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. ("VECTREN SOUTH") FOR (1) ISSUANCE OF A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE CONSTRUCTION OF A COMBINED CYCLE GAS TURBINE GENERATION FACILITY ("CCGT"); (2) APPROVAL OF ASSOCIATED RATEMAKING AND ACCOUNTING TREATMENT; (3) ISSUANCE OF A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR COMPLIANCE PROJECTS TO MEET FEDERALLY MANDATED REQUIREMENTS ("CULLEY 3 COMPLIANCE PROJECT"); (4) AUTHORITY TO TIMELY RECOVER 80% OF THE COSTS INCURRED DURING CONSTRUCTION AND OPERATION OF THE CULLEY 3 COMPLIANCE PROJECTS THROUGH VECTREN SOUTH'S ENVIRONMENTAL COST ADJUSTMENT MECHANISM; (5) AUTHORITY TO CREATE REGULATORY ASSETS TO RECORD (A) 20% OF THE REVENUE REQUIREMENT FOR COSTS, INCLUDING CAPITAL, OPERATING, MAINTENANCE, DEPRECIATION, TAX AND FINANCING COSTS ON THE CULLEY 3 COMPLIANCE PROJECT WITH CARRYING COSTS AND (B) POST-IN-SERVICE ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION, BOTH DEBT AND EQUITY, AND DEFERRED DEPRECIATION ASSOCIATED WITH THE CCGT AND CULLEY 3 COMPLIANCE PROJECT UNTIL SUCH COSTS ARE REFLECTED IN RETAIL ELECTRIC RATES; (6) ONGOING REVIEW OF THE CCGT; (7) AUTHORITY TO IMPLEMENT A PERIODIC RATE ADJUSTMENT MECHANISM FOR RECOVERY OF COSTS DEFERRED IN ACCORDANCE WITH THE ORDER IN CAUSE NO. 44446; AND (8) AUTHORITY TO ESTABLISH DEPRECIATION RATES FOR THE CCGT AND CULLEY 3 COMPLIANCE PROJECT ALL UNDER IND. CODE §§ 8-1-2-6.7, 8-1-2-23, 8-1-8.4-1 ET SEQ, 8-1-8.5-1 ET SEQ., AND 8-1-8.8 -1 ET SEQ.	)	**CAUSE NO. 45052**

VECTREN SOUTH'S REPLY BRIEF IN SUPPORT OF PROPOSED ORDER

In its post-hearing Brief in Support of Proposed Order, Southern Indiana Gas & Electric Company d/b/a Vectren Energy Delivery of Indiana, Inc. ("Vectren South") noted three critical and undeniable points: (1) because of the Coal Combustion Residuals Rule ("CCR"), Vectren South has no choice but to retire all of its baseload coal-fired generation capacity by 2023 or make substantial capital investment in each unit that is not to be retired; (2) Vectren South's modeling

in its 2016 Integrated Resource Plan ("IRP") outlined a multitude of potential portfolios; however, one conclusion was clear – any portfolio that does not include a large combined cycle gas turbine ("CCGT") is more expensive for customers than any of the portfolios that do include the CCGT; and (3) no evidence, no alterative portfolio suggested, and no modeling presented by any other party in this case changes either of these first two points. Given the extensive and well-reasoned IRP process that underpins selection of the CCGT which will ensure reliable locally sited baseload generation when coal is retired, Vectren South's proposal represents the exercise of reasonable judgment and serves the public convenience and necessity. Accordingly, the Commission should proceed to issue the certificate of public convenience and necessity ("CPCN") requested and should do so by issuing its order in the form submitted by Vectren South.

I. CCGT

The other parties in this case fall into two groups—two customer representatives and two policy advocates. The customer representatives consist of: (1) the Industrial Group, actual customers who require reliable around-the-clock power to support their manufacturing plants that employ a significant number of Vectren South's customers and have in this case made the decision to not oppose the CCGT baseload plant, and submitted a redline of a proposed order that leaves intact the Commission finding granting a CPCN for the CCGT, and (2) the OUCC. Prior to the case the OUCC filed 2016 IRP comments that praised the utilities for following the Commission's recommendations to "increase the number and broaden the range of scenarios considered" , and specifically praised Vectren South for providing environmental compliance cost assumptions by unit which facilitated the OUCC's analysis.[1] The OUCC voiced no concerns regarding the quality of Vectren South's IRP, but now advocates delay.

[1] https://www.in.gov/iurc/files/2016%20IRPs%20OUCC%20Initial%20Comments%20Submitted%20on%203.13.17.pdf, pp. 1-3.

The policy advocates consist of: (1) the Coal parties whose sole objective is to prolong the life of coal plants regardless of specific unit economics, size, operating characteristics (dispatch and heat rates) and environmental compliance requirements, and (2) the Sierra Club (and local partner Citizens Action Coalition ("CAC")) with its national environmental agenda that opposes use of any fossil fuels to provide necessary baseload capacity.

Apart from the Industrial Group, these other parties share two common traits—they focus on their objectives while placing no emphasis on assurance of reliable service, and they criticize Vectren South's plan, which does provide reliable non-intermittent capacity, while providing no clear alternatives other than delay and the speculative hope that whatever is done (and something needs to be done) might turn out to be at a similar or possibly lower cost. Such speculation in the face of the comprehensive modeling provided by Vectren South reflects the reality that these opposing parties are not responsible for providing reliable service to small and large customers.

Having no evidence to dispute the three core facts as explained in Vectren South's post-hearing submission, the Intervening Parties resort to three contrivances. First, they ignore the evidence. Second, they torture the language of the statute. And third, having neither the facts nor the law on their side, they pound the table by lobbing unfair and unwarranted attacks on the integrity of Vectren South and its experts. The Commission should not be confused by these tactics.

A. Joint Intervenors Routinely and Repeatedly Simply Ignore the Evidence.

Angila Retherford's testimony and rebuttal testimony were not disputed: Vectren South faces two options for the operation of its existing coal-fired baseload generation facilities beyond January 1, 2024: (1) invest significant capital to comply with CCR and Effluent Limitations Guidelines ("ELG"); or (2) retire those coal-fired units for which further capital investment is not warranted and secure replacement capacity to serve customer needs. The current Presidential administration policies and actions have not changed this conclusion. Pet. Ex. 9-R, p. 6.

Vectren South's Preferred Portfolio to address this situation grew out of its 2016 Integrated Resource Plan. Thirty-six different technologies (representing a business-as-usual case and an assortment of renewables, storage, natural gas, and coal) were modeled and screened on equal footing using a busbar, or levelized cost of electricity, comparison. Pet. Ex. 5, Attachment MAR-1, pp. 79 and 166. Fifteen different portfolios emerged from this iterative process as potential solutions. *Id.,* p. 81. This included two stakeholder portfolios. Some portfolios included a CCGT; some did not. Some continued reliance on coal; some abandoned coal. Varying degrees of renewables and storage were included. Out of this modeling, the optimal portfolio in terms of cost was a switch to nearly all gas, with the duct-fired F-class 2x1 CCGT serving as the foundation of the "heavy gas" portfolio. *Id.,* p. 82. Importantly, under every scenario (base and large load, high and low regulatory, high and low economics, high technology), the modeling always demonstrated that, regardless of what other resources might surround it, the 2x1 F-class CCGT (whether fired or not) was always part of the portfolio providing the lowest net present value ("NPV"). *Id.,* pp. 204-10.[2] The 2016 IRP also went beyond a simple comparison of the respective NPVs; from a reliability standpoint, replacing the coal units' 730 MWs with a 700 MW baseload gas unit is the sensible choice. The CCGT can ramp up and down in response to the market, has a far better heat rate, and is located on system to avoid congestion costs. The Final IURC Director's Report found that Vectren's IRP was "credible, well-reasoned and represented a substantial improvement over previous years in all aspects." J.I. Ex. 2, Attachment TFC-6, p. 9.

[2] Both the Coal Parties' Brief and Joint Intervenors' Proposed Order cite to *DTE Elec*., Case No. U-18419 (Mich. P.S.C. 4/27/2018), p. 66, 2018 Mich. PSC LEXIS 137, *113-14 for the contention that somehow Vectren South's 2016 IRP is to be questioned because under every scenario the CCGT is part of the low cost portfolio. Their citation to the decision is incomplete. DTE was criticized because it was not cooperative with the parties in conducting its IRP modeling – the "modeling approaches and interactions with the parties warrant attention." *Id*. DTE was specifically instructed to be more transparent and forthcoming with parties in its 2019 IRP, and the company would be well-served to prioritize such stakeholder engagement." *Id*., p. 67. Those criticisms are not true of Vectren South's modeling and IRP stakeholder process. Notably, the Michigan Public Service Commission issued a CPCN to DTE to build a 1,100 MW CCGT.

Joint Intervenors do not offer an alternative which will cost less and they don't offer any modeling which disputes the 2016 IRP. Instead, they focus on criticisms that their witnesses presented in their case-in-chief. Those criticisms were thoroughly rebutted by Vectren South, and Joint Intervenors ignore nearly in total the rebuttal evidence. Vectren South attaches hereto an Appendix which outlines the numerous findings Joint Intervenors seek which fail to account for the rebuttal evidence or otherwise misstate the record. In this Reply Brief, Vectren South will focus on a few salient themes.

i. Vectren South's IRP used reasonable assumptions and accepted methodologies to select reliable baseload resources.

Joint Intervenors go to great lengths to castigate the Vectren South IRP. At no point do they acknowledge that the Director's Report described that IRP as significantly improved and utilizing "credible and well-measured scenarios." J.I. Ex. 2, Attachment 6, p. 41. A prime example is Joint Intervenors' tortured comparison of Vectren South's IRP modeling to that performed by IPL related to a 2012 MATs compliance case where the Commission found IPL's modeling to be so "disappointing" that a reduction in cost recovery was instituted. (J.I. Proposed Order, p. 73). Sierra Club/CAC go so far as to say that "Vectren's transgressions far exceed IPL's." (S. Club Brief, p. 89). The comparison is absurd. The Commission's disappointment with IPL reflected the Company's "decision to not present production cost modeling [which] was the main driver for this misstep," with IPL instead relying on a "spreadsheet analysis." *Indianapolis Power & Light Co.*, Cause No. 44242 (8/14/2013), pp. 31, 35. Vectren South has presented far more than a spreadsheet analysis in this proceeding. As shown on rebuttal, the only modeling performed by the Joint Intervenors, once corrected for clear and accepted errors, supports Vectren South's plan. (Pet. Ex. 6-R, pp. 10-19). Absent Culley 3, NPV support for just the CCGT would be even higher.

Despite having not taken this position during the IRP, the OUCC now supports a wait-and-see resource approach that they hope could perhaps result in refueled units (despite modeling

provided to them that shows these other alternatives are more costly), they provide no response to the undisputed reality that such units are highly inefficient and thus have abysmal dispatch rates, and they never explain how reliable service and mandatory capacity requirements can be based for some undefined period on significant reliance on MISO market purchases. The bottom line is this: the OUCC distances itself from the necessary cost to replace baseload coal but provides neither analytical support for its conclusory claims that delaying a decision does not create significant risk nor any substantive response to the rebuttal modeling that shows its alternatives do not reduce customer costs (and certainly do not provide the type of efficient and dispatchable baseload unit proposed by Vectren South).

As to the primary attacks on the quality of its IRP, Vectren South responds as follows:

Issue: Contention that use of more than one model is a "convoluted" approach.

Response: Vectren South's experts employed the unique strengths of three universally accepted models—Strategist, PROMOD and Aurora—to model both economic resource solutions as well as conduct risk analysis. The use of multiple models is a strength, not a weakness, and is not unique to Vectren South. Pet. Ex. 7-R, pp. 4-5.

