

ORIGINAL

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. FOR ISSUANCE OF A)
CERTIFICATE OF PUBLIC CONVENIENCE AND)
NECESSITY FOR FEDERALLY MANDATED)
REQUIREMENTS; APPROVAL OF CLEAN COAL)
TECHNOLOGY, ENERGY AND COMPLIANCE)
PROJECTS; FOR ONGOING REVIEW; FOR)
APPROVAL OF FINANCING INCENTIVES)
INCLUDING: (1) THE RECORDING OF A)
REGULATORY ASSET FOR COSTS INCURRED)
DURING TESTING AND OPERATION OF SUCH)
PROJECTS, INCLUDING CAPITAL, OPERATING,)
MAINTENANCE AND DEPRECIATION, TAX AND)
FINANCING COSTS, UNTIL SUCH COSTS ARE)
REFLECTED IN RATES AND (2) ALTERNATIVELY,)
THE TIMELY RECOVERY OF COSTS INCURRED)
DURING CONSTRUCTION AND OPERATION OF)
SUCH PROJECTS THROUGH A PERIODIC RATE)
ADJUSTMENT MECHANISM; ALL UNDER IND.)
CODE §§ 8-1-2-23, 8-1-8.4-1 *ET SEQ.*, 8-1-8.7-1 *ET SEQ.*,)
AND 8-1-8.8-1 *ET SEQ.*)

CAUSE NO. 44446

APPROVED:

JAN 28 2015

ORDER OF THE COMMISSION

Presiding Officers:
David E. Ziegner, Commissioner
Jeffery A. Earl, Administrative Law Judge

On January 17, 2014, Southern Indiana Gas and Electric Company d/b/a Vectren Energy Delivery of Indiana, Inc. (“Vectren”) filed its Verified Petition in this Cause. On March 14, 2014, Vectren filed the direct testimony and exhibits of the following witnesses:

- Carl L. Chapman, President and Chief Executive Officer at Vectren;
- Wayne D. Games, Vice President of Power Supply at Vectren, including confidential testimony, exhibits, and workpapers filed on April 10, 2014;
- Angila M. Retherford, Vice President, Environmental Affairs and Corporate Sustainability at Vectren;
- Diane M. Fischer, Air Quality Control Services Area Leader in the Energy Division at Black & Veatch Corporation, including confidential testimony and exhibits filed on April 10, 2014;
- J. Cas Swiz, Director, Regulatory Implementation and Analysis at Vectren Utility Holdings, Inc.; and

- Scott E. Alberton, Vice President, Regulatory Affairs and Gas Supply at Vectren Utility Holdings, Inc.

The Citizens Action Coalition of Indiana, Inc. (“CAC”) and Valley Watch, Inc. (collectively “Joint Intervenors”) intervened in this Cause.

On May 28, 2014, the Indiana Office of Utility Consumer Counselor (“OUCC”) filed the direct testimony and exhibits of the following witnesses:

- Susann M. Brown, Utility Analyst in the OUCC’s Resource Planning and Communications Division, including confidential testimony and exhibits;
- Cynthia M. Armstrong, Senior Utility Analyst in the OUCC’s Electric Division, including confidential testimony and exhibits and confidential workpapers filed on May 30, 2014;
- Edward T. Rutter, Utility Analyst in the OUCC’s Resource Planning and Communications Division, including confidential testimony and exhibits;
- Ronald L. Keen, Senior Utility Analyst in the OUCC’s Resource Planning and Communications Division, including confidential testimony and exhibits; and
- Wes R. Blakley, Senior Utility Analyst in the OUCC’s Electric Division.

On May 28, 2014, Joint Intervenors filed the direct testimony and exhibits of Jeremy I. Fisher, Ph.D., Principal Associate with Synapse Energy Economics, Inc. (“Synapse”), including confidential testimony and exhibits.

On June 20, 2014, Vectren filed rebuttal testimony and exhibits from Mr. Chapman, Mr. Games, Ms. Fischer, Ms. Retherford, Mr. Swiz, and the following additional witnesses:

- J. Neil Copeland, Director of the Management Consulting Division at Black & Veatch; and
- Matthew E. Lind, Senior Project Manager in the Business & Technology Services Global Practice at Burns & McDonnell Engineering Company, including corrected rebuttal testimony and exhibits filed on July 18, 2014.

On July 16, 2014, the Commission issued a docket entry authorizing the parties to submit supplemental evidence limited to issues raised for the first time in Vectren’s rebuttal evidence. On July 17, 2014, the OUCC filed amended direct testimony and exhibits from Ms. Armstrong. On July 18, 2014, Vectren filed corrected rebuttal testimony and exhibits from Mr. Lind. Also on July 18, 2014, Joint Intervenors filed supplemental direct testimony and exhibits from Mr. Fisher, including confidential testimony and exhibits. On July 25, Vectren filed supplemental rebuttal testimony and exhibits from Mr. Games, Mr. Copeland, and Mr. Lind.

The Commission held an evidentiary hearing in this Cause at 9:30 a.m. on July 30, 2014, in Hearing Room 222, 101 West Washington Street, Indianapolis, Indiana. Vectren, the OUCC, and Joint Intervenors appeared at and participated in the hearing. No members of the general public appeared at or sought to participate in the hearing.

Based on the applicable law and the evidence presented, the Commission finds:

1. Notice and Jurisdiction. Notices of the hearings in this Cause were given and published as required by law. Vectren is a “public utility” as that term is defined in Ind. Code § 8-1-

2-1(a), an eligible business as defined in Ind. Code § 8-1-8.8-6, and an “energy utility” within the meaning of Ind. Code § 8-1-8.4-3. Under Ind. Code ch. 8-1-8.8, the Commission has authority to determine whether proposed clean coal technology (“CCT”) is reasonable and necessary and eligible for financial incentives. Under Ind. Code ch. 8-1-8.4, the Commission has authority to issue a certificate of public convenience and necessity (“CPCN”) for federally mandated projects. Therefore, the Commission has jurisdiction over Vectren and the subject matter of this proceeding.

