Cost and Benefit Test Parameters. In the Total Resource Cost ("TRC") test the energy benefits would be derived by multiplying the annual kWh savings by the avoided energy costs in a given year, and adding to it the annual coincident peak kW savings multiplied by the avoided capacity costs in the same year. This is done for every year during the measure's expected useful life, and then combined into a net present value. This is the numerator of the benefit to cost ratio. The denominator is the incremental measure cost, which is the cost of purchasing or installing the measure minus the cost of the baseline configuration.

Although the TRC is the primary cost-effectiveness test the other standard tests are also dealt with later in the program analysis section of the Vectren MPS, Volume 2, page 8-12.

Residential Behavioral Savings Program. In partnership with Opower, Vectren delivers Home Energy Reports ("HERs") to approximately 54,000 households -- nearly 40% of all Vectren customers. Vectren is maximizing the effectiveness of this program by delivering HERs to households that meet program cost-effectiveness requirements as prescribed by the Commission and eligible households. Eligibility is determined by site and customer eligibility criteria including quality of data, usage and out-lier usage scenarios. A subset of customers are also placed into the control group, and do not receive home energy reports, to ensure that measurement and verification of the program's energy savings adheres to the industry gold standard, as outlined by the U.S. Department of Energy's SEE Action Network.

Net DSM Number. Vectren included net conservation numbers in the sales and demand forecast of the IRP, not gross numbers included in the EnerNOC Market Potential Study. The gross includes all savings, while net takes into account free ridership, spill over, and market effects. The residential and General Sales models take into account efficiency trends to capture naturally occurring energy efficiency, which is largely driven by known updates to codes and standards. Using gross DSM numbers would overstate the amount of energy efficiency driven by Vectren programs.

DSM Low-Hanging Fruit. Vectren acknowledges that innovations will spur potential new programs. However, Vectren's assumption that cost effectiveness of some programs may diminish over time is built on several factors. Codes and standards move the market to more efficient technologies which result in higher incremental costs for customers to bear and typically less cost effective programs overall. These factors cause the program design to be altered to obtain additional adoption. Another example is market saturation. Vectren has offered the multi-family direct install program for many years. In 2014 Vectren reached market saturation in its electric territory for the electric water heating direct installation measures of the multi-family programs. In order to continue to serve this segment Vectren would need to

redesign the program to include additional, less cost effective measures, which will result in higher cost programs. Another example of why we believe that costs will increase over time is the transition from lower cost CFL-based lighting measures to more expensive LED-based lighting measures. Lighting is one of the largest parts of most DSM program design, and a significant portion of the budget will revolve around the cost of incentives for LED lighting technology. Costs for LED lighting are declining rapidly; however, it is still much higher than other, less efficient products on the market.

Avoided Cost. The use of a simple cycle combustion turbine as a proxy for avoided cost comparison is reasonable and appropriate. This approach compares two options that are expected to provide capacity obligation benefits for more than a single year. This approach assumes the plausible outcome that, for a long term capacity need, Vectren would move to procure that capacity through building and owning a new capacity resource rather than supply that capacity need from a short term MISO market transaction. Vectren could assume that surplus capacity is available via the MISO market, but that would be contingent on surplus capacity being available from a counter party and that capacity being deliverable to Vectren's Local Resource Zone. To the extent surplus capacity is not available, Vectren would likely incur the cost of a new capacity resource or market premium even greater than that cost. Further, several Regional Transmission Organizations use a simple cycle combustion turbine as some portion of their proxy for the cost associated with new capacity.

Bottom-Up Approach. As illustrated in Volume 2, Chapter 2 of Vectren's Market Potential Study (MPS) there are many steps and implications to conducting the potential analysis by first building a bottom-up model of baseline consumption by end use and technology. First, because we explicitly allocate discrete amounts of energy consumption to specific end uses and technologies, there is a built-in check for realistic savings. Also, and perhaps most importantly, this method allows us to explicitly model the application of equipment codes & standards as they are instituted in specific years. The measures and baseline units available for purchase are refreshed in every year of the analysis, such that if a new standard comes online in a given year, the previous minimum standard unit will go off market and not be available for the model to consider. Some examples are provided on pages 2-10 through 2-12 of the MPS.