Issue: Vectren South failed to consider high gas prices and per the Director Report should have modeled two standard deviations to capture low probability events.

Response: Vectren South's modeling used multiple independent gas forecasts and one of the seven scenarios included high gas prices (Tr. D-86, line 18-D-88, line 14). The consideration of multiple fuel forecasts was "commendable" (IURC Dir. Report, 11/2/17; J.I. Ex. 2, Attachment 6, p. 37). Vectren South's modeling captured 200 iterations of gas prices and the analysis reflected 92.5% of potential price outcomes over a 20 year period (Tr. D-103, line 21-D-105, line 17). Essentially, Vectren South modeled approximately two standard deviation (95%).

Issue: Vectren South overly limited reliance on capacity purchases.

Response: The Pace risk model placed no limit on capacity purchases (Tr. D-74, lines 1-15). Regardless, as the Commission has previously found, speculative reliance on the capacity market creates significant risk. (*Indianapolis Power & Light*, IURC Cause No. 44794 (4/26/17), p. 29). Moreover, MISO has provided an independent outlook regarding available capacity. Its 2018 survey shows a Zone 6 shortfall of 1,600 MWs (even if the CCGT is built) which reflects the many planned retirements that occur by 2023 (Pet. Ex. 20-R, pp. 4-6). And, MISO is working on a number of market reforms that would likely increase capacity prices.

Issue: When Vectren South updated its IRP it also should have updated the risk model.

Response: Mr. Vicinus, the architect of the risk model, noted that his expert opinion is that given the further reduction in gas prices, a 2017 update would have favored selection of the CCGT (Tr. D-67). Mr. Vicinus also explained that the changes in certain inputs were already adequately captured within the ranges used in the original risk model and thus an update was not necessary. Pet. Ex. 7-R, p. 6.

Issue: Alternatives such as refueling coal units combined with a smaller CCGT unit could be less costly.

Response: False. Vectren South's IRP modeled a Culley 3 refueling because it was a better candidate than the Brown units and that analysis showed refueling was more costly (Pet. Ex. 6-R, pp. 6-7). Regardless, at the OUCC's request, additional modeling of four portfolios was performed, including refueling the Brown units and building a smaller CCGT, and these alternatives were compared to the updated $780 million estimate for the CCGT proposed in this case;[3] those portfolio options were more expensive than the Preferred Portfolio (and given Culley 3 increases the cost

[3] Joint Intervenors argue that the additional modeling added 200 MWs of solar which drove up costs (J.I. Proposed Order, p. 75), but that was only one of four portfolios with refueling that were modeled for the OUCC. (Pet. Ex. 6-R, p. 9.)

of the Preferred Portfolio, the CCGT is clearly the least expensive resource option); further modeling for the Commission again demonstrated that the CCGT is less costly than other combinations of resources. (Petitioner's Response to Sept. 19 Docket Entry Request). The resources paired with the CCGT drive NPV differences, but there is no evidence to contradict that the CCGT is the least expensive option to provide baseload capacity and energy to replace the retired coal units.

ii. Complaining about the Unit's size and its cost does not demonstrate there is a better alternative.

The opposing parties' case boils down to two points never in dispute: the CCGT is a large unit and it represents a sizeable investment. Notably, Joint Intervenors never offered evidence that there was a smaller unit or any other option that would produce a lesser impact for customers. Based entirely on the evidence of record, Vectren South submitted a summary comparing the revenue requirement difference between the Preferred Portfolio and the best Brown refueling option. Joint Intervenors have not disputed this summary demonstrating that the large CCGT produces overall a lower revenue requirement than the Joint Intervenors' suggested Brown refueling.

The context for the CCGT is Vectren South's proposal to replace coal plants that have operated for decades and represent 100% of its existing baseload capacity and thereby avoid the compliance investments required to operate them beyond 2023. This decision is made virtually inevitable by the growing reality that these plants were not designed to effectively operate in the MISO market where ramping is an essential operating attribute. A great truth ignored completely by the opponents is that these units are experiencing increasing wear and tear as they struggle to respond to MISO dispatch instructions, greatly increasing operational cost and risk with each passing year. Although ignored by these parties in their responses, even the coal advocates

concede that the units simply cannot effectively perform in this environment. (National Coal Council study, Pet. Ex. 1-R, pp. 21-22.) The opposing parties contend that the coal units could be relied upon beyond 2023 as part of their delay alternative. Again, this ignores evidence to the contrary, including direct evidence that has never been seriously responded[4] to that operating the Brown units beyond 2030 would cost over $700 million (Pet. Ex. 4, p. 37). It would be unreasonable to spend $700 million to have an old, inefficient coal unit when for slightly more investment a state-of-the-art CCGT can be constructed. The choice is obvious.

With respect to the arguments related to the CCGT investment, the irony is that Vectren South's current rates are a product of operating and maintaining 5 small coal units over the past 3-4 decades. There is a reason that developers typically build larger CCGTs and that another utility was interested in a partnership in a CCGT at the Brown site sized much larger than the CCGT unit being proposed - larger CCGTs benefit from economies of scale and efficiency that provide economic advantages over smaller gas units. The IRP modeling selected the proposed CCGT baseload unit based on the reality of these economics. The parties also argue that multiple smaller units provide greater reliability. However, apart from the fact the CCGT can essentially be run as two separate units if needed, the other parties' disparate proposals to run some old coal plants until about 2030 and/or refuel coal units that will still have old equipment and have terrible heat rates, and combine these resources with increasing levels of intermittent renewable resources, are not more reliable than a new state of the art CCGT unit that ramps effectively in a very short amount of time and for decades can be a foundational baseload resource regardless of prevailing weather conditions. Such a unit is far more resilient than relying on older units or renewables, most of which could also be subject to the risk of grid congestion.

Finally, the opposing parties suggest that a CCGT may no longer be a preferred industry option for baseload capacity. That ignores that gas represents one-third of current generation

[4] Hypothesizing about untested alternative scrubber technologies that could expose the grid to potential cyber security attack was thoroughly rebutted by Mr. Farber and cannot be labeled a serious response. (Pet. Ex. 15-R.)

nationally. (Pet. Ex. 16-R, Attach. RFM-13R, p. 1). It also ignores the potential baseload shortage in the aftermath of coal unit retirements as shown by the MISO survey. Notably, at the hearing the opposing parties cross examined witness Vicinus regarding work Pace did for Minnesota Power and his familiarity with an initial ALJ decision denying a CPCN to construct a new large gas plant. Post-hearing, the Minnesota PUC has approved construction of that unit, and expressly rejected the ALJ's proposed finding otherwise. *Minnesota Power*, Docket No. AI-17-568 (Minn. PUC 1/24/2019), p. 4.[5]

iii. Vectren South's IRP renewable resource cost assumptions are supported by the NREL survey lauded by the Joint Intervenors.

Joint Intervenors base much of their CCGT opposition on the claim that Vectren South "exaggerated wind and solar cost estimates in its resource modeling" in order to select the CCGT. (J.I. Proposed Order, p. 66). As an alternative to the wind and solar costs reflected in Vectren South's IRP, Joint Intervenors advocate that the Commission find that the IRP should have been based upon the NREL ATB forecast, pointing out that MISO relies on that forecast and that the forecast is based on comprehensive cost survey responses provided by renewable experts. Yet Vectren South's rebuttal evidence, which the Joint Intervenors simply chose to ignore, established that Vectren South's renewable pricing matched the NREL ATB forecast.

On rebuttal, Vectren South witness Lind demonstrated that the IRP wind assumption essentially matched the NREL ATB forecast. (Pet. Ex. 6-R, p. 27). With respect to solar, once the NREL cost data is adjusted to permit an apples to apples comparison, including the necessary conversion from direct current (DC) to alternating current (AC), Vectren South's declining cost curve closely matches the NREL data (Pet. Ex. 6-R, p. 31). This rebuttal analysis was not challenged on cross examination, and despite the fact that it is set forth in Vectren South's

[5] https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={30DE8168-0000-C712-8B93-95EC082C7FCD}&documentTitle=20191-149543-01.

Proposed Order (p. 26) and initial Brief (p. 8), is completely ignored by the Joint Intervenors. They also conveniently ignore the impact of congestion costs that Vectren South did not include in the model but would adversely impact renewable resources located outside Vectren South's territory. Vectren South has first-hand experience with these significant costs which it incurs to obtain delivery under its current wind contracts. (Pet. Ex. 4-R, p. 19.)

Mr. Lind's rebuttal testimony also explained that even using a lower renewable cost assumption, the CCGT would still be selected and the only impact would be to create a larger cost burden associated with retention of Culley 3 versus alternative renewable resources. (Pet. Ex. 6-R, pp. 32-33.)[6]

A fair review of the NREL forecast demonstrates that Vectren South's IRP relied on reasonable cost assumptions and the Joint Intervenors' decision to ignore the evidence that does not support their position cannot be allowed to result in erroneous findings by the Commission.

iv. Vectren South's RFP sought proposals consistent with its IRP and facilitated the Commission's CPCN review under IC 8-1-8.5.

Vectren South's 2016 IRP results directed that its baseload coal plants be retired and be replaced by a highly efficient CCGT. Vectren South's plan proposed to retire 730 MWs of coal to be replaced by a 700 MW CCGT unit.[7] Given this outcome, which reflected that the coal units could not operate beyond 2023 absent environmental retrofits, on June 20, 2017, Vectren South issued its RFP soliciting proposals for 600-800 MWs of capacity. Eligible proposals included either PPAs or purchase of a plant.

[6] The Sierra Club/CAC Brief says that an all source RFP would provide "real world" evidence of renewable costs. But the NREL ATB forecast their own witness says is an excellent cost forecast based on information derived from over 150 experts already provides "real world" solar and wind pricing. Moreover, it is not based on speculative initial bids or driven by any developer self-interest. Vectren South has real world experience that RFP bids are often incomplete and inaccurate, and absent congestion analysis, do not provide accurate cost data.

[7] If the CCGT is duct fired, another 150 MW of peaking capacity can be added for $15 million to replace 4 gas peaking units totaling 135 MWs that were built from 1963-1981.

Joint Intervenors argue the RFP should have been crafted in a manner to solicit all types of resources regardless of size or location. This simply evidences a misunderstanding of the purpose of the RFP. To obtain a CPCN a utility must demonstrate that its proposal is consistent with a "utility specific proposal" and may, in submitting such a proposal, rely on its current IRP. See Ind. Code §§ 8-1-8.5-3(e)(1) and 8-1-8.5-5(b)(2)(B). Accordingly, the IRP results can dictate the nature of the CPCN case. Moreover, under Ind. Code § 8-1-8.5-5(b)(5) and (e), the utility must also provide the Commission with evidence that it will allow third parties to submit bids to construct the proposed facility, that reliability was considered and that there was a solicitation of competitive bids to obtain purchased power capacity. Here, Vectren South's RFP linked directly to its IRP outcome so that bids were solicited for PPAs and third party constructed CCGTs. This was not an RFP issued to gather data as part of trying to decide what should be modeled; rather, having engaged in a robust IRP process that considered all resources and produced a clear outcome—retire coal capacity and obtain replacement baseload capacity—Vectren South read the statute setting forth exactly what the Commission must find and consider to grant a CPCN, and issued an RFP to learn how its proposed CCGT NPV compares to alternative baseload capacity through the RFP so that the Commission could determine the best outcome for customers in terms of cost and reliability for the new baseload resources.