2. Vectren’s Characteristics. Vectren is a public utility corporation organized and existing under the laws of the State of Indiana with its principal office at One Vectren Square, Evansville, Indiana. Vectren provides electric utility service to approximately 140,000 residential, commercial, industrial, and municipal customers in Vanderburgh, Posey, Gibson, Pike, Warrick, Dubois and Spencer Counties in southwestern Indiana. Vectren owns, operates, manages, and controls electric generating, transmission, and distribution plant, property, and equipment, which are used and useful in the production, transmission, delivery, and furnishing of electric utility service.

3. Relief Requested. Vectren requests approval of clean energy projects and issuance of a CPCN to construct, install, and use CCT to allow Vectren to comply with the United States Environmental Protection Agency (“EPA”) Mercury and Air Toxics Standards (“MATS”) rule, the Notice of Violation (“NOV”) received for Brown, and a Clean Air Act (“CAA”) §114 Information Request received for Culley related to a 2003 federal consent decree.

Specifically, Vectren requests approval to construct, install, and operate the following projects on the Brown Units: an organo-sulfide injection system to inject an organo-sulfide solution into each scrubber at Brown units 1 and 2 to address mercury (“Hg”) re-emission, which takes place in the scrubbers; a soda ash injection system for sulfur trioxide (“SO₃”) mitigation at Brown units 1 and 2; and a hydrogen bromide injection system on Brown unit 2 to aid the conversion of elementary mercury to oxidized form (collectively, the “Brown Air Projects”).

Vectren requests approval to construct, install and operate the following projects on the Culley Units: an organo-sulfide injection system to inject an organo-sulfide solution into each scrubber at the combined scrubber at Culley units 2 and 3 to address Hg re-emission, which takes place in the scrubbers; and a hydrated lime injection system for SO₃ mitigation at Culley unit 3 (collectively, the “Culley Air Projects”). The sorbent injection systems will remove the incidental SO₃ from the selective catalytic reduction technology (“SCRs”) constructed to remove nitrous oxides.

Vectren requests approval for recovery of its portion of the costs for Alcoa to install an organo-sulfide system at Warrick unit 4 (“Warrick Project”).

In addition, Vectren requests approval to construct, install, and operate equipment necessary to control wastewater discharges from the plants at both Brown and Culley as required to comply with National Pollution Discharge Elimination System (“NPDES”) Hg limitations. At Brown, Vectren will install two treatment systems using the same chemical precipitation process and a second, smaller system that will treat ash pond discharge water, prior to entering a new, membrane lined settling pond (“Brown Water Projects”). At Culley, Vectren will install a chemical precipitation treatment system that adds coagulants and flocculants to the scrubber waste water discharge to bind the mercury to solid particles and enhance particle settling in an on-site pond

("Culley Water Project") to meet NPDES Hg limits. In this Order, we refer to the Brown and Culley Air Projects, the Warrick Project, and the Brown and Culley Water Projects, collectively, as the "Mandated Projects".

Vectren also requests approval of certain financial incentives and approval to defer project costs, including depreciation and operations and maintenance ("O&M") expenses related to the Mandated Projects ("Mandated Projects Costs"), for a period up to December 31, 2020, by which time Vectren will propose a recovery mechanism for such costs. In the alternative and to the extent deferral of the Mandated Projects Costs is not permitted, Vectren requests authority to recover the reasonably incurred O&M expenses, including consumables, and depreciation expenses relating to the Mandated Projects through a rate adjustment mechanism. Finally, Vectren requests ongoing review of the Mandated Projects and specific accounting treatment of under/over recovery of the Mandated Projects Costs.

4. Evidence Presented.

A. Vectren's Direct Evidence. Mr. Chapman provided an overview of Vectren's incremental environmental compliance projects to comply with federal emission requirements and explained the basis for the relief requested in this proceeding. Existing pollution control equipment has provided a means of complying with stringent air emissions regulations. Mr. Chapman testified that the next wave of regulations require Vectren to spend an incremental \$90 million to achieve compliance and ensure the continued availability of existing resources and avoid the risk of inadequate capacity in 2016 and beyond. He described Vectren's request to defer cost recovery to minimize rate impacts on customers and time recovery to the date when recovery of deferred coal costs will cease. Mr. Chapman also testified that the prior investment in pollution control equipment will be fully depreciated in 9-13 years. Enabling Brown, Culley, and Warrick to continue to operate over the next ten years will allow these investments to more fully depreciate and reduce potential stranded costs.

Mr. Games described Vectren's existing generation facilities. He explained Vectren used a thorough demonstration and evaluation to develop a plan to comply with the MATS rule and other federal mandates that offered the best economic option for customers while preserving the beneficial re-use of fly ash. This evaluation consisted of demonstrating various compliance methodologies at the plants, evaluating the impact of different forms of fuel, and engaging Black & Veatch to identify and assist in demonstrating additional alternatives. He indicated that the estimated cost of the Mandated Projects was between \$75 to \$95 million. Mr. Games testified that Vectren engaged Black & Veatch to evaluate the costs and benefits of investing in Brown and Culley and continuing to operate them over a ten year period versus replacing the units with the best alternative generation sources. The study employed three scenarios to establish a reasonable range of future possibilities. He stated that the study supported investment in Brown and Culley.

Mr. Games also described the competitive bidding process that Vectren will use to engage an engineering, procurement, and construction management ("EPCM") agreement for the Mandated Projects. He described the analysis Alcoa performed to evaluate methods to bring Warrick unit 4 into compliance with the MATS rule and the estimated cost of that project. Mr. Games opined that the Mandated Projects are in the public interest.