Increasing Levelized Costs of Energy Blocks. Between 2015-2019, the compound annual growth rate for real costs of the low, recommended, and high achievable plans in the market potential study were used to escalate costs for each block for 2020 and beyond.

The projected rise in DSM program costs are driven by a few things. As the portfolio has matured, the programs with lower cost design and thus easier to attain savings have been exhausted. Over time some programs will reach market saturation as the customers eligible or targeted for the program will diminish. Additionally, codes and standards move the market to more efficient technologies which result in higher incremental costs for customers to bear and typically less cost effective programs overall. These factors cause the program design to be altered to obtain additional adoption. An example of why we believe that costs will increase over time is the transition from lower cost CFL-based lighting measures to more expensive LED-based lighting measures. Lighting is one of the largest parts of most DSM program design, and a significant portion of the budget will revolve around the cost of incentives for LED lighting technology. Costs for LED lighting are declining rapidly; however, it is still much higher than other, less efficient products on the market.

Stakeholder Comments. The Draft Report summarizes comments from various stakeholders. Vectren has already responded to those comments. A copy of this responsive document is included as Exhibit 1.

Distributed, Renewable and Customer-Owned Resources

Vectren is gratified that the Commission supported its effort to quantify customer-owned generation resources. Vectren is acutely aware of the potential for customer-owned and distributed generation. The Draft Report raises some specific issues which Vectren offers the following response:

Consideration of New Customer With CHP. Vectren did consider the impact if a new large customer located in its service territory but elected to install some generation. Our low plan included a large industrial moving into our territory and installing CHP. In the base forecast, they were at 25MW, and in the low forecast, they were at 5MW.

Large Customer Adoption of CHP. The black swan theory represents high-profile, hard-to-predict, rare, devastating events that are beyond the realm of normal expectations. It is not reasonable to anticipate sufficient other large customers would decide to transition to CHP that would result in devastating harm to Vectren. Only limited large customers meet the criteria required for beneficial CHP because of the required steam production. Vectren also has been involved with a customer that decided to install an 80 MW CHP and based on that experience would not expect other customers to pursue that option at this time. However, our low sales forecast did incorporate the possibility of a combined heat and power system for a potential new large customer. Vectren will evaluate in future IRPs studying CHP alternatives to ensure changing market conditions do not change this calculus.

Stakeholder Comments. The Draft Report summarizes comments from various stakeholders. Vectren has already responded to those comments. A copy of this responsive document is included as Exhibit 1.

Regional Context for Long-Term Resource Planning

The Draft Report raises some questions regarding the Midcontinent Independent Transmission System Operator, Inc.'s ("MISO") long-term planning. The following addresses those questions.

Identification of Transmission Facilities Upgrades. Vectren's Electric Transmission Planning department studies the electric transmission system for a wide range of generation dispatch scenarios regardless of generation fuel type. Any new generation interconnections, retirements, or modifications will be studied to determine if any transmission upgrades or system changes are needed to provide reliable energy delivery to the load under expected contingencies. It is unlikely that our IRP results would have changed as a result of additional risk analysis. As previously noted, Vectren already increased the CO2 analysis much higher than the Draft Report presumes.

Table 9-1. Vectren confirms that Table 9-1 is based on summer peak demand and not on peak flows across specific transmission elements. The expectation of this table is to show that the Vectren load can be served by various generation dispatch scenarios or import

RECEIVED
APRIL 2, 2015
INDIANA UTILITY
REGULATORY COMMISSION

capability in the event of a forced generation outage. However, Vectren's electric transmission planning department does look at each seasonal peak and off peak. As mentioned, there may be periods during the year that flows across the Vectren system may limit import/export capability on specific facilities. One example is heavy imports into Kentucky can cause overloads and market congestion on Vectren's facilities regardless of Vectren's load demand level. Under these conditions, MISO has the ability to conduct a generation re-dispatch to relieve congestion and continue to serve all of Vectren's load.