The RFP was actually part of a comprehensive effort to determine the best baseload resource to replace its coal units. Armed with its IRP results, Vectren South pursued three paths: (1) a partnership with another Indiana utility to build an even larger CCGT at the Brown site that would have an even better heat rate and NPV due to economies of scale, (2) a CCGT at Brown sized to replace the retiring coal units and designed to benefit from the site and all reusable infrastructure, and (3) the best third party PPA or asset purchase bids provided through the RFP. Notably, all 3 tracks would reliably support the transition from the coal units to dispatchable capacity.

The Joint Intervenors continually misrepresent the RFP results. The RFP provided multiple PPA offers including from one of the largest plant developers in the nation, as well as multiple offers to sell portions of plants from developers with established plant sites. The PPA offers were evaluated by Burns & McDonnell in the same manner as proposed CCGT units. Moreover, in soliciting PPAs for 600 MWs of capacity, the RFP never required bidders to rely on a single site. Rather, there were two key bid requirements – location in MISO Zone 6 and dispatch to provide 96% availability during peak demand months.

CCGTs have become highly efficient resources that ramp effectively in response to MISO dispatch instructions. It is an undisputed fact that larger CCGTs offer the best economics. The modeling picked the 700 MW CCGT for this reason, not because of some scheme. Locating a CCGT (or PPA capacity) outside Zone 6 has consequences—most of Vectren South's capacity would not count to meet MISO zonal requirements and it would need to be delivered across a seam and at some distance, thereby increasing congestion cost and risk. Burns & McDonnell's uncontested analysis of a CCGT in Zone 6 that was distant from Vectren South's service territory reveals the significance of congestion. The RFP provided real bids from developers in Zone 6 with the best bid representing a state of the art large CCGT to be built by a credit worthy and well known developer. Baseless speculation that non-Zone 6 bids would somehow be materially better to overcome all the inherent disadvantages (including loss of Indiana local tax and economic benefits), and that Vectren South would somehow be able to satisfy MISO zonal capacity requirements, has no merit. MISO's zonal Local Clearing Requirement reflects good contingency planning, and the fact is that MISO-wide, only 3,812 MWs out of 135,179 MWs were imported from one zone to another. The RFP requirement for Zone 6 capacity reflects prudent practice that is universally relied upon throughout MISO (Pet. Ex. 20-R, p. 19).

Similarly, the idea that in place of coal, intermittent resources could provide the backbone of Vectren South's power fleet and serve as dispatchable capacity has no merit.[8] Vectren South's RFP solicited dispatchable capacity, regardless of ownership of the underlying asset. These are resources that Vectren South needs to meet the capacity requirements facing it beginning in 2024.[9] Reliable service to large and small customers starts with capacity to serve peak demand. Since the 1960s, that capacity has come from Vectren South's coal units. While gas units have high capacity ratings, solar, at best, has a 50% rating and wind is below 10%. These intermittent resources are not dispatchable. Thus, to transition away from coal, gas is the viable replacement resource.

The RFP served its purpose by obtaining bids that were fully evaluated and could have resulted in a contract if shown to be lower cost and reliable. The record reflects a thorough evaluation process and demonstrates that the CCGT is the lowest cost option.

v. Vectren South's IRP model included the cost of a pipeline lateral and interstate capacity.

As their evidence of "grave infirmities" that they say renders Vectren South's modeling "unusable," Joint Intervenors claim that (1) the "modeling for this case did not include the costs for the necessary gas pipeline"…. and (2) "also did not consider the $20 million in annual costs that will be required to run the CCGT's pipeline." (JI Proposed Order, p. 73). A review of the citations provided to support this infirmity claim speaks volumes about the veracity of the Proposed Order the Joint Intervenors have provided to the Commission.

[8] To equal 700 MWs of dispatchable capacity, on its best day given capacity factors, 1,400 MWs of solar would be needed or 7,000 MWs of wind (and still reliability would not be achieved). The acreage required to locate all these facilities, and the right locations to obtain good operating results, is not likely to be found in Southern Indiana. As a practical matter, even if all found in Zone 6, the resources would be at various sites, all subject to congestion issues.

[9] Throughout the RFP response and evaluation period Vectren South worked on the partnership and self-build paths. Thus, as a practical matter, the self-build option could not provide a timely RFP response. Moreover, there is no evidence that the other bidders were impacted in any manner by the self-build project being on its own path. Bidders knew they were competing with a self-built CCGT. That provided an incentive to provide the best bids possible.

Regarding inclusion of the pipeline construction and annual capacity costs, Joint Intervenors cite the cross examination of Mr. Lind where he is asked if he is aware of the costs "that Vectren has modeled for [ ] building that pipeline?", and he responds yes, and then when asked if the costs to run the pipeline is an additional expense that customers will pay, Mr. Lind plainly testifies "I would believe that all those expenses have been modeled in the CCGT option." Tr. D-5, lines 19--24, D-6, lines 19-D-7, line 1 (emphasis added). This record citation provides no basis to claim the model failed to include the pipeline costs.[10] Regardless of the misuse of these transcript citations, the evidence is clear that all pipeline costs were properly included in Vectren South's IRP modeling. *See* Pet. Ex. 22-C (45052 CONFIDENTIAL Matthew Lind Workpaper 2x1 F-Class Fired (GE705) 781 CapEx.xlsx, CCGT Costs Worksheet, Row 9 and Detailed Annual Results Tab, Row 10 (showing the latter includes the former)).

Ultimately, the construction of the lateral and the ability to recover costs related to the investment and operation thereof will be the subject of a future proceeding providing full opportunity for Commission review. The Sierra Club/CAC Brief includes accusations of unfair charges and cross subsidization because the gas utility will build and operate the lateral and pass the costs on to the electric utility. This makes perfect sense given the gas utility's experience in constructing and operating high pressure transmission pipes and responsibility for ongoing pipeline safety regulations. In fact, Vectren's gas utilities provide this exact same service under approved contracts with Duke and IPL to serve Edwardsport and Eagle Valley. Sierra Club/CAC try to create an impression that the gas utility will profit at the expense of the electric customers if for example excess lateral capacity is some day sold to a large customer. Since almost the entirety of the lateral is located in the State of Kentucky where Vectren South is not authorized to serve, this is quite implausible speculation. Tr., pp. G-73 and 74. Moreover, such gas service

[10] Joint Intervenors also cite to the cross of Mr. Games (Tr. E-9, lines 19-21) where he agreed that the annual capacity costs would be an expense customers would pay. Again, this testimony does not support the proclamation that the IRP model failed to include such costs.

would simply create revenue that reduces gas utility costs and would benefit gas customers in the overlapping service territory, and also could be used to offset operating costs passed on to electric customers. There is no evidence that when an actual regulatory proposal is made, the electric utility will be asked to pay any more than what the revenue requirement would otherwise be if it oversaw construction and operation of the lateral. Again, the CCGT opponents are simply manufacturing issues that do not exist.

B. Joint Intervenors Twist and Torture the Language of the Underlying Statute.

Having no facts upon which to base their opposition, Joint Intervenors next resort to distorting the underlying statute. Rarely if ever do they actually quote the statute – doing so would reveal they advocate an interpretation that is at odds with the language the General Assembly used.

A common mistake the Joint Intervenors urge the Commission to make is to claim that the matters listed in Ind. Code §8-1-8.5-4 ("Section 4") are "elements" that Vectren must prove and require "findings" the Commission must make; "our inability to make any required finding, is fatal." JI Proposed Order, p. 52. This is simply not true. The matters listed in Section 4 are factors that "the commission shall take into account," which is a far cry from being required elements of Vectren's burden of proof. The only required elements and findings are set forth in Ind. Code §8-1-8.5-5 ("Section 5").

Having misstated the role of Section 4, Joint Intervenors move on to distort the requirements of Section 5. Section 5(b)(1) does not require that the Commission "find Vectren South's construction estimate of $781 million to be a best estimate." JI Proposed Order, p. 54. Instead it requires the Commission to make "a finding as to the best estimate of construction, purchase, or lease costs based on the evidence of record." Other than whether the pipeline costs should be considered gas costs (as they are for Eagle Valley and Edwardsport), or costs of the CCGT, no evidence was introduced questioning Vectren South's estimated costs of construction.

No one offered responsive testimony to Witness Fischer; in fact, they did not even cross-examine her. The "evidence of record" allows only one finding of the "best estimate of construction . . . costs"; the estimate presented by Vecten South.

Moving on to Section 5(b)(2)(B), Joint Intervenors are wrong that the Commission is required to "approve Vectren South's IRP." That is not what the statute says; instead it says the Commission must find the CCGT "is consistent with a utility specific proposal under section 3(e)(1) of this chapter and approved under subsection (d)." A "utility specific proposal" under Section 3(e)(1) is not the IRP; instead it is this particular proposal pending before the Commission to build a CCGT. Section 3(e)(1) allows Vectren South ("may") to submit its current or updated IRP as support (which Vectren South has done), but it is not the IRP which is approved under Section 5(d). Nowhere does Section 5(d) mention the IRP let alone approval of the IRP.

The Joint Intervenors' interpretation of Section 5(e) has changed dramatically throughout the progression of this case. Originally, they were of the view that a petitioning utility is required to solicit competitive bids for the actual project being proposed prior to filing the case. Vectren South's Proposed Order has seemingly put an end to that argument by noting that Section 5(e)(1)(A) is discussing competitive procurement for purposes only of completing the cost estimate and Section 5(e)(1)(B) is addressing competitive procurement for the actual project. The latter only requires that competitive procurement "will" be used. The Joint Intervenors now agree, but they have changed to a new argument. Now they claim that while the cost estimates are built from competitive bids for construction and procurement, they are not built from competitive bids for engineering services. In their late adoption of this new approach, they ignore that Diane Fischer testified unequivocally it was commercially impracticable to solicit competitive bids for the engineering piece in order to prepare an estimate. Pet. Ex. 10, p. 37. Ms. Fischer based her estimate for engineering on Black & Veatch's experience as a national engineering firm that bids on such contracts. No contrary evidence was offered. No party disputed that it was commercially impracticable. What's more, the other parties did not even cross examine her. Having no

evidence, they ask the Commission to simply ignore her sworn testimony. They ignore that this project will be bid out as an EPC contract. So no, Vectren South cannot bid just the engineering piece of that contract to arrive at an estimate. No engineering firm is going to hand over that sort of confidential and proprietary information to another engineering firm or to Vectren South – certainly not an engineering firm that would like to bid the final project. Having provided a slice of what their ultimate bid will be would put them at a competitive disadvantage. This is why no one disputed Ms. Fischer's testimony.

Finally, the Joint Intervenors allege that Vectren South has the duty of proving "necessity." The statute requires "public convenience and necessity," which has a long-standing meaning. *Indiana Bell Tel. Co. v. T.A.S.I.,* 433 N.E.2d 1195, 1201-03 (1982); *V.I.P. Limousine Serv., Inc. v. Herider-Sinders, Inc.,* 171 Ind. App. 109, 113-14, 355 N.E.2d 441, 444-46 (1976). Significantly, the word "public" modifies both "convenience" and "necessity." *V.I.P.,* 171 Ind. App. at 116, 355 N.E.2d at 116. ("Mere public convenience, standing alone, is not sufficient . . . The public need must be considered."). Notably, "[b]ecause the public's needs and demands are gauged by many variables, specific evidentiary factors necessary to establish 'public convenience and necessity' may not, therefore be categorized or fixed." *Indiana Bell,* 433 N.E.2d at 1202 (quoting *V.I.P.,* 171 Ind. App. at 114-15, 355 N.E.2d at 445).