Ms. Retherford provided an overview of existing and pending federal and state environmental regulatory requirements, including the MATS rule and NPDES permitting changes, that are either now impacting Vectren's generating units or are expected impact them in the future. She described the compliance strategy Vectren developed to comply with the MATS rule and explained the extension of the MATS rule's April 2015 compliance deadline and the extension Vectren obtained for Brown unit 2 to determine whether a hydrogen bromide injection system is necessary.

Ms. Retherford described Vectren's efforts toward resolving an outstanding NOV received for Brown related to small incremental increases in incidental SO₃ emissions caused by operation of the SCRs. She noted that while the Vectren disputed the alleged violation, it ultimately reached a settlement in principle to resolve the allegations that requires SO₃ mitigation systems at Culley and Brown.

Ms. Retherford also discussed proposed CAA § 111(d) New Source Performance Standards regulating greenhouse gas legislation. She stated that Vectren sought to model the impacts of this legislation by including carbon costs in its economic modeling. Ms. Retherford explained the new NPDES permitting limits for Hg and Vectren's strategy for complying with these limits.

Mr. Albertson described the rate adjustment mechanism Vectren requested in this Cause as an alternative to its preferred method of deferring the Mandated Projects Costs.

Mr. Swiz described Vectren's request to create a regulatory asset for the costs incurred during and after testing, construction, and operation of environmental compliance control investments—in lieu of a periodic rate adjustment mechanism—to avoid an immediate impact on customer rates. Mr. Swiz explained Vectren is requesting approval to defer Mandated Projects Costs until such costs are included for recovery in Vectren's rates. He also described the statutory basis for the relief sought by Vectren. In addition, Mr. Swiz discussed the accounting and revenue requirement calculation related to Vectren's alternative proposal described by Mr. Albertson for recovery of the Mandated Projects Costs.

Ms. Fischer explained the analysis prepared by Black & Veatch to assist Vectren in identifying the best options for complying with the MATS rule and NOV. She described the pollution control alternatives evaluated by Black & Veatch and the demonstrations and cost estimation that was conducted to select the best option for Vectren to comply with the MATS rule and NOV. Black & Veatch worked with Vectren to oversee the demonstration conducted at Brown and Culley to evaluate how various control technologies reduced emissions of SO₃ and Hg. Ms. Fischer explained the recommendations that Black & Veatch made to Vectren. She also described the cost estimates prepared by Black & Veatch, including the methodologies used to prepare the cost estimates and the resulting estimates. Ms. Fischer also testified that the selected technologies were not in use in 1990.

B. OUCC's Direct Evidence. Ms. Brown discussed the state and federal regulatory issues, including federal mandates related to the proposed projects and testified that Vectren should perform a more thorough evaluation of Culley and Brown to determine whether MATS compliance can be achieved through less expensive means. Ms. Brown discussed some alternatives for modeling that she believes Vectren should have considered.

Mr. Rutter discussed the reasonableness of Vectren's cost estimate of the Mandated Projects and whether the Mandated Projects are consistent with Vectren's 2011 Integrated Resource Plan ("IRP"). Mr. Rutter expressed concern that Vectren's 10-year analysis was not fully representative of the range and nature of risks given the uncertainty regarding environmental rules. He also expressed concern that the actual costs of the Mandated Projects could rise given the conceptual nature of Vectren's cost estimates. Mr. Rutter testified that the Commission should withhold approval of the Mandated Projects and require Vectren to re-evaluate the Mandated Projects to determine if the base load generation represented by the Culley and Brown units is required and balances lowest cost with lowest risk.

Mr. Keen described the importance of a best estimate as a condition for a utility receiving a CPCN and expressed the OUCC's concern regarding how Vectren's accuracy ranges could influence Vectren's modeling of CPCN alternatives. Mr. Keen testified that Vectren should re-run its modeling scenarios to include the inputs suggested by the OUCC and demonstrate that the potential for increased costs up to the high end accuracy range has been incorporated adequately into the modeling scenarios.

Mr. Blakely testified that neither of Vectren's cost recovery proposals would benefit customers. He explained that deferring all costs for future recovery is worse for customers because it will significantly increase the cost and shifts costs to future customers. He stated that Vectren had not calculated the estimated costs through 2020, calling into question its contention that the deferral will benefit ratepayers. Mr. Blakely estimated the cost of the deferral and concluded that approach would cost customer an additional \$80 to \$90 million. Mr. Blakely also criticized Vectren's proposal to recover costs under the Federal Mandate Statute. He recommended that Vectren should only be authorized to defer the depreciation expense or that Vectren should simply absorb the costs until it files a new rate case.

Ms. Armstrong testified that after reviewing additional information provided by Vectren, the OUCC no longer opposes Commission approval of the SO₃ mitigation system project costs and recommends Vectren recover the full costs of the SO₃ system. Ms. Armstrong also testified that the OUCC does not oppose approval of the organo-sulfide system for Culley. But Ms. Armstrong criticized Vectren South's data request responses to the OUCC, contending they were either inaccurate or incomplete. She said that the OUCC now believes that the projects proposed under Vectren's MATS/NOV compliance plan are appropriate and the OUCC supports approval of all projects if the Commission determines that the modeling assumptions and analyses show that the MATS/NOV Compliance Plan is reasonable.