Vectren Work with MISO. Vectren has been very active in the annual MISO Transmission Expansion Plan (MTEP) process. We look at both Baseline Reliability Projects (BRP's) and Market Congestion Projects (MCP's) within our transmission plan. Vectren previously completed a MISO market project in coordination with Indianapolis Power and Light (IPL) and will continue to consider the impacts of regional projects. With the addition of Entergy and the new MISO South, Vectren continues to monitor the seams process with SPP and PJM and looks forward to viable future Market To Market (M2M) projects or Cross Boarder Shared projects.

Natural Gas Procurement Issues. MISO is working with its stakeholders to better align the Electric and Natural Gas markets through its Electric and Natural Gas Coordination Task Force and other various committees. MISO recently conducted an Eastern Interconnection Planning Collaborative Gas-Electric study that found "extensive pipeline and storage deliverability result in gas infrastructure adequacy under almost all market conditions and resource mixes." Additionally, the study found that there could be a "small transportation deficit in MISO North/Central in the Winter of 2018 and 2023 when additional attrition of coal-fired capacity is replaced by gas-fired capacity". In response to the Polar Vortex in 2014 and in an effort to be proactive against similar phenomenon, Vectren purchased a natural gas capacity call as well as additional firm monthly capacity for the months of December through March to further ensure deliverability to Vectren's gas generating units for the Winter of 2015.

Conclusion

Vectren appreciates the Commission Staff's consideration of its IRP. These requests are being provided to help further an understanding of the detailed process Vectren pursues to develop its IRP.

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

By: 

P. Jason Stephenson
Vice President, General Counsel

RECEIVED
APRIL 2, 2O15
INDIANA UTILITY
REGULATORY COMMISSION

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing response to stakeholder comments was served via electronic transmission on April 2, 2015 on the following parties:

Karol H. Krohn The Office of the Utility Consumer Counselor 115 West Washington Street, Suite 1500 Indianapolis, Indiana 46204 kkrohn@oucc.in.gov infomgt@oucc.in.gov	Jean Webb 710 S. Kenmore Dr. Evansville, Indiana 47714
Thomas Cmar Jill Tauber Matthew Gerhart Earthjustice 1101 Lake Street, Suite 405B Oak Park, Illinois 60301 tcmar@earthjustice.org jtauber@earthjustice.org mgerhart@earthjustice.org	Jennifer A. Washburn Citizens Action Coalition of Indiana, Inc. 603 E. Washington Street, Suite 502 Indianapolis, Indiana 46204 jwashburn@citact.org
Indiana Distributed Energy Alliance 545 E Eleventh Street Indianapolis, Indiana 46202 Indianadg.org@gmail.com	Steve Francis Sierra Club 1100 West 42nd Street, Suite 140 Indianapolis, Indiana 46208 sierrasteve@comcast.net
Robert K. Johnson Hoosier Environmental Counsel 2454 Waldon Dr. Greenwood, Indaina 46143 rjohnson@utilitylaw.us	Mark Bryant Valley Watch 800 Adams Ave Evansville, IN 47713 mark@valleywatch.net

/s/ Joshua A. Claybourn

Joshua A. Claybourn
One Vectren Square
211 N.W. Riverside Drive
Evansville, Indiana 47708
Telephone: (812) 491-4157
Facsimile: (812) 491- 4238
Email: jclaybourn@vectren.com

RECEIVED
APRIL 2, 2O15
INDIANA UTILITY
REGULATORY COMMISSION

VECTREN'S RESPONSE TO STAKEHOLDER COMMENTS ON ITS 2014 INTEGRATED RESOURCE PLAN

Introduction

On October 31, 2014, Southern Indiana Gas & Electric Company d/b/a Vectren Energy Delivery of Indiana, Inc. ("Vectren" or "Company") submitted its 2014 Integrated Resource Plan ("IRP") to the Indiana Utility Regulatory Commission ("Commission"). Although the IRP rules are not yet final, Vectren followed the process and requirements embodied in the draft rules. Vectren's process included a stakeholder engagement process in which the Company and participants discussed the methodologies and assumptions utilized in the IRP modeling and the results of that modeling prior to finalizing the IRP. Vectren seriously considered and responded to stakeholder comments throughout the process, as documented in the IRP.