It is this invitation for laser focus on the word "necessity" that leads Joint Intervenors to propose a new standard for issuance of a CPCN which violates the precise teachings in *V.I.P.* and *Indiana Bell.* They posit at page 79 of their Joint Proposed Order an evidentiary burden that a petitioner demonstrate it is "unequivocally clear that [its] plan would be the least expensive." This notion of "minimum standards of proof or evidentiary criteria" was specifically rejected in *V.I.P.,* 171 Ind. App. at 114-15, 355 N.E.2d at 445. Instead, this Commission has historically explained that least cost planning does not require the selection of the absolute lowest cost alternative. *Indianapolis Power & Light Co.,* Cause No. 44339 (IURC 5/14/2014), p. 20, 2014 Ind. PUC Lexis 132, *58; *Southern Ind. Gas & Elec. Co.,* Cause No. 38738 (IURC 10/25/1989), p. 5,

1989 Ind. PUC LEXIS 378. Most importantly, "[i]f an Indiana utility reasonably considers and evaluates the statutorily required options for providing reliable, efficient, and economic service, then the utility should, in recognition that it bears the service obligations of IC 8-1-2-4, be given some discretion to exercise its reasonable judgment in selecting the option or options to implement which minimize the cost of providing such services." *PSI Energy, Inc.,* Cause No. 39175, p. 14 (IURC 5/13/1992), 1992 Ind. PUC LEXIS 126, *33-34, *quoted in IPL,* p. 20, *58-59. Moreover, Vectren South's plan selects reliable local generation instead of significant dependence on the wholesale market, which the Commission has found to be a preferable path that does not expose customers to market price risk. *IPL*, Cause No. 44974 (IURC 4/26/2017), p. 29.

C. Joint Intervenors Impugn the Integrity of Vectren South and its Expert Consultants.

Vectren South filed a Brief in Support of Proposed Order thoroughly addressing the issues raised by these parties and citing to the record evidence that eviscerates their arguments. In response, the opposing parties cite the evidence they filed and simply choose not to take on the rebuttal evidence that undercuts their theories.

Much of the assertions made by these parties comes at the expense of the integrity of Burns & McDonnell and Pace Global. The tone and vitriol permeating throughout the Joint Intervenors' Proposed Order results in a proposal so lacking in judicial temperament the Commission could never use it. The parties do not just challenge the work performed by these well-known firms—they accuse them of participating with Vectren South in a scheme to rig economic modeling, RFP evaluation and risk analysis to support a pre-ordained outcome. Given Vectren South did not perform any of the analysis itself, the parties must accuse Messrs. Lind and Vicinus of being the witting culprits in an illegitimate IRP process. Of course, this position also indirectly attacks the IURC Staff who found Vectren South's IRP to be credible and well-reasoned and "a substantial improvement" over prior IRPs "in all respects". These parties ignore the

unrebutted testimony of Messrs. Lind and Vicinus that (1) Vectren South never interfered in the modeling process and never instructed them to reach a certain outcome, (2) that the Vectren South IRP and risk modeling is consistent with the approaches taken by their other utility clients, and (3) that they fully support the legitimacy of the inputs used and the analysis performed. Notably, the most vociferous attacks are made by the Sierra Club/CAC, a party that submitted no modeling evidence after withdrawing the testimony of their expert. The only real substantive position regarding resource selection relates to the modeling assumptions for solar and wind resources which Vectren fully supported on rebuttal and in its initial Brief and which have been further addressed herein.

D. Conclusion on CCGT

As described in Vectren South's initial post-hearing filings, the undisputed evidence shows that: (1) it is timely to transition away from coal units that do not operate effectively in the MISO market and thereby avoid further investments in these units, (2) retiring baseload capacity creates the need for new reliable baseload capacity, (3) larger highly efficient gas units have economic advantages over smaller gas units, (4) an on-system resource avoids significant congestion costs and ongoing risk of grid investment costs, and (5) the proposed CCGT provides a 60% reduction to Vectren South's carbon output which puts it in-line with the leading goals of its peers. These facts, supported by the only comprehensive modeling evidence provided, as further supported on rebuttal and in response to a Commission Docket Entry, provide the basis for building the CCGT.

II. Summary Judgment

It is somewhat remarkable that we are still arguing Joint Intervenors' motion for partial summary judgment and motion to dismiss. The evidentiary record includes the Commission's draft analysis. Vectren South proved consistency with that "commission's analysis (or such part of the analysis as may then be developed, if any)." Section 5(b)(2)(A). Joint Intervenors had

every opportunity to present evidence as to consistency of Vectren South's CCGT with that analysis. They didn't. After the record closed, the Commission removed the label "Draft" and issued its 2018 Report of that analysis. Joint Intervenors can point to no differences between the draft report and the final report that would meaningfully bear on Vectren South's request. Vectren South otherwise relies on the arguments already made in Response to the Motion for Partial Summary Judgment.

III. Culley

Vectren South has been very open: the Preferred Portfolio is not the least cost option. The Preferred Portfolio preserves Culley Unit 3 as a coal-burning unit, but environmental retrofits are needed. The least cost option would include the CCGT, a smaller gas turbine, and increased renewables. The Preferred Portfolio is still less expensive than any alternative suggested by Joint Intervenors, but it is admittedly more expensive than the heavy gas portfolio and portfolios that replace Culley with renewables. Vectren South proposed a portfolio including Culley because it increases fuel diversity and it maintains Vectren South as a significant consumer of local Indiana coal.

It is thus with some level of shock that Vectren South reads a proposed order joined by its largest coal suppliers and the Indiana Coal Council which would deny the CPCN for environmental improvements needed to keep Culley Unit 3 in service beyond 2023. Make no mistake: without this CPCN, Culley Unit 3 will be retired. Vectren South stands by its Preferred Portfolio because of the fuel diversity and preservation of Indiana coal-mining jobs that the Culley Unit 3 retrofit would provide. But Vectren South understands the arguments favoring less costly alternatives, and given the Indiana coal industry is on record asking that Vectren South's most efficient coal plant be retired, the wisdom of retention beyond 2023 is certainly up for debate. What this highlights is the capacity provided by the CCGT as a cornerstone baseload unit supports reliability

whether all coal is retired in 2023 or Cully 3 is preserved for some period beyond 2030 and then retired.

IV. Industrial Group

The Industrial Group recommends the Commission impose several conditions on Vectren South if it grants the request for CPCNs. Several of these conditions are inappropriate, either because they conflict with the statutory structure, Commission precedent, or the factual evidence presented. However, the Company has considered approaches that will address certain of the Industrial Group's concerns. Vectren South has already committed to return 100% of off-system power sales in its next electric rate case and agreed to mechanisms in its ECA tracker as recommended by Industrial Group witness Gorman. Vectren South below suggests approaches to alleviate the Industrial Group's concerns pertaining to the contractual provisions of the engineering, procurement and construction ("EPC") agreement for construction of the CCGT and denial of deferred depreciation and treatment of PISCC. With respect to other conditions raised by the Industrial Group, Vectren South explains below why these conditions are inappropriate.

A. Industrial Group Proposals on EPC Contractual Protections

The Industrial Group urges the Commission to require Vectren South to execute an EPC contract for the CCGT that includes a fixed price and operating performance protections. Vectren South has indicated that it will solicit bids for EPC contracts that include fixed price and operating performance protections, but the Company seeks flexibility to balance the price of a fixed price and operating performance protections against potential savings that could accrue from alternative arrangements. Vectren South is preparing RFPs for EPC contracts and is willing to discuss responses with the Industrial Group to solicit its input on options presented in this process. This will ensure that Vectren South has the opportunity to hear from this very important customer group about its constituents' views on the trade-offs between price protection and operating

performance and total cost. Such information would need to be shared on a confidential basis, but Vectren South believes that can be addressed with existing non-disclosure agreements. Vectren South requests this proposal, rather than a predetermination that fixed costs and operating performance protections, regardless of cost, must be included in the EPC contract for the CCGT.

B. The Commission Could Limit, Rather Than Deny, The Period Over Which Vectren South Recovers Deferred Depreciation and PISCC.

The Commission has long authorized utilities facing significant capital investment to accrue PISCC and defer depreciation expense as a regulatory asset so that these expenses do not significantly impair the utilities finances between the period the unit is in service and new rates and charges recognizing such costs are approved. *Indianapolis Power & Light Co.*, Cause No. 44339, pp. 39-40 (IURC 5/14/2014); *PSI Energy, Inc.*, Cause No. 39482 (IURC 1/13/1993); *Indianapolis Power & Light Co.*, Cause No. 37837 (PSCI 8/6/1986); *Southern Ind. Gas and Elec. Co.*, Cause No. 37978 (PSCI 1/29/1986); *Northern Ind. Pub. Serv. Co.*, Cause No. 37819 (PSCI 11/27/1985); *Indiana & Mich. Elec. Co.*, Cause No. 37457 (PSCI 12/3/84); *Northern Ind. Pub. Serv. Co.*, Cause No. 37129 (PSCI 4/20/1983). Vectren South recognizes that the Indiana Legislature has adopted changes to Indiana's ratemaking structure that helps to reduce regulatory lag, however they do not eliminate the risk of regulatory lag that can occur on a project as significant as the proposed CCGT. Even with the new provisions in Ind. Code § 8-1-2-42.7, the timing to implement rates cannot be determined with certainty. The Commission has not always been able to resolve rate cases within the 300-day period. *See e.g. Indianapolis Power & Light Co.*, Cause No. 45029 (pending for 313 days); *Indiana Michigan Power Company*, Cause No. 44967 (pending for 303 days); *Northern Indiana Public Service Co.*, Cause No. 44688 (pending 336 days). Therefore, it would be challenging for Vectren South to correctly time a rate case to eliminate regulatory lag. Such a ruling could also adversely impact flexibility that might be sought

by a party in the procedural schedule due to the significant cost imposed on Vectren South of such delays.

Limiting the recovery to a particular period would ensure that Vectren South acted expeditiously to file a rate case. The Commission could limit Vectren South's ability to defer PISCC and depreciation in a regulatory asset for a one-year period post in-service to encourage the prompt initiation of a rate proceeding.

C. The Industrial Group's Proposal To Deny Preapproval of the CCGT Cost Violates Indiana Law.

The Industrial Group's proposal for the Commission to reject preapproval of the CCGT's cost estimate violates Ind. Code ch. 8-1-8.5. The Commission cannot grant a CPCN for the construction of a facility without making a finding as to the best estimate of construction. *See* Ind. Code § 8-1-8.5-5(b)(1) ("A certificate shall be granted only if the commission has (1) made a finding as to the best estimate of the construction, purchase, or lease costs based on the evidence of record.") This statute is structured such that the Commission, in granting a CPCN, must pass on the estimated cost and then provides assurances that costs within the level found reasonable by the Commission shall be recoverable in rates. Ind. Code § 8-1-8.5-6.5. The purpose of this legislation was to avoid the risk of a utility investing significant capital in a generation facility and face non-recovery as occurred with the Marble Hill nuclear plant. The Commission cannot, as the Industrial Group recommends, grant a CPCN without approving the costs.

D. The Industrial Group's Proposed ROE for the ECA Is Inconsistent With the Commission's Interpretation of Ind. Code ch. 8-1-8.4.