C. Joint Intervenors' Direct Evidence. Dr. Fisher evaluated the economic modeling performed by Black & Veatch for Vectren in support of Vectren's CPCN request. Dr. Fisher testified that Vectren limited the scope of its economic analysis in ways that skewed the outcome and committed several errors in the economic analysis. Dr. Fisher stated that Vectren failed to present a 20-year analysis on the economics of Brown units 1 & 2 and Culley unit 3 and the reasons he believes a 20-year analysis is more appropriate. Dr. Fisher criticized Black & Veatch's model for excluding wholesale capacity and energy sales. He contended the results suggested flaws in the modeling, particularly when comparing the results of replacing Brown units 1 and 2 individually and together. Dr. Fisher compared the economic results of Brown 1 and 2 and Culley 3's operation to a merchant generation facility and concluded ratepayers had been losing money on their operation in prior years. Dr. Fisher recommended that the Commission deny a

CPCN for the investments in Brown units 1 and 2 and Culley units 2 and 3 and require Vectren to issue an all-source RFP for replacement capacity and/or energy resources that seek both self-build as well as contract options to meet requirements.

D. Vectren's Rebuttal Evidence. Mr. Chapman disagreed that Vectren should retire 85% of its generation facilities. He testified that capacity constraints, market conditions, and economic growth would create tremendous risk in the Joint Intervenor's proposal. Mr. Chapman also explained that Vectren's proposal affords flexibility to respond to changing market conditions and allows stranded costs to be reduced. He stated that while Vectren's approach does not require Brown and Culley to be operated over the next 20 years, investing in new gas plants would foreclose this flexibility. He testified that Vectren's approach was less risky.

Mr. Games testified that a 20-year analysis skews the economic modeling of investing in Brown and Cully by focusing on risks that occur later in the 20-year model when forecasts are less reliable. He said that investment in the Mandatory Projects affords maximum flexibility to respond to these risks. He expressed concern about the significant differences in costs to ratepayers under various assumptions, demonstrating the impact that changes in the forecast would have on the decision.

Mr. Games said that replacement generation could not be constructed until late 2018, and in the meantime, customers would be exposed to market and reliability risks in a market that is capacity constrained. Mr. Games explained that a 20-year analysis could force premature retirement of existing units as a result of market conditions that are not expected to occur until the future. Mr. Games said that the fuel projections in Vectren's model were accurate. Mr. Games testified that Dr. Fisher's contention that Brown units 1 and 2 and Culley unit 3 lost money fails to consider the value of the capacity and disregarded how units were bid into the MISO market. Mr. Games explained that an RFP was not necessary to evaluate the investment Vectren was proposing. He acknowledged that no economic analysis of the investment in Warrick had been conducted because of the very small investment required to maintain 150 MW of capacity.

Ms. Retherford explained that the original SO₃ demonstration project conducted by Vectren at Culley unit 3 was not intended to meet a specified compliance limit, address a specific compliance concern, or operate indefinitely. Vectren subsequently ceased operation due to problems at the demonstration project. She explained that this system would not now be sufficient to redress the NOV. Ms. Retherford testified that Vectren should not reasonably have concluded that an SO₃ system was required at the time it installed its SCRs or that such a system would have been cheaper a decade ago. Ms. Retherford stated that Vectren's economic modeling reasonably accounted for future, known environmental-compliance risks. She explained new proposed clean power plan regulations and concluded that they made the high carbon scenarios modeled by Vectren unlikely.

Mr. Swiz addressed Mr. Blakely's opposition to Vectren's proposal to defer accounting treatment of the Mandated Projects. Mr. Swiz conducted a rate-impact analysis and noted that the annual impact to the average residential customer under Vectren's deferral proposal was roughly the same as recovery under the Federal Mandate Statute. Mr. Swiz disagreed with Mr. Blakely that requiring a base rate case was a better option, explaining that a full case would result in an immediate impact to customers specific to this capital investment and capturing other items that have changed since Vectren's last base rate case. Mr. Swiz stated that the Commission has supported the deferred accounting proposal proposed by Vectren in past cases.

Mr. Swiz also disagreed with Mr. Blakely's recommendation that the Commission should only authorize Vectren to defer the depreciation expense portion of the revenue requirement, observing that this only captures one aspect of the incremental impacts of the capital investment made in these projects. He testified that eliminating deferral of the financing costs creates a substantial bottom line impact to Vectren. Mr. Swiz clarified that the Mandatory Projects will not create incremental stranded costs by enabling Vectren and customers to continue to benefit from the prior used and useful investments in these units and that the net book value of the units would be over \$100 million less at the end of ten years.

Mr. Swiz also evaluated Dr. Fisher's recommendation that 85% of Vectren's baseload units be retired immediately and replaced. Mr. Swiz estimated that this would result in bill impacts of approximately \$170 per residential customer per year more than what those same customers are paying today.

Mr. Copeland explained that while his initial engagement letter contemplated a 20-year analysis, his approach changed early in the modeling process when Vectren indicated that the stranded costs would be reduced over the next ten-year period. Mr. Copeland believed that under these circumstances, a ten-year model was appropriate. Mr. Copeland also acknowledged that the differences between the alternatives to serve Vectren's customers are fairly small, but that decisions about future generations should not be made solely on these small differences. He explained that production cost modeling does not remove the need for management judgment or to ignore significant risk of capacity shortages. Mr. Copeland also responded to contentions that he had originally conducted a 20-year analysis, noting that complete data for a 20-year analysis was never provided to him by Vectren and therefore no such analysis was conducted.

Mr. Copeland also disputed Dr. Fisher's contentions of analytical errors in Black & Veatch's model, explaining that the sum of the replacement of each Brown unit individually would not be comparable to the cost of replacing the two units together because of economies of scale resulting from a larger unit. Mr. Copeland evaluated the impact of capacity sales and off-system sales to respond to Dr. Fisher's criticisms.