Jean Webb, John Blair, and Valley Watch, Inc. (collectively "Valley Watch"), the Office of Utility Consumer Counselor ("OUCC"), Hoosier Environmental Council ("HEC"), and Citizens Action Coalition of Indiana, EarthJustice, Indiana Distributed Energy Alliance, and Sierra Club (collectively "CAC") submitted comments in accordance with proposed rule 170 IAC 4-7-2(g). While the draft rule does not provide any specific deadline for a response to these comments, Vectren is providing these responses to aid the director in the completion of his final report. Specifically, the comments expressed concerns about methodologies or inputs used by Vectren in preparation of its IRP that in some case indicate a misunderstanding of Vectren's procedures. These responses are intended to help clear up any misunderstandings and provide additional background and detail regarding Vectren's IRP.

Demand Side Management ("DSM")

The stakeholders submitted a number of comments regarding the modeling of DSM in the IRP. Vectren continues to support DSM related energy efficiency efforts as a fundamental part of the services provided to customers in order to help customers manage their energy bills. The OUCC stated it was "concerned" that Vectren (and others) had hard-wired DSM into the IRP modeling process and thereby predetermined the level of DSM resources that may or may not have been selected. While Vectren did model a level of DSM consistent with its corporate policy, it broadened the IRP analysis to evaluate additional DSM resources on a consistent and comparable basis with supply side resources. Vectren modeled whether more DSM would result in a more cost effective plan—the very analysis the OUCC recommends. This process is explained on pages 171-172 of the IRP and was discussed at length in the public advisory process.

The OUCC recommended that Vectren use the Indiana Technical Resource Manual ("Indiana TRM") with DSM programs until actual evaluation, measurement, and verification ("EM&V") results are available to determine savings for individual program measures. Once programs and measures are identified, Vectren first leverages EM&V results to identify savings or measure life. If none are available, then Vectren refers to the Indiana TRM reference manual or other applicable TRMs. If data cannot be obtained from an applicable TRM or past evaluation, Vectren will utilize data from other Midwest programs.

The CAC contends that Vectren should clarify the role of its potential study in the IRP and explain how it developed its base DSM forecast. The Market Potential Study ("MPS"), developed by Enernoc on behalf of the Vectren Oversight Board, illustrated a level of ongoing DSM energy efficiency is cost effective. Vectren included an achievable level of ongoing DSM energy efficiency in the base case sales forecast (approximately 1%) based on that MPS, as explained on page 171. The limits placed on how much additional DSM could be modeled between 2015 and 2019 were based on the achievable high savings from the MPS. Vectren also discussed the nexus between its public input meetings.

The CAC and HEC requested that Vectren clarify assumptions regarding Vectren's DSM block modeling. A DSM block is defined as 0.5% of the sum of retail sales of (i) residential customers, (ii) general service (small commercial and industrial) customers, and (iii) 20% of large C&I customer load eligible for opt-out. At the time of the IRP, Vectren estimated that 80% of eligible customers would opt-out of Vectren-sponsored DSM programs. Vectren used the DSM supply curves from the MPS to establish costs for each of the DSM blocks. The MPS costs were averaged with more up-do-date costs from the 2015 DSM conservation program filing. Using the MPS, "low achievable" saving levels were aligned with the block one, "high achievable" saving levels were aligned with block four, and Vectren used the MPS recommended achievable saving level for the block two. For the block three, Vectren escalated block two to capture an average between block two and block three.

The CAC also criticized Vectren for assuming an opt-out rate of 70% to 80% for eligible customers. This estimate was based on Vectren's actual DSM opt-out experience. While CAC contends that Vectren should do more to attract eligible customers, large industrial customers continue to prefer to opt-out of utility offered DSM plans. The IRP must account for that to be a reasonable prediction of future needs. CAC also criticizes Vectren for putting a ceiling on efficiency—but Vectren did not place a ceiling on efficiency. It modeled whether higher levels of energy efficiency were the preferred outcome, and the model concluded they were not.