The Industrial Group urges the Commission to impose a return on equity ("ROE") for the ECA that differs from the overall cost of capital most recently approved by the Commission. The Commission has already construed Ind. Code ch. 8-1-8.4 in a manner that requires rejection of

the Industrial Group's proposal. The Commission rejected similar arguments raised against Duke Energy Indiana, Inc.'s proposal to utilize the most recently Commission approved ROE:

> Although Ind. Code § 8-1-8.4-7(c)(1) does not specify the rate that should be used for post-in-service carrying charges on the 80% of recoverable capital expenditures in the FMCA, Ind. Code § 8-1-8.4(c)(2) requires that post-in-service carrying costs for the 20% deferred amount be based on the overall cost of capital most recently approved by the commission. We find that recovery of the 80% portion of the approved federally mandated costs should be consistent with the recovery of the 20% deferred portion; hence, it is reasonable for Duke to use the overall cost of capital most recently approved by the Commission for the 80% portion.
>
> *Duke Energy Indiana, Inc.,* Cause No. 44367 (IURC 6/25/2014).

E. The Industrial Group Fails To Explain How the Commission Can Authorize the Culley 3 Investments Without Granting a Certificate Under Ind. Code ch. 8-1-8.4.

Vectren South sought approval of the Culley 3 investments as a federal mandate pursuant to Ind. Code ch. 8-1-8.4. Although it does not explain how, the Industrial Group contends the Commission can somehow approve the project and deny the rate recovery provided for by Ind. Code § 8-1-8.4-7(c). The Commission declined to issue a CPCN under Ind. Code ch. 8-1-8.4 to Indianapolis Power & Light Company, Inc. ("IPL") for refueling investments at Harding Street Units 5 & 6, instead granting it a certificate pursuant to Ind. Code ch. 8-1-8.5. *See Indianapolis Power & Light, Co.*, Cause No. 44339, pp. 39-40 (IURC 5/14/2014).[11] The facts in this case do not provide for relief, with respect to Culley 3, under Ind. Code ch. 8-1-8.5. That statute authorizes the Commission to grant a certificate for the "construction, purchase, or lease of any steam, water or other facility for the generation of electricity." The Culley 3 equipment Vectren South seeks to install does not generate electricity, rather this equipment treats wastewater discharged from Culley Unit 3. The Commission cannot adopt the approach followed in *Indianapolis Power & Light* in this proceeding.

[11] The Industrial Group also ignores that the Commission granted IPL the authority to defer costs associated with these costs to minimize the financial impacts. The Industrial Group elsewhere urges the Commission to deny such relief to Vectren South, at least with respect to the proposed CCGT.

Moreover, Vectren South is unwilling to invest $95 million in improvements necessary to continue operating Culley Unit 3 absent Commission determination that those costs will be recognized for ratemaking treatment. The Industrial Group's proposal, in essence, asks the Commission to deny the CPCN the Company has requested to make investments in Culley Unit 3. If a CPCN for Culley Unit 3 is denied, Vectren South could not raise capital necessary to make the investments necessary to continue operating Culley Unit 3.

F. The Approaches Recommended by the Industrial Group to Address Stranded Costs Cannot Be Imposed In This Proceeding.

The Industrial Group recommends approaches to address stranded costs that are premature to address in this proceeding. Vectren South cannot utilize a securitization bond for the recovery of stranded costs without legislative changes to the Indiana Code. The Commission lacks an evidentiary basis in this proceeding to disallow the recovery of stranded costs or impose a requirement that stranded costs be amortized with only a return calculated based on the cost of long-term debt. These issues can be addressed when they are properly raised in Vectren South's next base electric rate proceeding. At that time the level of reused assets at Brown will be known, a complete depreciation study will be available, and an actual proposal on how to address remaining plant balances will be made by Vectren South. There is not a complete record in this cause nor a request for relief.

V. Conclusion

For the reasons argued herein, the Commission should proceed to issue its final order in the form submitted by Vectren South.

Respectfully submitted,

Robert E. Heidorn (Atty No. 14264-49)
P. Jason Stephenson (Atty No. 21839-49)
Goldie T. Bockstruck (Atty No. 33914-82)
VECTREN CORPORATION
One Vectren Square
211 N.W. Riverside Drive
Evansville, Indiana 47708
Telephone: (812) 491-4203
Facsimile: (812) 491-4238
Email: rheidorn@vectren.com
jstephenson@vectren.com
gbockstruck@vectren.com

Nicholas K. Kile (Atty No. 15203-53)
Hillary J. Close, (Atty No. 25104-49)
Lauren M. Box (Atty No. 32521-49)
Barnes & Thornburg LLP
11 South Meridian Street
Indianapolis, Indiana 46204
Kile Telephone: (317) 231-7768
Close Telephone: (317) 231-7785
Box Telephone: (317) 231-7289
Facsimile: (317) 231-7433
Email: nicholas.kile@btlaw.com
hillary.close@btlaw.com
lauren.box@btlaw.com

Attorneys for Southern Indiana Gas and Electric Company d/b/a Vectren South Delivery of Indiana, Inc.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that Vectren South's Submission of Proposed Order was served via electronic transmission to:

Lorraine Hitz Bradley
Abby Gray
Randy Helmen
OFFICE OF UTILITY CONSUMER COUNSELOR
lhitzbradley@oucc.in.gov
rhelmen@oucc.in.gov
agray@oucc.in.gov
infomgt@oucc.in.gov

Robert E. Heidorn
Jason Stephenson
Vectren Corporation
rheidorn@vectren.com
jstephenson@vectren.com

Robert Hartley
Alan S. Brown
Darren A. Craig
Frost Brown Todd LLC
rhartley@fbtlaw.com
abrown@fbtlaw.com
dcraig@fbtlaw.com

Michael Kurtz
Boehm Kurtz & Lowry
mkurtz@bklawfirm.com

Jennifer A. Washburn
Margo Tucker
Citizens Action Coalition of Indiana, Inc.
mtucker@citact.org
jwashburn@citact.org

Nikki Shoultz
Kristina Kern Wheeler
Bose McKinney & Evans LLP
nshoultz@boselaw.com
kwheeler@boselaw.com

Todd A. Richardson
Tabitha L. Balzer
Lewis & Kappes, P.C.
trichardson@lewis-kappes.com
tbalzer@lewis-kappes.com

Jeffrey A. Earl
jearl@boselaw.com

Thom Cmar
Cass McCrae
Raghu Murthy
tcmar@earthjustice.org
cmccrae@earthjustice.org
rmurthy@earthjustice.org

this 22nd day of February, 2019.

Nicholas K. Kile

DMS 14014893v2

APPENDIX

Section 4.A.i. CPCN for CCGT and related relief; Introduction. J.I. Proposed Order, Pp. 51-55. A common mistake the Joint Intervenors urge the Commission to make is to claim that the matters listed in Ind. Code § 8-1-8.5-4 ("Section 4") are "elements" that Vectren South must prove and require "findings" the Commission must make; "our inability to make any required finding, is fatal." J.I. Proposed Order, p. 52. This is simply not true. The matters listed in Section 4 are factors that "the commission shall take into account," which is a far cry from being required elements of Vectren South's burden of proof. The only required elements and findings are set forth in Ind. Code §8-1-8.5-5 ("Section 5").

Having misstated the role of Section 4, Joint Intervenors move on to distort the requirements of Section 5. First, they travel back in time to the 1980s before the CPCN statute to suggest that the legislature shifted risk to customers, and therefore the Commission should not give a utility the "benefit of the doubt." Of course, the Commission carries out the legislature's directives, here embodied in the CPCN statute. In doing so, the Commission has found that as the provider of service the utility's proposals are reviewed to ensure they represent the exercise of reasonable discretion and meet the statutory requirements. The Commission has never determined that it was or was not giving a utility the benefit of the doubt.

In terms of the actual statutory language, Section 5(b)(1) does not require that the Commission "find Vectren South's construction estimate of $781 million to be a best estimate." J.I. Proposed Order, p. 54. Instead it requires the Commission to make "a finding as to the best estimate of construction, purchase, or lease costs based on the evidence of record." Other than whether the pipeline costs should be considered gas costs (as they are for IPL and Duke), or costs of the CCGT, no evidence was introduced questioning Vectren South's estimated costs of construction. No one offered responsive testimony to Witness Fischer; in fact, they did not cross-examine her. The "evidence of record" allows only one finding of the "best estimate of construction . . . costs": the estimate presented by Vecten South.

Moving on to Section 5(b)(2)(B), Joint Intervenors are wrong that the Commission is required to "approve Vectren' South's IRP." That is not what the statute says; instead it says the Commission must find the CCGT "is consistent with a utility specific proposal under section 3(e)(1) of this chapter and approved under subsection (d)." A "utility specific proposal" under Section 3(e)(1) is not the IRP; instead it is this particular proposal pending before the Commission to construct or purchase generation. Section 3(e)(1) allows Vectren South (a utility "may") to submit its current or updated IRP as support (which Vectren South has done), but it is not the IRP which is approved under Section 5(d). Nowhere does Section 5(d) mention the IRP let alone approval of a utility's IRP.

Joint Intervenors allege that Vectren South's petition should be denied because it has the highest monthly bills in the state, but they fail to recognize the cause or acknowledge that the delay result they seek does not reduce costs but instead increases them. Vectren South's rates are higher because Vectren South operates the smallest and some of the least efficient coal-fired generating plants in the State. Pet. Ex. 4-R, pp. 6-7. Vectren South's IRP demonstrated unequivocally that the path to efficiency is a large combined cycle gas turbine. What should be paired with that CCGT will depend upon the modeling assumptions and the importance of fuel diversity and support for the local coal industry. Moreover, the IRP demonstrated that this setting of facing more investments to retain coal, or any of the alternatives to transition from coal, entails significant cost. Any path excluding the CCGT means higher costs for customers. Vectren South has selected the most reliable path forward.

At page 53, Joint Intervenors misstate the reason for retiring Brown. Brown is not being retired because of age. It is being retired because environmental regulations require either that it be retired or that substantial capital investment be made. That capital investment is not warranted because Brown is inefficient and cannot ramp in response to MISO dispatch. Even the National Coal Council has presented a study that speaks to the damage being done to units due to ramping. National Coal Council study, Pet. Ex. 1-R, pp. 21-22. And Brown in particular has been damaged by the acidic mist created by its scrubbers which is highly corrosive. Why pour capital into a plant that will need significant investments just to operate when as a result of economic dispatch Vectren South will still have to purchase energy from the market to meet its customers' needs?

Section 4.A.ii. Ind. Code §8-1-8.5-2 (necessity for certification). J.I. Proposed Order, Pp. 55-56. Joint Intervenors again misstate the statute and the required finding when they assert "a utility must show that there is a necessity for the required project." J.I. Proposed Order, p. 55. The statute requires "public convenience *and* necessity." (emphasis added). This is a legal term of art, with a well-established meaning. It does not equate to absolute necessity. The word "public" modifies both "convenience" and "necessity," and Joint Intervenors' focus on the word "necessity" is inconsistent with the Court of Appeals interpretation of this phrase. *Indiana Bell Tel. Co. v. T.A.S.I.,* 433 N.E.2d 1195, 1201-03 (1982); *V.I.P. Limousine Serv., Inc. v. Herider-Sinders, Inc.,* 171 Ind. App. 109, 113-14, 355 N.E.2d 441, 444-46 (1976).

Having misstated the law, Joint Intervenors then resort to their second tactic in urging the Commission to deny the CPCN: ignoring Vectren South's evidence. In response to the OUCC's claim that Vectren South's load had declined. Witness Chapman testified that if just the 700 MW of baseload capacity from the CCGT is considered, Vectren South will have a reserve over planning reserve margin ("PRM") of just 51 MW by 2025 and only 5 MW by 2030. Beyond 2031, Vectren South will fail to meet the PRM. Pet. Ex. 1-R, p. 16. Joint Intervenors do not discuss this testimony. Then they claim that Vectren South did not evaluate smaller additions, alternative upgrades, replacement of fewer units, renewables, or conservation and load management in its IRP or the 2017 Update. This is demonstrably false. The IRP evaluated 36 different technologies which were screened with existing facilities and demand side alternatives. From this, 15 different portfolios were developed, one of which was business as usual and two of which were stakeholder portfolios. Pet. Ex. 5, Attachment MAR-1, pp. 78-82. During the course of rebuttal, Vectren South evaluated multiple different portfolios at the request of the OUCC and the Commission surrounding a refueling of Brown. Petitioner's Response to Sept. 19 Docket Entry.