Ms. Fischer responded to Ms. Armstrong's initial contentions that Vectren should test whether calcium bromide alone would enable Vectren's generation fleet to comply with the mercury emissions limitations in the MATS rule. Ms. Fischer explained that the test results Ms. Armstrong relied on did not suggest that calcium bromide alone would allow Hg control because organo-sulfide remained in the SCRs to help capture Hg during those demonstration periods. She explained that the benefit of calcium bromide, converting elemental mercury to oxidized mercury, was not needed at Brown because it already has high oxidation.

Mr. Lind explained that the purpose of production cost modeling is to simulate the expected amount of electricity produced by a power generation unit and the expected cost incurred for the unit to produce that electricity. He explained that input forecasts must make predictions about the demand for electricity to evaluate the potential demand for the unit to be dispatched and the price that will be paid for the electricity. He noted that while every effort is made to ensure that forecasts are reasonable, the assumptions are subject to debate and have often proven to be wrong. He noted that the directionality of the assumptions can have a significant impact on the outcome. He emphasized the importance of using these models as a tool because they cannot supplement the need for discretion and interpretation in the evaluation of their results. Mr. Lind explained the 20-

year Strategist study Burns and McDonnell performed based on Vectren's 2014 IRP in response to OUCC requests for such a model. This model was designed to evaluate the most economic time to retire Brown units 1 and 2 and Culley unit 3. Mr. Lind explained the various scenarios and sensitivities that were evaluated. His model supported continued operation of the units at least over the next ten years in most scenarios and even longer under the majority of scenarios.

E. Joint Intervenors' Supplemental Evidence. Dr. Fisher reiterated his contention that a 10-year analysis period was too short and inconsistent with reasonable utility planning. Using some of Vectren's data, Dr. Fisher conducted a 20-year analysis modeled off of Mr. Copeland's 10-analysis, resulting in a net liability over the 20-year period for Brown and Culley. Dr. Fisher demonstrated how these values change when depreciation, the recovery schedule, and capital spending are altered.

Dr. Fisher also evaluated Mr. Lind's Strategist modeling. Dr. Fisher testified that Mr. Lind's model was not executed properly and did not simulate Vectren's interactions with the MISO market appropriately. Dr. Fisher alleged that Mr. Lind's modeling contained errors and inconsistencies and failed to include fixed costs. In comparing Mr. Copeland and Mr. Lind's models, Dr. Fisher testified that they were inconsistent in structure, purpose, geographical scope, and time scale, in addition to differences in constraints and commodity prices.

Finally, Dr. Fisher agreed with Vectren that the value of Brown and Culley's capacity should factor into whether they were economic. He attempted to address this by calculating a proxy capacity value from the MISO and PJM markets and concluded the capacity value, based on his proxy values, would be inadequate to render the plants economic. Dr. Fisher also acknowledged that his original 20-year model erroneously calculated coal costs.

F. Vectren's Supplemental Rebuttal Evidence. Mr. Games testified that a 10-year analysis period was reasonable and the right period to use. Mr. Games explained that Culley unit 2 was not evaluated because Vectren was not seeking relief for work done on that unit and it was not part of Vectren's settlement with the EPA. Finally, Mr. Games addressed capacity and market issues. He testified that there are MISO-related issues with retiring Vectren's baseload units, including cost and reliability issues. There are substantial concerns and risks with managing price volatility by bilaterally purchasing forward power and capacity for several years into the future. Regarding differences in the Black & Veatch and Burns & McDonnell runs, Mr. Games indicated that some differences are inherent in the simulation dispatch models, but that the assumptions for the IRP were developed independently from this proceeding and were not changed to favor Brown or Culley.

Mr. Copeland responded to the Dr. Fisher's capacity pricing and economic modeling comments. Mr. Copeland testified that developing capacity prices for Brown and Culley from PJM and MISO capacity prices was not representative of their value. He indicated that even under Dr. Fisher's own revised analysis the benefit of retiring the units was relatively small, and that in his opinion a 10-year analysis period was reasonable due to uncertainty beyond that period.

Mr. Lind responded to Dr. Fisher's criticism of Vectren's modeling. He testified that a 10-year economic model was reasonable and addressed differences between the Black & Veatch and Burns & McDonnell modeling tools. He responded to criticisms of Burns & McDonnell's modeling, noting that the model was not designed to favor Culley or Brown. He explained how the Burns &

McDonnell model accounted for market capacity, noted that Strategist could have selected any of the replacement options as early as 2015, clarified the source of his coal and gas prices and described how market energy prices were derived for purposes of the model. Mr. Lind explained that his model allowed unrestricted market energy purchases. He indicated that the time lag between when assumptions were developed will impact models, but that the differences in the models should reinforce the notion that a similar result or answer was derived even after using different means and considering an array of alternatives.

5. Commission Discussion and Findings.

A. CCT, Clean Energy Projects, and Federally Mandated Compliance Projects. As an initial matter, we must determine: (1) whether the Culley Air Projects, Brown Air Projects and Warrick Project constitute CCT under Ind. Code § 8-1-8.8-3 and “clean energy projects” under Ind. Code § 8-1-8.8-2 and (2) whether all of the Mandated Projects are “federally mandated compliance projects” under Ind. Code § 8-1-8.4-2.

1. CCT and Clean Energy Projects. Ind. Code § 8-1-8.8-3 defines CCT as:

[A] technology (including pre-combustion treatment of coal):

(1) that is used in a new or existing energy generating facility and directly or indirectly reduces airborne emissions of sulfur, mercury, or nitrogen oxides or other regulated air emissions associated with the combustion or use of coal; and

(2) that either:

(A) was not in general commercial use at the same or greater scale in new or existing facilities in the United States at the time of enactment of the federal Clean Air Act Amendments of 1990 (P.L. 101-549); or

(B) has been selected by the United States Department of Energy for funding under its Innovative Clean Coal Technology program and is finally approved for such funding on or after the date of enactment of the federal Clean Air Act Amendments of 1990 (P.L. 101-549).