Environmental Controls and Modeling

Vectren has invested in environmental controls to ensure compliance with environmental regulations. These investments have made Vectren's fleet one of the cleanest in the Midwest and has contributed to moving Vanderburgh County out of non-attainment status. This effort was supported and encouraged by local environmental groups. Several other plants across the nation continued to operate without these control systems. As a result of Vectren's investments, local residents and customers have enjoyed years of cleaner air, improved opportunities for local economic development, and lower rates than they would have if plants had been replaced or converted to use alternative fuel sources.

The CAC alleges that while Vectren notes the possible requirements of the Coal Combustion Residuals ("CCR") rule, Vectren did not provide an analysis of how facilities will comply with existing and reasonably expected environmental rules. However, Vectren's IRP addressed known or expected environmental or other regulations, including the CCR and the EPA's proposed Clean Power Plan. Additionally, Vectren included a risk analysis, which considered the cost of fuel, market energy prices, CO2, capital costs, and a high regulation cost. Vectren included costs for compliance with the final CCR rule in Subtitle D in the base modeling. A total of $26 million in capital was modeled for converting to dry bottom ash.

While no costs associated with the Effluent Limitation Guidelines ("ELG") rule were included in the modeling, the draft ELG rule offered multiple options and Vectren's units will fall outside the requirements due to the small size of the units and scrubbers. The ELG rule will be finalized in fall of 2015 and Vectren acknowledges that the 2016 IRP should and will include estimates associated with ELG compliance if such rules impact Vectren's fleet.

Finally, the OUCC recommended that Vectren include a full explanation of its carbon price modeling as well as sensitivities showing a low carbon price, a high carbon price, and a break-even price. The high carbon price sensitivities were described on page 203 of the IRP. The Synapse 2013 mid-case pricing is what Vectren used for the high sensitivity. The MISO MTEP mid-case is what Vectren used for the low sensitivity. There is no single breakeven price for CO2 as it will vary with the interactions of coal, natural gas and wholesale electricity prices. The stress test results tables are intended to show the relative influence of these variables and are summarized in table 10-13 on page 209 of the IRP.

Renewable Resources

The CAC asserts that Vectren failed to evaluate the most economical renewable resources, particularly out of state wind like wind farms in Kansas. However, Vectren did model wind resources using figures from Vectren's Burns and McDonnell technology assessment. This assessment evaluated capacity of typical Indiana wind resources. Wind resources are very site specific and can vary significantly in terms of energy output and peak output during system peak periods. Additionally, transmitting wind resources can pose significant challenges as well. As a result out of state wind resources were not directly evaluated. Should a transmission line like the one known as the "Green Belt Express Clean Line" come to fruition it may open the door for more attractive wind resources to be delivered to our region. Additionally, it is not yet clear if the proposed Clean Power Plan will allow end-using states to claim credit for out-of-state renewable resources. This is an unresolved issue with the proposed rules. Vectren will continue to monitor renewable resource developments.

Resource Integration

CAC criticizes Vectren for not modeling retirement of units other than FB Culley Unit 2 in its IRP and contends that since some modeling supported retirement of FB Culley Unit 2 as early as 2020, the modeling may have yielded similar results for other units. Vectren, however, recently modeled whether retiring other units was the most cost effective option prior to investing further in these units in Cause No. 44464 and concluded retirement was not the best option. Consequently, Vectren has no plans to retire, and saw no need to evaluate the retirement of, other units. Vectren agreed to model F.B. Culley Unit 2 because it is the oldest and least efficient coal unit in the Vectren fleet. Page 211 and page 212 of the IRP addresses the risks associated with a premature retirement of F.B. Culley Unit 2.

CAC contends that Vectren is misrepresenting the data in presenting the Base Plan and the F.B. Culley Unit 2 Retirement Plan as essentially the same. Vectren's statement is not a misrepresentation. Through 2020, there is no difference in cost between the Base Plan and the F.B. Culley Unit 2 Retirement Plan. While there is some difference in the value of the plans over their twenty year period, the $60 to $70 million difference amounts to only a 0.5% difference in

the overall value of the two plans. This difference is so small that it renders the value of the plan essentially the same. This does not arise to a violation of Vectren's obligation to fairly and accurately present the results of modeling.