Joint Intervenors conclude this section by implying that the CCGT is being proposed because of forecasted load growth. Vectren South must either retire or invest heavily in its coal-fired generation because of environmental regulation, and all of the modeling demonstrates that the lowest cost option includes a large CCGT. The baseload capacity of that CCGT is sized to meet Vectren South's forecasted demand. As explained above, when focusing on the baseload capacity of the new CCGT, Vectren South will be below its PRM within 12 years. Pet. Ex. 1-R, p. 16. All of Joint Intervenors' rhetoric about size is related to the additional 150 MW of peaking capacity that is provided if the unit is duct-fired. If the Commission is concerned that this additional peaking capacity is not needed, it can issue a CPCN for the 700 MW of baseload capacity and deny the CPCN to the extent it relates to the duct-firing. Under Section 5(d), the Commission can approve a utility specific proposal "in whole or in part." The fact is, the NPVs of a fired CCGT versus the unfired option are almost identical. This option is likewise largely ignored by Joint Intervenors.

Sec. 4.A.iii.a. Ind. Code §8-1-8.5-4(1) (current and potential arrangements with other electric utilities for interchange of power, pooling, purchase, or joint ownership.) J.I. Proposed Order, Pp. 56-57. Joint Intervenors repeat their misreading of the statute discussed earlier: the Section 4 issues are not elements that Vectren South must prove. They are instead factors to be considered.

Vectren South is accused of taking a "one-sided" view of market risk. This is simply false. All of the scenarios and risk analyses considered both the possibility of higher and lower market prices and higher and lower rates of load growth. Several market risks were tested in a wide range of potential futures in scenario optimization modeling. A fired F-class CCGT was selected to replace coal units in each scenario. Vectren South further tested 15 portfolios in a robust risk analysis. Portfolios with a fired F-class CCGT performed the best, including portfolio D which scored essentially the same as portfolio L in the updated risk scorecard. Further, Witness Vicinus testified that the analysis was conservative because Pace's analysis did not attach a price for capacity. Hence if capacity prices were lower than anticipated but higher than zero, Pace more than captured that uncertainty because it attributed no value to capacity sales. *See* Pet. Ex. 7-R, p. 6.

Perhaps more importantly, the real market risk issue is this: there is a substantial cost to be incurred to comply with impending environmental regulations, and regardless of what choice is made, that cost will produce a material rate increase. Depending upon the modeling assumptions that are made, different portfolios emerge as the low cost portfolio; but regardless of the assumptions, all of those low cost portfolios possess a common element: the large CCGT. Not one model run has been conducted by any party, let alone introduced, which disputes this conclusion. Given that fact, does anyone honestly believe that the cost of the decision to comply with these impending environmental regulations will get cheaper over time? The industry is retiring baseload generation in 2023. MISO is already forecasting its largest capacity deficit ever in 2023, and that forecast assumes that Vectren South's CCGT is built. Tr., pp. J-19 and 20. What's more, that forecast does *not* recognize that NIPSCO has announced plans to retire substantial amounts of its baseload capacity and is not at this time replacing that retired baseload capacity with dispatchable power. In what rational world does it become advisable to delay the solution to implement the lowest cost option and force the customers to bear the cost of inflation and having to purchase power & capacity at market prices at a time when it is a seller's market?

The discussion about an alleged "cap" on market capacity purchases is also inconsistent with the facts and reveals a lack of understanding of the modeling. The Strategist modeling was separate from the Aurora modeling. Strategist modeling limited capacity sales to limit the risk. Witness Vicinus testified under cross examination that the Aurora modeling did not limit capacity purchases and instead modeled the risk of capacity purchases. Tr., p. D-74. Hence it was appropriate to measure the risk of being exposed to capacity shortfalls in what has been a volatile market over time.

As to jointly owned generation, the Joint Intervenors ignore that until the other electric utility withdrew shortly before the case was filed, the "utility specific proposal" that Vectren South was likely going to file was for a larger CCGT that would have been jointly owned with another Indiana electric utility. Joint Intervenors' criticisms of the RFP fail to recognize that the RFP was designed, as it must be, to solicit proposals for the type of capacity that the IRP had indicated is needed. Whether it be through a PPA, or joint ownership, or an asset sale, Vectren South needs dispatchable baseload capacity. That is what was solicited. The unrebutted evidence is that the bids received were fairly evaluated and that ultimately the self-build was selected over these other options due to the congestion costs associated with the most viable alternative.

Sec. 4.A.iii.b.(1) Refurbishment. J.I. Proposed Order, Pp. 57-60. It is wrong to say that Vectren South did not consider refurbishment. The business as usual case in the IRP was built exclusively on refurbishment and it is much more costly than any of the portfolios that include a large CCGT, however.

The Joint Intervenors focus on alternative scrubber technologies. Their speculation about such technologies was thoroughly refuted by Witness Farber, who they did not cross-examine. Regarding the life of the existing dual-alkali scrubbers, the Burns and McDonnell assessment notes they have operated longer than the typical design life, that many elements are in precarious shape, that the absorbers are at some risk of collapse, and that based on continuing deterioration, they should be retired before they reach 40 years. Regarding scrubber options, the evidence demonstrates that ammonia technology adds significant safety and regulatory burdens, and can adversely impact control of certain emissions. Pet. Ex. 15-R. In any event, the record reflects no evidence that a different type of scrubber would be less costly, just the opposite in fact. Vectren South did not "fall back" to the IRP. Joint Intervenors simply ignore rebuttal and the facts.

Vectren South also considered refueling. In the IRP, Culley 3 was modeled as a refueled unit, because it was believed that this unit presented itself as the best candidate given unit condition and heat rate. Pet. Ex. 6-R, p. 6. No one asked during the IRP process for any other refueling scenarios to be modeled. During the case, both the OUCC and the Commission requested additional modeling with refueling multiple different units, with a combination of smaller gas generation and renewables. None of these modeling runs produced a result that was less costly than any of the portfolios that included the CCGT. Petitioner's Response to Sept. 19 Docket Entry.

Sec. 4.A.iii.b.(2). Conservation. J.I. Proposed Order, Pp. 61-65. Vectren South agrees that Demand Side Management is a critical part of resource planning. Vectren South has included ongoing DSM investments in its plan. Joint Intervenors debate a great number of finer points related to DSM, but the truth is, if all of the issues that the CAC and Sierra Club attempted to raise were combined and their magnitude doubled, it would not move the needle in this case. As such, and in the spirit of conservation, Vectren South will not dedicate similar time and space to responding, but will keep its exceptions to the minimum:

- Errors in the cost estimation for initial Block 1 compound with every subsequent block.
    - This is not an error. Pet. Ex. 8-R, p. 6, lines 17-19.
- It was inappropriate for Vectren South to use a planning program expenditure, when Vectren South's actual program expenditures come in at an average of 88% the planning expenditures forecast.
    - Disagree. Vectren South used the most available information at the time of its analysis in the IRP. Pet. Ex. 8-R, p. 4 lines 3-22 and page 5 lines 1-9.
- Vectren South mismatched the savings assumption to the cost assumption: Vectren South's 2016 savings were 1.3% of eligible sales so it should have assigned the 2016 cost assumption to 5.2 blocks of .25% of savings.
    - There are many approaches Vectren South could have taken. Pet. Ex. 8-R, p. 6 lines 17-19.
- Vectren South inappropriately applied the wrong NTG ratio to Block 1, which impacted all the other blocks.

- Disagree. Pet. Ex. 8-R, p. 6 lines 20-24 and page 7 lines 1-7. Additionally, rounding the NTG value up or down a couple of percentage points would not have had a material impact on the modeling result.

- Discussion on Vectren South's 4% compound annual growth rate.
  - Please see Harris Rebuttal work paper (CAGR tab). The 4% CAGR is within the reasonable range of Vectren South's experience.
- Discussion of cost analysis timeframe.
  - Vectren South first implemented programs in April 2010 and therefore used the first full year of budget and savings starting in 2011. Using the first full year of savings and costs (2nd year of programming) is therefore reasonable and appropriate.
- Overall Vectren South made serious, irreparable errors in its estimation of the cost of energy efficiency.
  - While Vectren South has addressed and clarified its methodology in Harris Direct and Rebuttal testimony, none of the issues identified by the CAC and associated Witnesses would make a material change or impact the relief Vectren South is seeking in this cause.
- Discussion on Dr. Stevie's use of EIA and data quality and Director's feedback.
  - See Pet. Ex. 8-R, p. 3 lines 17-24. Additionally, the Director provided feedback related to DSM modeling on page 45 of the Director's report by stating, "Vectren should be commended for making an interesting effort to project how bundle costs changed over time and as program penetration increased". He continued to note on page 68 of his report "At this early stage of DSM analysis, the Director takes no position on the efficacy of this approach compared to the alternatives except to suggest that the MPS may provide more useful information than was utilized by Vectren". J.I. Ex. 2, Attachment 6. Based on these comments, Vectren South made adjustments to its cost modeling approach to align with its MPS in this Cause, resulting in an overall cost reduction of 20%.
- Vectren South underestimates the potential to expand energy efficiency in its service territory.
  - CAC's points out that Vectren South's level of energy efficiency savings in its current 2018-2020 plan comes in at "only" .93% of eligible sales. Vectren South's 2018-2020 plan target resulted in a gross savings level of 1.06% of eligible sales.
- CAC points to DOE's lighting report to highlight the cost decreases in LED lighting over time especially between now and 2025, undercutting Vectren South's argument that future C/I lighting savings will not be cost effective.
  - Please reference Harris transcript discussion on commercial lighting. While Vectren South agrees that efficient lighting prices will continue to decline and this technology will become cost effective for the consumer; Vectren South disagrees that this technology will continue a cost effective DSM program measure over the long term. Tr., p. G-43.

Sec. 4.A.iii.b.(3). Load Management. J.I. Proposed Order, Pp. 65-66. The entirety of this section ignores the record. Vectren South Witness Bailey, who actually knows Vectren South's customers and speaks with them frequently, testified regarding the appetite of the customer base for an interruptible rate. This is not a type of service they want, regardless of the terms of the tariff. Vectren South has no large steel mills in its territory who comprise a large percentage of its total load. Pet. Ex. 19-R, pp. 5-9. When there are facts that are inconsistent with the story the Joint Intervenors seek to tell, they ignore them.

Sec. 4.A.iii.b.(4). Renewable Resources. Pp. 66-68. The sum and substance of Joint Intervenors' position with respect to renewables is that Vectren South did not include the prices from the NREL ATB Survey. This is a national survey based upon actual projects, and Vectren South agrees it is a reliable source for projecting the cost of renewables. The problem is Joint Intervenors ignore the two adjustments that must be made to this survey as described by Witness Lind on rebuttal: the addition of construction finance costs (which are excluded from the ATB Survey) and the conversion of solar prices to alternating current (which are stated in direct current in the ATB Survey). When these two adjustments are made, Joint Intervenors' arguments about renewables are reduced to kibitzing. The prices that Vectren South modeled for wind and solar were very comparable to the NREL ATB Survey. Pet. Ex. 6-R, pp. 25-32.