Ms. Retherford testified that the Brown and Culley Air Projects, and Warrick Project will all reduce emissions of pollutants including Hg, SO₃, and PM, which are regulated air emissions. Ms. Fischer also testified that neither the Culley Air Projects, Brown Air Projects, nor the Warrick Project were in general commercial use at the same or greater scale in new or existing facilities in the United States as of January 1, 1989. No party disputed this testimony. Based on the evidence presented, we find that the Brown and Culley Air Projects and Warrick Project all constitute CCT as defined in Ind. Code § 8-1-8.8-3.

The term “clean energy projects” includes “[p]rojects at . . . generating facilities that employ the use of clean coal technology and that produce energy . . . primarily from coal . . . from the geological formation known as the Illinois Basin.” Ind. Code § 8-1-8.8-2(1)(A). We have already concluded that the Culley Air Projects, Brown Air Projects, and Warrick Project constitute clean coal technology. These Projects will be constructed at existing generating facilities that produce energy from coal sourced from the geological formation known as the Illinois Basin. Therefore based on the evidence presented, we find that the Culley Air Projects, Brown Air Projects and Warrick Project constitute clean energy projects.

2. **Federally Mandated Compliance Projects.** Ind. Code § 8-1-8.4-2 defines a federally mandated compliance project as:

- (a) [a] project that is:
 - (1) undertaken by an energy utility; and
 - (2) related to the direct or indirect compliance by the energy utility with one
- (1) or more federally mandated requirements.

Ind. Code § 8-1-8.4-5 defines a federally mandated requirement as:

[A] requirement that the [C]ommission determines is imposed on an energy utility by the federal government in connection with any of the following:

- (1) The federal Clean Air Act (42 U.S.C. 7401 et seq.).
- (2) The federal Water Pollution Control Act (33 U.S.C. 1251 et. seq.).
- (7) Any other law, order, or regulation administered or issued by the United States Environmental Protection Agency, the United States Department of Transportation, the Federal Energy Regulatory Commission, or the United States Department of Energy.

Vectren is an “energy utility” as defined by Ind. Code § 8-1-8.4-3. Ms. Retherford testified that the MATS rule is a federally mandated requirement because the EPA promulgated and imposed the rule under the CAA, with which Vectren must comply. Ms. Retherford further testified that the Brown and Culley Air Projects and Warrick Project are being undertaken by Vectren to comply with the MATS rule. Ms. Fischer testified that the Brown and Culley Air Projects and Warrick Project are necessary to reduce emissions of mercury and PM to levels required by the MATS rule.

Vectren also has received an NOV from the EPA alleging that Vectren failed to acquire Prevention of Significant Deterioration (“PSD”) construction permits prior to construction of the SCRs to address small incremental increases in incidental SO₃ emissions caused by operation of the SCRs, and a CAA §114 Information Request related to the 2003 Culley Consent Decree. Vectren and the EPA have reached a settlement in principle to resolve the outstanding compliance allegations brought by the EPA in the NOV and the CAA §114 Information Request that requires certain of the Culley and Brown Air Projects.

Ms. Retherford testified that the NPDES permits are federally mandated requirements because NPDES permits are required under the federal Water Pollution Control Act with which Vectren must comply. She said that although the Indiana Department of Environmental Management (“IDEM”) has primacy for the state NPDES program, the EPA monitors the state program and drafts NPDES permits to ensure that the program and permits issued by the state conform to federal Water Pollution Control Act requirements. Ms. Retherford testified that the Brown and Culley Water Projects are necessary to reduce Hg levels in wastewater discharge to the new limits required by Vectren’s NPDES permit renewals, as both plants will be required to demonstrate compliance at the main river outfalls. In summary, Ms. Retherford said that the Culley and Brown Water Projects are qualifying projects because they are undertaken by Vectren, an energy utility, and are related to its direct or indirect compliance with federally mandated requirements.

Based on the evidence presented, we find that the Mandated Projects constitute federally mandated “compliance projects” under Ind. Code § 8-1-8.4-2 because they will be undertaken by an energy utility and are related to the direct or indirect compliance by Vectren with either the federal MATS rule, federal CAA, or the Water Pollution Control Act – all of which are federally mandated requirements.

B. Ratemaking and Accounting Treatment. Vectren requests the creation of a regulatory asset beginning January 1, 2014, to reflect the deferral of the Mandated Projects Costs, including: (1) allowance for funds used during construction using the FERC Uniform System of Accounts requirements; (2) post-in-service carrying costs using Vectren’s overall cost of capital approved in its last base rate case, Cause No. 43839, on a pretax basis; (3) project-related costs including operating, testing, maintenance, and depreciation; and (4) property taxes associated with the Mandated Projects. Under Ind. Code § 8-1-8.8-11(a), the Commission shall encourage clean energy projects through financial incentives, if the projects are found to be reasonable and necessary.

Alternatively, Vectren requests to recover the Mandated Projects Costs under Ind. Code ch. 8-1-8.4. Under this proposal, Vectren would recover 80% of eligible revenue requirement amounts through a Federal Mandated Compliance Adjustment (“FMCA”), including financing costs on projects under construction, post-in-service construction costs, deferred O&M, projected incremental depreciation, and property tax expenses. The remaining 20% of the Mandated Projects Costs would be deferred for subsequent recovery in a base rate case.

Mr. Chapman testified that deferral of the Mandated Projects Costs is not as favorable to Vectren from a cash flow perspective but enables Vectren customers to avoid rate increases associated with the Mandated Projects for up to six years. Mr. Chapman said that this approach is part of Vectren’s strategy to minimize rate impacts on customers while continuing to maintain reliable service. Mr. Chapman explained that Vectren is targeting commencement of the amortized recovery of the Mandated Projects Costs in 2020, after the amortization of over \$40 million of coal costs ceases.