The OUCC also raised concerns about F.B. Culley Unit 2. The OUCC stated that space limitations for modifications like a cooling tower could increase the cost of compliance options at F.B. Culley Unit 2 and that retiring F.B. Culley Unit 2 could necessitate an updated flue-gas desulfurization ("FGD") project for F.B. Culley Unit 3. The OUCC also contends that opacity concerns at the Culley units could require costly FGD bypass modifications and the costs to achieve environmental compliance with the F.B. Culley units could be as high as the combined cost to retire the units. Vectren must maintain adequate generating capacity to reliably serve customers while balancing environmental compliance and fleet operating costs. These factors are considered when planning with Vectren's fleet, including the F.B. Culley units. Vectren believes it is unlikely that a cooling tower addition would be required under the Clean Water Act. However, to evaluate the impact of these regulations a "High Regulation" sensitivity (cooling tower addition) was modeled as described on pages 203 and 204 of the IRP. The costs of converting to 100% dry ash systems were also included in the IRP model. With respect to FGD, Vectren does not believe any upgrades would be required if F.B. Culley Unit 2 was retired. Costs to comply with the EPA's opacity concerns are being addressed through Vectren's SO3 injection system and were included in the IRP model.

Vectren did not "stack the deck" by including two high-load scenarios but only one low-load scenario. Vectren included a high and a low load demand forecast based on the bounds of its economic modeling. The high demand forecast large load was modeled to ascertain the impact of Vectren attracting a potential large customer in 2018—a different assumption that would result in significant load growth. This was modeled because Vectren has received actual interest from customers that would add significant load in the future and the IRP must account for this potential.

The CAC also alleges that Vectren ignored "standard industry practice" by treating sensitivities as equally likely to occur as the base case and highlights in particular the impact this has on F.B. Culley Unit 2. Vectren disputes the CAC's characterization of "standard industry practice." For example, other utilities, including other Indiana electric utilities, have not assigned a probability weight to load scenarios.

Distributed Generation and Combined Heat Power ("CHP")

HEC alleges Vectren did not explore the potential for other types of customer-site distributed generation like CHP to meet future base load and peak load needs. Vectren acknowledges that customer sited CHP can be an efficient way to serve certain types of loads. However, the ultimate decision about these systems lies in the hands of the customer and their unique situation.

HEC also alleges that Vectren did not respond to concerns raised by stakeholders in the sessions about CHP. However, Vectren did respond to specific concerns raised at its public advisory process. For example, some stakeholders that attended the public meeting sessions requested an additional meeting to provide more detail on scenarios and sensitivities/risks. In response to this request, Vectren added a third public stakeholder meeting. Other stakeholders

recommended a scenario in which a coal unit was retired, which Vectren incorporated.

Vectren specifically discussed CHP systems in the first public stakeholder meeting but received very little questions/comments on the subject. Vectren recognizes that there is potential for these systems to grow within the service territory and Vectren will actively monitor developments in this area. Vectren did include one known large customer CHP project within all sales forecasts.

Coal Price Modeling

Due to Vectren's past relationship with its affiliate coal supplier, Valley Watch requests an independent audit to ensure coal prices were, and are, just as used in the IRP. On July 1, 2014 Vectren announced an agreement to sell its coal mining subsidiary. This transaction is now complete and all coal contracts have been found reasonable in Cause No. 38708 FAC 102-S1. The IRP coal price projections are based on three market price projections.

Broadway 1 Gas Peaking Facility

Valley Watch suggests in its comments that Vectren failed to maintain Broadway 1 and that this failure has led to customers losing the benefit of a low cost generation unit. This is not the case. First, Broadway 1's current status is not attributable to Vectren's failure to properly maintain the facility. Broadway 1 is reaching the end of its useful life and would require significant investment to continue providing useful service for Vectren's customers. Second, continuing investment in Broadway 1 is not the most economical option for Vectren's customers. Broadway 1 is only a peaker unit with a relatively poor heat rate (14,000 BTU/kWh) compared to other Vectren units. While Valley Watch refers to the operation and maintenance costs in terms of dollars per kilowatt, this is not reflective of the overall total costs to operate a facility because they do not reflect fuel cost and efficiency. Evaluating the unit on a cost per kWh demonstrates that Broadway 1 is more than twice as expensive as F.B. Culley Unit 2 to operate.