In addition, there is a tremendous inconsistency within the confines of the Joint Intervenors' Proposed Order concerning the cost of renewables. In this section of the proposed order, they ask for Vectren South to be criticized for forecasting too high on wind and solar. But in another Section 4.A.iii(e)(2), Vectren South's modeling of one of multiple Brown refueling options is criticized for filling the capacity gap with 200 MW of solar because solar is more expensive than gas.[1] Joint Intervenors cannot have it both ways.

Sec. 4.A.iii.c. Ind. Code §8-1-8.5-5(b)(1) (best estimate of construction). J.I. Proposed Order, Pp. 68-70. As noted previously, they present a tortured reading of the statute. It does not require a cost estimate that is beyond reproach. Instead it requires the commission "to make a finding as to the best estimate of construction, purchase or lease costs based on the evidence of record." The only evidence of record concerning the cost of construction is that which was presented by Witness Fischer. She explained the work done to refine the estimate to get to the +/-10% cost estimate. Her testimony was not rebutted and she was not cross-examined. She has presented the "best estimate of . . . costs" that is in the record. Absent evidence of a problem with the estimate, Joint Intervenors raise a concern as to the precision of the switchyard cost estimate. This represents approximately $11 million of the $781 million project cost. Questioning whether 1.4% of the project cost is accurate does not raise a material issue regarding the overall estimate.

Sec. 4.A.iii.d. Ind. Code §8-1-8.5-5(b)(2)(A) (consistency with the Commission's statewide analysis). J.I. Proposed Order, Pp. 70-72. In support of their claim that the CCGT is not consistent with the Commission's statewide analysis, the Joint Intervenors rest on a partial quote from Appendix 12 of that Analysis. This is the definition of terms section of the Statewide Analysis, and Joint Intervenors are quoting from the definition of "Resource Diversity." That they must argue the definitions appendix is creating statewide policy reveals how thin is their reed; however, they neglect to inform that they are not quoting the entire definition of "Resource Diversity." They do not include this language in their quote: "The value of resource diversity can change dramatically due to changes in the capital cost of different resources, the profitability of different resources in the dispatch, the capital costs associated with alternative resources, and the dynamics of the pricing and projected prices of different fuels." While they elsewhere provide selected out-of-context quotes, they skip past what the Analysis says on Page 1: "It is important to note that the Statewide Analysis is not to be construed as a statewide energy plan and does not set policy. In addition, the Statewide Analysis does not determine or predetermine individual electric utility resource decisions or Commission findings and conclusions in any pending or future

[1] Notably, it is only one scenario that included renewables. Vectren South also included additional modeling that filled the capacity gap on the Brown refueling option with a small combustion turbine. So Joint Intervenors' internally inconsistent complaint about relying on renewables rather than gas is a red herring.

proceeding before the Commission." There is absolutely nothing in Vectren South's case that is inconsistent with the Statewide Analysis; in fact, Vectren South's proposal is entirely consistent with pages 36-37 of the Statewide Analysis. Again, if diversity is a concern, that really calls into question retention of Culley 3. The CCGT is designed to be the long term dispatchable resource – renewables can be added post-Culley 3 or instead of Culley 3. In either scenario, the CCGT addresses PRM requirements and reliability.

Sec. 4.A.iii.e Ind. Code §8-1-8.5-5(b)(2)(B) (consistency with Vectren South's IRP). J.I. Proposed Order, P. 72. The Joint Intervenors again misstate the law when they declare that the Commission "approves" an electric utility's IRP in connection with approval of a "utility specific proposal." Section 5(b)(1)(B) requires a finding that "the construction, purchase, or lease is consistent with a utility specific proposal submitted under section 3(e)(1) of this chapter and approved under subsection (d)." Section 3(e) authorizes the "utility specific proposal" and states that a utility "may submit to the commission a current or updated integrated resource plan as part of a utility specific proposal." Then Section 4(d) provides that "[t]he commission shall consider and approve, in whole or in part, or disapprove a utility specific proposal or an amendment thereto jointly with an application for a certificate under this chapter." The Commission does not approve the IRP – it approves the "proposal." Nowhere do any of these sections mention approval of the IRP – indeed, even the submission of the IRP in connection with a utility specific proposal is voluntary ("a utility . . . ***may*** submit to the commission"). Ind. Code §8-1-8.5-3(e)(1) (emphasis added). Certainly the IRP may be relevant to a utility specific proposal, but this is not a wholesale invitation to start approving or rejecting utility IRPs.

Sec. 4.Aiii.e.(1). J.I. Proposed Order, P. 72. Vectren South has already responded to the false allegations about a "one-sided" view of market purchase risk, DSM, and Vectren South's consideration of alternatives. Two points in this section merit special attention. There is no evidence to support Joint Intervenors' baseless and offensive claim that the process was "designed to make sure the company's desired outcome was achieved." J.I. Proposed Order, P. 72. Such rhetoric permeates the entire J.I. Proposed Order and reflects a tone so lacking in judicial temperament that it could never form the basis of an actual order from this Commission.

The Preferred Portfolio emerged from a robust IRP. Thirty-six different technologies (representing an assortment of renewables, storage, natural gas, and coal) were modeled and screened on equal footing using a levelized cost of energy comparison and then a Strategist portfolio optimization. In addition, two requested stakeholder portfolios were modeled. At no point did the OUCC request that its now-favored gas conversion of Brown be modeled. In fact, the OUCC's comments submitted during the IRP were minimal. https://www.in.gov/iurc/files/2016%20IRPs%20OUCC%20Initial%20Comments%20Submitted%20on%203.13.17.pdf. No one suggested at the time that they thought the IRP was "designed to make sure the company's desired outcome was achieved." Nor would such a finding be consistent with the Director's Report, which noted:

> Indianapolis Power and Light Company (IPL), Northern Indiana Public Service Company (NIPSCO), and Southern Indiana Gas and Electric Company (Vectren) have all made significant improvements in all aspects of their IRPs. Indiana utilities are increasingly using state-of-the-art methods and are making continued enhancements to their planning processes. *The utilities have all made a concerted effort to broaden stakeholder participation. All of the utilities have offered unprecedented transparency and candor*. It is gratifying that the top management of each

> utility, top staff and subject matter experts have all been made available to facilitate the collegial stakeholder process.

CAC/SC Exhibit JI-2, Attachment 6, p. 6 (emphasis added). For the Joint Intervenors to accuse now that the process was rigged is offensive and contrary to fact. Depending on the modeling assumptions, different portfolios emerged – however the one constant in every low cost option was the inclusion of a large CCGT. This is why no one should be surprised that result is not going to change with more modeling.

Sec. 4.A.iii.e.(2). J.I. Proposed Order, Pp. 73-75. It is ironic that this section of their proposed order begins with the observation that the parties offer "diametrically opposed views on the modeling." As noted, the modeling in the record unequivocally supports only one conclusion: the CCGT is a part of Vectren South's lowest cost strategy, regardless of what resources are paired with it – coal, wind, solar, more gas, DSM. That fact is not in dispute. One would expect if there were reasonable modeling that could produce a different conclusion, one of these Joint Intervenors would have offered it. They tried. CAC/SC originally prefiled modeling results, but they suddenly withdrew them prior to the hearing. The Coal Parties offered modeling that initially showed a lower cost strategy, but when their witness corrected only one of the errors in his modeling, the Coal Parties' chosen portfolio cost more than Vectren South's Preferred Portfolio (and that gap grows if Culley 3 is not retrofitted). So the Joint Intervenors were left with second guessing Vectren South's robust modeling – the same modeling that the Director concluded: "Despite some concerns, Vectren prepared credible and well-reasoned scenarios." *Id.,* p. 41. And there is no evidence that any of their criticisms, even if accepted, would change the overall modeling result.

This is why the Joint Intervenors' citation to *Indianapolis Power & Light Co.,* Cause No. 44242, is so out of bounds. There is no basis either in the record or outside the record to find "grave infirmities that render [the modeling] unusable." And the Joint Intervenors' contention that Mr. Games testified the request for information for CCGT equipment pricing was sent out before the IRP is untrue. Mr. Games testified he was confused and didn't know when the request for information had been sent. Tr., p. E-90, 93.

Joint Intervenors are misstating the record when they ask for a finding that "the modeling did not include the costs for the necessary gas pipeline . . . [or] the $20 million in annual costs that will be required to run the CCGT's pipeline [for firm gas capacity]." J.I. Proposed Order, p. 73. The transcript pages they cite do not support such a finding – they merely support that the pipeline was not included in the construction cost estimate for the CCGT and the annual charge for firm capacity was not a construction cost. Tr., E-9, 11, 19-21. These costs absolutely were modeled as gas costs. *See* Pet. Ex. 22-C (45052 CONFIDENTIAL Matthew Lind Workpaper 2x1 F-Class Fired (GE705) 781 CapEx.xlsx, CCGT Costs Worksheet, Row 9 and Detailed Annual Results Tab, Row 10 (showing the latter includes the former, which includes the pipeline capacity)). This was fully explained in rebuttal.

The citation to *DTE Electric Co.,* Case No. U-18419 (Mich. PSC 4/27/2018), p. 66, 2018 Mich. PSC. LEXIS 137, *113, is out of context and therefore inapt. The complete quote is:

> The Commission agrees, however, with the Staff and other parties that DTE Electric's modeling approaches and interactions with the parties warrant attention. In particular, the Commission is concerned that constraints placed on the models by DTE Electric, such as limiting renewable energy to large blocks or pre-determining amounts of EE, and

> the utility's selection of optimal modeling runs limit transparency and the veracity of results. Such approaches, particularly if not well-documented and explained, can give the impression that modeling results were steered or forced into a pre-determined result. The Commission expects that an effective IRP should produce results, under certain scenarios, that show the preferred course of action is not actually the best option. This is how we know the IRP is testing the robustness of the preferred course of action by examining how it performs under various assumptions, even if those assumptions may seem unrealistic today.
>
> The Commission expects DTE Electric to be more transparent and forthcoming with parties in its 2019 IRP, and the company would be well-served to prioritize such stakeholder engagement before it files its application with the Commission. The Commission also underscores the importance of risk analysis in the IRP, especially given the dynamic nature of the energy industry and emerging technologies. Accordingly, in preparation of the upcoming IRPs, the Commission intends to explore with the Staff to further examine risk assessment methodologies and best practices from other jurisdictions.

DTE, pp. 66-67, *113-14. In contrast, Vectren South worked closely with stakeholders and was praised in the Director's report for doing so. Far from being not "well-documented and explained," Vectren South "prepared credible and well-reasoned scenarios." J.I. Ex. 2, Attachment 6, p. 41. Vectren South included two stakeholder portfolios in its 2016 IRP and modeled additional scenarios at the request of the OUCC this matter. Indiana and Vectren South are already demonstrating the "best practices" the Michigan Commission wishes to follow.