Mr. Blakely opposed Vectren’s proposal to defer all of the cost of the Mandated Projects. Mr. Blakely testified that this approach will significantly increase the cost and rate impacts of the Mandated Projects when they are eventually reflected in rates. Mr. Blakely estimated that the incremental cost of deferring the Mandated Projects Costs for recovery beginning in 2020 could cost Vectren’s customers an additional \$80 to \$90 million. He proposed that if deferred accounting is approved, then the deferrals should be limited to just the depreciation expense portion of revenue requirements. Mr. Blakely also opposed Vectren’s proposal to recover 80% of the costs through the FMCA and defer 20% of the costs under the Federal Mandate Statute. He recommended instead that Vectren operate its business under current rates and seek to improve its efficiency in order to delay or avoid requests for further rate increases.

Mr. Swiz responded to Mr. Blakely by preparing a bill impact projection that compared Vectren’s proposal to defer all of the Mandated Projects Costs to recovery of those costs in accordance with the Federal Mandate Statute (allowing 80% of the costs to be recovered through a rate adjustment mechanism and the remaining 20% to be deferred for subsequent recovery). This analysis showed that customers pay essentially the same amount in rates in 2019 under both approaches, except that under the deferral approach, customers continue to pay the amount for an

additional ten years. Mr. Swiz further testified that a full rate case, as recommended by Mr. Blakely, would result in an immediate impact to customers specific to this capital investment and other items that have changed since Vectren's last base rate case. Mr. Swiz stated that Vectren's proposal to delay recovery of the Mandated Projects Costs makes the most sense for current customers. He also explained that Mr. Blakely's recommendation that the Commission should only authorize Vectren to defer the depreciation expense portion of the revenue requirement only captures one aspect of the incremental impacts of the capital investment made in the Mandated Projects. Mr. Swiz said that Vectren would be adversely impacted if Vectren's ratemaking and accounting proposals were rejected.

Under Ind. Code § 8-1-8.8-11(a), the Commission is required to create financial incentives for clean energy projects if the projects are found to be reasonable and necessary. Vectren proposes two alternative financial incentives—deferral of 100% of the Mandated Projects Costs until such costs are included in rates in approximately 2020 or recovery of 80% of the costs through an FMCA and deferral of 20% of the costs under Ind. Code ch. 8-1-8.4 (“80/20 option”). Mr. Swiz testified that customers would pay essentially the same amount in rates under both alternatives except that under the 100%-deferral method, customers would continue to pay the amount for an additional ten years.

Based on the evidence presented, we find that Vectren's proposal to defer the Mandated Projects Costs is reasonable. Mr. Chapman testified that Vectren proposed this alternative to minimize the immediate rate impact on customers. Vectren is currently recovering fuel costs that had been previously deferred and will continue doing so until 2020. Mr. Chapman said that the proposal in this case to defer the Mandated Projects Costs until 2020 is timed to allow recovery of the previously deferred fuel costs to end before recovery of the deferred Mandated-Projects-Related costs. Based on our finding above that the Mandated Projects constitute federally mandated compliance projects under Ind. Code ch. 8-1-8.4, Vectren could have sought immediate recovery of 80% of the costs through the federally mandated costs adjustment in Ind. Code § 8-1-8.4-7(c). Vectren's rates for residential electric service are currently the highest in the state among investor-owned electric utilities. Deferring the recovery of the Mandated Project Costs reasonably exchanges an immediate rate impact on customers for a carrying charge. In addition, deferring recovery of the Mandated Projects Costs until after recovery of the previously deferred fuel costs is complete will temper the rate impact at the time recovery of the Mandated Project Costs begins.

Based on the evidence presented, we approve Vectren's proposal to create a regulatory asset to reflect the deferral of the Mandated Projects Costs, including: (1) allowance for funds used during construction using the FERC Uniform System of Accounts requirements; (2) post-in-service carrying costs using Vectren's overall cost of capital approved in its last base rate case, Cause No. 43839, on a pretax basis; (3) project-related costs including operating, testing, maintenance, and depreciation; and (4) property taxes associated with the Mandated Projects. Vectren has not specified the particular method or terms by which it will ultimately recover the deferred Mandated Projects Costs in rates; therefore, before beginning recovery of the deferred costs, it must file a case setting forth the specific recovery mechanism and terms or seek recovery of the deferred costs in its next base rates case.

C. Deferred Recovery under Ind. Code ch. 8-1-8.8. Under Ind. Code § 8-1-8.8-11(a)(5), the Commission can authorize other financial incentives that it considers appropriate for clean energy projects only if the projects are found to be reasonable and necessary.

Vectren submitted evidence showing that failure to comply with the federally mandated requirements would require Vectren to retire Brown, Culley, and Warrick, which make up approximately 85% of its baseload generation, in 2015. The Mandated Projects will enable the continued operation of the facilities for at least the next ten years and continued service to Vectren's customers.

Vectren evaluated several alternative compliance technologies that would allow the Brown, Culley, and Warrick units to comply with pollution limits established in the MATS rule, NOV, and NPDES. Mr. Games explained the initial demonstration projects Vectren conducted at Brown and Culley to evaluate a variety of technologies for effectiveness in obtaining the required emissions reductions. Vectren's evaluation included demonstrating alternative systems at its existing generating units and conducting demonstration of those systems with various sources of coal and confirmation that the different sorbents selected would not interfere with each other or cause other unintended balance of plant impacts. Vectren also considered changing the type of coal it burned to achieve compliance.