Operational Efficiencies

Valley Watch alleges that comparing the %EFOR (a measure of unreliability of the generating facilities) in the 2011 IRP and 2014 IRP shows that Vectren should improve the operating efficiencies of the facilities for peak performance. However, the values in the 2011 IRP on the referenced page 166 were assumed future values for modeling purposes. The same values were assumed across multiple units. However, in the 2014 IRP the three planning year average values that MISO uses as part of the UCAP determination were used. No two values are exactly equal. While some units were worse than the 2011 assumed values, several units – A.B. Brown 1, A.B. Brown 2, F.B. Culley 2, F.B. Culley 3, Northeast 1, and Northeast 2 – had actual three year results that were better than the assumed values in the 2011 IRP. Individual unit reliability will vary from year to year and the fleet reliability on average determines the ability to serve. Also, Valley Watch's statement erroneously implies that higher reliability is the least cost option. One hundred percent reliability would be tremendously expensive to maintain.

Alleged Reduction in Capacity

Citing page 15 of the 2011 IRP and comparing it to page 19 of the 2014 IRP, Valley Watch alleges that the amount of capacity of each generating plant has been reduced across the board. Vectren provided UCAP "unforced capacity" numbers in the 2014 IRP. In 2011, Vectren provided ICAP "installed capacity." Unforced capacity takes into consideration system downtime for unforeseen maintenance and unit testing and is, therefore, less than the total capacity of each unit. MISO, Vectren's regional transmission operator, requires that we maintain a 7.3% reserve margin on a UCAP basis. Unlike in the 2011 IRP, Vectren made the decision to report all capacity numbers in the 2014 IRP on a UCAP basis to align with this requirement.

Direct Load Control ("DLC") Program

Valley Watch alleges that Vectren improperly reduced its efforts in the DLC program. While some of these comments extend beyond the scope of the IRP, Vectren notes that it continues to manage the DLC program internally and employs contractors for equipment installation and maintenance. In 2010, the FCC adopted narrowband requirements to be met by January 1, 2013 which impacted the Vectren DLC communication system. As a result, a significant amount of upgrades were initiated in 2011 to be in compliance with the FCC and to improve the communication system coverage. These upgrades have enhanced the operation of Vectren's DLC communication system.

Vectren continued to perform maintenance and inspection work on the DLC switches through 2014. During the inspection and maintenance process many were determined to be either removed or not functioning. In many cases a new air conditioner had been installed and the DLC switch had not been installed on the new air conditioner. As part of this process some customers elected not to have a new switch installed and no longer wanted to participate in the program. The number of residential and commercial switches installed in 2011 was approximately 39,500 and has declined due to the reasons outlined above to 36,000 in 2014.

Vectren's 2011 IRP noted that the DLC system had the capability to obtain approximately 25 MW of peak capacity when all switches were fully functional. Table 8-1 of Vectren's 2011 IRP noted the DLC system load reduction capability was estimated to be 13 MW under a 33% cycling strategy and 19 MW under a 50% cycling strategy in 2011. At that time, this amount was projected to increase. In 2012 Vectren retained CADMUS to perform an evaluation of the DLC program to determine the savings impacts since the savings per switch estimates were several years old and newer, more efficient air conditioners and water heaters were present in the market. CADMUS determined the savings per switch to be lower than previous estimates, with savings of approximately 0.63 KW per switch at a 50% cycling strategy and 0.2 KW for electric water heaters. Vectren continues to have the program evaluated each year by an independent evaluator to determine the system load reduction capabilities. These new evaluated savings values of approximately 17 MW were used in the 2014 IRP to update the savings based upon best available information. The savings estimate provided in the 2014 IRP was further updated to reflect the ongoing inspection and maintenance efforts. The 2014 DLC savings estimate assumes that 90% of all switches that have been inspected will operate as designed during a cycling event and 75% of the switches that have not been inspected will operate as designed during a cycling event.