Every point raised on page 74 of Joint Intervenors' Proposed Order ignores the rebuttal to each of these points. As to the $200 million issue raised by OUCC Witness Boerger, Witness Lind explained on rebuttal that Boerger was comparing apples to oranges. Pet. Ex. 6-R, pp. 3-6. What is truly "adding insult to injury" is the declaration that "the cost estimates in the modeling were understated to make the CCGT option appear more favorable." J.I. Proposed Order, p. 75. This is a baseless slur. All of the modeling done at the request of the OUCC, the Commission, and in response to the Coal Parties' failed modeling added this $200 million while other options were not similarly adjusted to reflect more precise estimates. Even with this more precise estimate that added costs not added to other options, the CCGT still emerged as part of the low cost solution, regardless of what resources are paired with it. Notably, this is perhaps the place where the Joint Intervenors' Proposed Order reaches its apex of internal inconsistency. Whereas earlier, the Joint Intervenors tout the low cost of renewables, here Vectren South is criticized in the modeling that it performed at the OUCC's request on the grounds that one of the scenarios included 200 MW of solar, which would not be preferred, given the cost of solar compared to natural gas. What Joint Intervenors fail to point out is that there was a modeling run that paired a refueled Brown with a smaller gas unit. It was still more expensive than any run that had the large CCGT. Vectren South did consider refueling and smaller combinations. Vectren South also considered keeping Culley Unit 2. Vectren South's RFP did not prohibit bids using the Brown site, and Vectren South's partnership option would have used the Brown site.

Sec. 4.A.iii.e.(3). J.I. Proposed Order, Pp 75-77. In this section, Joint Intervenors argue for a standard that failure to implement recommendations from the Director on an IRP "mandates disapproval." J.I. Proposed Order, p. 77. Adoption of such a standard would elevate the Director's

Report to a level not contemplated in the enabling legislation and would supplant the Director for the full Commission. In any event, Joint Intervenors' review of Vectren South's Response to the Director's Report is inconsistent with the Director's review of the import of that dialogue:

> Vectren implemented numerous changes in the 2016 IRP and the Director has some understanding of the effort put forth by the Vectren staff involved. The Director believes that all involved in the IRP stakeholder advisory process including Vectren staff, Commission staff, and other stakeholders, are in a continual learning process. This is a strength of the IRP process and helps to facilitate the exploration of potential areas of improvement as we all learn.

J.I. Ex. 2, Attachment 6, p. 47.

Sec. 4.A.iii.f.(1). Ind. Code §8-1-8.5-5(b)(3) (public convenience and necessity) – Bill Impact. J.I. Proposed Order, Pp. 77-79. In its Brief in Support of its proposed order, Vectren South pointed out there is no inexpensive option available to address the impending environmental regulations. Whatever option is chosen is going to have a bill impact – if we are to discuss bill impacts we should be discussing comparative bill impacts. Is there an option that produces a lower cost to customers than the CCGT? Joint Intervenors have advocated for a Brown refueling option as an alternative. This option still includes a significant capital investment. This is lower than the CCGT, but the higher capital is more than made up by lower net variable operations costs. The calculations, which are drawn directly from evidence of record, are shown in the Appendix to Vectren South's Brief in Support of Proposed Order. Significantly, Joint Intervenors do not dispute these calculations or the conclusions.

Instead, they offer their own calculation – not a calculation to show differential effects on the revenue requirement from competing options, but just a calculation to show what everyone has known all along: there will be a rate increase in 2024 to recover the costs of whatever option is chosen. This is the reality that occurs to reliably replace the retiring coal units. They haven't shown, nor could they show, that there is an option that produces a lesser overall impact on the revenue requirement than the CCGT.

Having reached the conclusion that a significant rate increase will be required regardless of what path is pursued, they then offer their new proposed standard for public convenience and necessity: that it must be "unequivocally clear that Vectren South's plan would be the least expensive for ratepayers." J.I. Proposed Order, p. 79. This language has not been adopted by the Indiana legislature. Never before has this been the standard, nor should it be. First, Vectren South would posit that when the low cost run in every scenario includes the CCGT, Vectren South has demonstrated it is "unequivocally clear" the CCGT is the least expensive for ratepayers. More importantly, Joint Intervenors urge that a path of delay be pursued, even though they have no evidence of a less expensive option and no reasonable prospects of one emerging. Given that this Commission's standard has actually been the opposite of Joint Intervenors' proposal, which is to defer to the expertise and discretion of management that has the responsibility to provide service, the better standard would be those who urge delay rather than action should be prepared to demonstrate with "unequivocal clarity" that delay will produce a lower cost result. The ones urging that this Commission reject what all the modeling says is the low cost option will not be the ones who ultimately bear public responsibility if the future holds as the modeling predicts.

As to other costs, the recoverability of those will or has been reviewed in other proceedings. If the CCGT is the best alternative to provide reliable service once coal is retired, then it should be approved on its merits. Other costs are separately evaluated.

Sec. 4.A.iii.f.(2). Other economic impacts. J.I. Proposed Order, Pp. 79-80. The coal parties contested the economic impact analysis. However, they never rebutted evidence that Indiana coal production is not decreasing due to the ability to export coal to other markets. And, their concern over jobs did not lead them to support the project needed to retain Culley 3 which represents close to half of Vectren South's annual coal burn. Further, in opposing the CCGT at Brown and suggesting possible future alternatives such as wind that would likely lead to off system resources, the parties would eliminate the local construction investments and the long-term tax and job retention in Posey County.

Sec. 4.A.iii.f.(3). Other environmental concerns. J.I. Proposed Order, Pp. 80-81. All of this rhetoric about carbon emissions ignores that Vectren South's preferred portfolio will reduce Vectren South's carbon footprint by 60%. The only evidence Joint Intervenors point to is the Life Cycle Analysis created by Ms. Medine. That analysis models GHG based on replacing both Brown units in the future with wind. In that scenario, half of Vectren South's baseload capacity would be replaced with a resource that has a 10% capacity factor. From a planning perspective, that approach to reliability is not reasonable. Moreover, she never factored in the CCGT capacity allowing Culley 3 to be retired in the future and being replaced with low carbon resources. See Pet. Ex. 5-R, pp. 20-22. Gas is widely recognized as a key foundational resource that provides needed capacity and allows non-dispatchable resources to be added to the portfolio in a complimentary manner.

Sec. 4.A.iii.f.(4). Risk. J.I. Proposed Order, Pp. 81-83. Joint Intervenors' contention that a "more flexible approach" is "more likely to mitigate the rate impact on customers" is not supported by the record. There is no evidence that anything but the large CCGT is the cheapest choice for ratepayers, nor is there any evidence that delay is likely to produce anything but higher costs for ratepayers. What they really mean is delay a decision and they are willing to make customers pay for that delay. This is the special interest side of the Joint Intervenors speaking.

Joint Intervenors continue to allege a "one-sided view" of risk, without acknowledging that the risk modeling did not assign a price to capacity purchase or sales. Pet. Ex. 7-R, p. 6. They complained about the equal weighting of objectives, without acknowledging that Mr. Vicinus testified it is customary when using a balanced scorecard not to assign a specific weight to any one objective. Pet. Ex. 7-R, p. 5. Furthermore, at no point have any of the Joint Intervenors suggested or offered any alternative weighting; they just criticize the equal weighting. Tr., pp. D-41 and 42.

Sec. 4.a.iii.g.(1).Competitively bid engineering, procurement, or construction contracts. J.I. Proposed Order, Pp. 83-87. Throughout this case, Joint Intervenors have changed their tune regarding what they think Section 5(e)(1)(A) requires. At one point, they were of the view that Vectren South needed competitive bids for the actual facility to be constructed. Apparently having seen Vectren South's Proposed Order explaining that (A) and (B) are describing two different points in the process, they have now abandoned that approach. Now their claim is that Vectren South, while soliciting competitive bids to support its cost estimates for construction and procurement, fails because it did not solicit competitive bids for engineering.

The first and most basic problem with their argument is that Diane Fischer testified unequivocally it was commercially impracticable to solicit competitive bids for the engineering piece in order to

prepare an estimate. Pet. Ex. 10, p. 37. No contrary evidence was offered. No party disputed that it was commercially impracticable. What's more, the other parties did not cross examine her.

Having no evidence, they ask the Commission to simply ignore the sworn testimony. They ignore that this project will be bid out as an EPC contract. So no, we cannot bid just the engineering piece of that contract to arrive at an estimate. No engineering firm is going to hand over that sort of confidential and proprietary information to another engineering firm or Vectren South – they would like to be able to bid the final project, and having provided a slice of what their ultimate bid will be would put them at a competitive disadvantage. This is why no one disputed Ms. Fischer's testimony.

Sec. 4.A.iii.g.(3). Reliability Considerations. J.I. Proposed Order, Pp. 86-87. Vectren South is moving from having nearly 100% of its generation fleet concentrated in coal to 70% of its fleet natural gas. That is far greater diversity than the current fleet. Substantial evidence was presented concerning the reliability of natural gas as a fuel. Greater diversity would drive a higher cost for customers. Reliability would also suffer.

Sec. 4.A.iii.g.(4).(A). (B) The RFP. J.I. Proposed Order, Pp. 87-89. There were only two limitations on the RFP, and both of them relate to the very purpose for the RFP. It is important to realize what is the purpose for soliciting proposals as a part of a CPCN request. It is not to do resource planning. The resource planning is conducted in the IRP. The CPCN is then to add generation that the IRP indicates is needed. Therefore the only sensible interpretation of the requirement to solicit proposals is that proposals should be solicited for the type of capacity that is needed so that the electric utility can know that its proposed generation is not more costly to customers than what could be procured elsewhere. Vectren South is retiring over 700 MW of baseload capacity, and it needs dispatchable baseload capacity to replace it. That is why the RFP solicited 600 MW of dispatchable capacity. Further, it needs capacity that will count against the MISO load clearing requirement ("LCR"). Regardless of Joint Intervenors' speculation about the likelihood of a LCR issue, the reality is that it would be imprudent to run such a risk. Vectren South should not enter some arrangement with a respondent for long-term capacity and still be subject to the potential for a LCR penalty.

Sec. 4.A.iii.g.(4).C. Fuel Sources. J.I. Proposed Order, P. 89. The RFP was not limited to natural gas. It was limited to "dispatchable" capacity. It was so limited because what Vectren South needs is dispatchable capacity. It is retiring over 700 MW of dispatchable baseload generation, and having responses that would leave Vectren South with essentially no dispatchable power is not a reliable course for Vectren South or its customers.

Sec. 4.A.iii.g.(4)(D). Self Build. J.I. Proposed Order, P. 89. It is clear now that had Vectren South submitted a bid into its own RFP, then it would have been criticized for doing that. The bottom line is that there was complete separation between the team working on the RFP and the team working on the self-build. The evidence was uncontroverted that there was no inappropriate sharing of information. The Burns McDonnell evaluation was fair and selected the least cost option.

Sec. 4.A.iii.g.(4)(E). PPAs. J.I. Proposed Order, P. 90. The RFP stated a preference for asset purchases but solicited PPAs and the bidders offered both. On an LCOE basis the PPAs offered by the bidding developers were very similar to the asset purchase bids. There is no evidence that PPAs provided less expensive capacity. Given this capacity would be the long-term backbone of reliability, and the history of developers having financial problems which was discussed in depth in testimony citing multiple bankruptcies and failed projects, Vectren South was forthright in the

RFP that an ownership interest in actual plants versus PPAs was preferred. This was a reasonable preference given the retirement of the coal fleet and need to replace that capacity that has served customers for decades.

Sec. 4B. CPCN for Culley compliance projects. J.I. Proposed Order, P. 92. As further explained in its supporting reply brief, the preferred portfolio is not the least expensive: the least expensive would retire Culley Unit 3. Vectren South has worked hard to preserve jobs for the local coal industry to put forth a plan that would preserve this plant. The affected mines and the Indiana Coal Council have filed a proposed order that denies the CPCN for the compliance project needed to retain Culley Unit 3. Vectren South is surprised and disappointed that it has attempted to preserve mining jobs and the Coal Parties have opted to side with the Sierra Club. Vectren South stands by its Preferred Portfolio but could certainly understand if the Commission rejects the CPCN for compliance projects to preserve Culley Unit 3.