Vectren hired Black & Veatch to further evaluate the most promising technologies and consider alternatives for bringing its generation fleet in compliance with federal regulations. Ms. Fischer described the analysis Black & Veatch conducted, the additional alternatives considered for compliance, and the results of the demonstration that was conducted.

Vectren jointly owns Warrick unit 4 with Alcoa. Warrick unit 4 is not facing an NOV or new NPDES requirements but requires investment to comply with Hg limits in the MATS rule. Vectren personnel consulted with and worked closely with Alcoa personnel to determine the best technology at Warrick unit 4 to comply with the MATS emissions limits. Alcoa engaged Burns & McDonnell to evaluate technologies. Burns & McDonnell ranked the technologies in order of cost estimate related to capital investment and ongoing O&M. Alcoa selected the option with the lowest cost that was able to achieve MATS compliance.

Vectren also considered whether the continued operation of Brown units 1 and 2, Culley unit 3, and Warrick unit 4 was the best option. Vectren submitted production cost modeling supporting its plan to continue investing in, rather than retire, Brown, Culley, and Warrick. Specifically, Vectren presented a ten-year production cost model using PROMOD IV prepared by Black & Veatch. Vectren also engaged Burns & McDonnell to conduct an analysis over a 20-year period to respond to concerns by the Joint Intervenors and OUCC.

The evidence presented by Vectren shows that failure to complete the Mandated Projects could require the premature retirement of the related generation facilities, which would result in significant reliability, market, and regulatory risk. MISO is projecting capacity shortfalls as early as 2016 and constructing a new gas generation facility would take at least four years. Without the ability to obtain voltage support from distant generators to serve its territory, Vectren would be forced to purchase capacity in an already constrained market. All of these factors point to concerns that retirement of Brown and Culley would expose Vectren's customers to significant reliability risks. Based on the evidence presented, we find that the Mandated Projects are reasonable and necessary.

D. Cost Estimate. Vectren estimated the Mandated Projects Costs to be in the range of \$75-\$95 million. Black & Veatch estimated the cost of the EPCM contract using

techniques that rendered it a Class 2 estimated pursuant to the Association for the Advancement of Cost Engineering. A Class 2 Estimate has an accuracy of -5% to -15% on the low end and +5% to +20% on the high end. No party disputed the estimated costs.

The evidence presented sufficiently describes the Mandated Projects Costs and demonstrates that the components of the Mandated Projects offer substantial potential to cost-effectively reduce pollutants. Based on our review of the evidence, we approve Vectren's cost estimates for the Mandated Projects.

E. Ongoing Review. Vectren requested that the Commission conduct an ongoing review of the Mandated Projects. Mr. Games proposed that Vectren would submit progress reports of construction, updated costs estimates, any revisions to the cost estimates, and other information regarding the implementation of the Mandated Projects.

While ongoing review is not required under Ind. Code ch. 8-1-8.8, we find that Vectren's request is reasonable. Therefore, Vectren shall file semi-annual reports, beginning on June 30, 2015, as compliance filings in this Cause. The progress reports shall contain the following information: (1) updated costs estimates, including any revisions to previous cost estimates; (2) any changes to the estimated completion date for each project; (3) the actual completion date for each project; and (4) the actual total cost for each project when the project is completed.

6. Confidentiality. Vectren filed a Motion for Protection of Confidential and Proprietary Information on March 18, 2014. We also made preliminary findings of confidentiality at the July 30, 2014 hearing based on information provided at the hearing. The affidavits and sworn testimony demonstrated that the information submitted to the Commission were trade secret information within the scope of Ind. Code §§ 5-14-3-4(a)(4) and 24-2-3-2. The Presiding Officers issued a Docket Entry on April 1, 2014 and made a finding at the July 30, 2014 hearing finding such information to be preliminarily confidential, after which such information was submitted under seal. There was no disagreement among the parties as to the confidential and proprietary nature of the information submitted under seal in this proceeding. We find all such information is confidential pursuant to Ind. Code §§ 5-14-3-4 and 24-2-3-2, is exempt from public access and disclosure by Indiana law and shall be held confidential and protected from public access and disclosure by the Commission.

IT IS THEREFORE ORDERED BY THE INDIANA UTILITY REGULATORY COMMISSION THAT:

1. The Mandated Projects are "clean energy projects" and "clean coal technology" under Ind. Code ch. 8-1-8.8.
2. The MATS rule, NOV, and NPDES limits are federally mandated requirements as defined by Ind. Code § 8-1-8.4-5.
3. The Mandated Projects are federally mandated "compliance projects" under Ind. Code § 8-1-8.4-2 and the costs incurred in connection with the Mandated Projects are "federally mandated costs" under Ind. Code § 8-1-8.4-4.

4. The cost estimate provided by Vectren in this Cause for the Mandated Projects is approved. Vectren shall file semi-annual reports, beginning on June 20, 2015, as compliance filings in this case as detailed in paragraph 5.E. above.

5. Vectren is authorized to record the deferred Mandated Projects Costs as a regulatory asset until the date of a Commission order authorizing recovery of the deferred Mandated Projects Costs in Petitioner's recoverable operating expenses.

6. The information filed by Vectren in this Cause pursuant to its Motion for Protective Order and found to be confidential at the July 30, 2014 evidentiary hearing is deemed confidential pursuant to Ind. Code §§ 5-14-3-4 and 24-2-3-2, is exempt from public access and disclosure by Indiana law, and shall be held confidential and protected from public access and disclosure by the Commission.

7. This Order shall be effective on and after the date of its approval.

STEPHAN, MAYS-MEDLEY, HUSTON, AND ZIEGNER CONCUR; WEBER NOT PARTICIPATING:

APPROVED: **JAN 28 2015**

I hereby certify that the above is a true and correct copy of the Order as approved.



Brenda A. Howe
Secretary of the Commission