Interruptible Power Agreements ("IPAs")

Valley Watch alleges that Vectren's modeling demonstrates an "intentional decrease in the effort to pursue interruptible power agreements." Currently Vectren gets credit for approximately 30 MW of interruptible load through IPAs with two large industrial customers. The amount of interruptible load that Vectren gets credit for from MISO varies each year as it is based on the coincident peak of the customer less the firm service level. In 2011 Vectren received more credit from MISO for these two large customers. In 2015 Vectren will add approximately 20 MW of interruptible load with an existing large customer. In 2017, Vectren expects to lose approximately 20 MW of load as a large customer plans to build a co-generation unit. The decrease in expected interruptible load does not represent an "intentional decrease in the effort to pursue Interruptible Power Agreements" but simply the actual operating results of Vectren's customers.

Prices Per Kilowatt Hour

Valley Watch alleges that Vectren "didn't provide price per kilowatt-hour values for any resources." Vectren's IRP shows the cost of each resource on a consistent basis in Chapter 6, "Electric Supply Analysis," on a cost per kilowatt bases for project costs and for O&M. Vectren also provides the per kilowatt rate for each plan and sensitivity in Technical Appendix H.

Miscellaneous Issues

The OUCC recommended that Vectren clarify which sources were used for its sensitivity analyses. IRP assumptions and sensitivities were discussed in detail in Vectren's second public stakeholder meeting on August 5, 2015 and this presentation was included in Technical Appendix A. Vectren also explained its sources for the sensitivities on page 203 of the IRP.

RECEIVED
APRIL 2, 2O15
INDIANA UTILITY
REGULATORY COMMISSION

VERIFICATION

The undersigned, Matt Rice, Manager of Market Research and Analysis for Southern Indiana Gas and Electric Company d/b/a Vectren Energy Delivery of Indiana, Inc., under penalty of perjury, affirms that the foregoing representations are true and correct to the best of my knowledge, information and belief.

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

/s/ Matt Rice

By: _____

Matt Rice
Manager Market Research and Analysis

RECEIVED
APRIL 2, 2O15
INDIANA UTILITY
REGULATORY COMMISSION

CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing response to stakeholder comments was served via electronic transmission or U.S. Postal Service on February 16, 2015 on the following parties:

Karol H. Krohn The Office of the Utility Consumer Counselor 115 West Washington Street, Suite 1500 Indianapolis, Indiana 46204 kkrohn@oucc.in.gov infomgt@oucc.in.gov	Jean Webb 710 S. Kenmore Dr. Evansville, Indiana 47714
Thomas Cmar Jill Tauber Matthew Gerhart Earthjustice 1101 Lake Street, Suite 405B Oak Park, Illinois 60301 tcmar@earthjustice.org jtauber@earthjustice.org mgerhart@earthjustice.org	Jennifer A. Washburn Citizens Action Coalition of Indiana, Inc. 603 E. Washington Street, Suite 502 Indianapolis, Indiana 46204 jwashburn@citact.org
Indiana Distributed Energy Alliance 545 E Eleventh Street Indianapolis, Indiana 46202 Indianadg.org@gmail.com	Steve Francis Sierra Club 1100 West 42nd Street, Suite 140 Indianapolis, Indiana 46208 sierrasteve@comcast.net
Robert K. Johnson Hoosier Environmental Counsel 2454 Waldon Dr. Greenwood, Indaina 46143 rjohnson@utilitylaw.us	Mark Bryant Valley Watch 800 Adams Ave Evansville, IN 47713 mark@valleywatch.net

/s/ Joshua A. Claybourn

Joshua A. Claybourn
One Vectren Square
211 N.W. Riverside Drive
Evansville, Indiana 47708
Telephone: (812) 491-4157
Facsimile: (812) 491- 4238
Email: jclaybourn@vectren.com