

ORIGINAL

Commissioner	Yes	No	Not Participating
Huston			√
Bennett	√		
Freeman	√		
Veleta	√		
Ziegner	√		

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

**SUBDOCKET FOR REVIEW OF)
SOUTHERN INDIANA GAS AND)
ELECTRIC COMPANY D/B/A)
CENTERPOINT ENERGY INDIANA) CAUSE NO. 38708 FAC 137 S1
SOUTH (“CEI SOUTH”) 2021 EXTENDED)
FORCED OUTAGE AT CULLEY 3) APPROVED: JUL 03 2024
GENERATING UNIT AND ITS RELATED)
IMPACT ON FUEL PROCUREMENT AND)
FUEL COSTS)**

ORDER OF THE COMMISSION

**Presiding Officers:
David E. Ziegner, Commissioner
Greg S. Loyd, Administrative Law Judge**

On January 3, 2023, the Presiding Officers issued a Docket Entry creating a subdocket for the purpose of considering whether and how a forced outage of generator Unit 3 at the F.B. Culley Power Plant (“Culley 3”) impacted CEI South’s fuel procurement, contracting and hedging and whether modifications should be made to CEI South’s proposed and future fuel factors.

The petitions to intervene filed by the Sierra Club, CenterPoint Energy Indiana South Industrial Group (“Industrial Group”), and the Citizens Action Coalition of Indiana, Inc. (“CAC”) were granted on January 3, 2023, March 9, 2023, and April 10, 2023, respectively.

On March 29, 2023, CEI South prefiled the direct testimony and attachments of F. Shane Bradford, Vice President, Power Generation Operations for CEI South.

On September 13, 2023, the OUCC prefiled the direct testimony and exhibits of Michael D. Eckert, Director in the OUCC’s Electric Division, and Gregory L. Krieger, Utility Analyst II for the OUCC.

On September 13, 2023, the Industrial Group prefiled the direct testimony and exhibits of Kenneth H. Ditzel, Managing Director at the Berkeley Research Group.

On October 23, 2023, CEI South prefiled Mr. Bradford’s rebuttal testimony.

The Commission held an evidentiary hearing on November 2, 2023, beginning at 9:30 a.m. in Room 222 of the PNC Center, 101 West Washington Street, Indianapolis, Indiana. At the hearing, CEI South, the OUCC, Industrial Group, and CAC appeared by counsel, and their respective testimony and exhibits were admitted into the record without objection.

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

1. **Notice and Jurisdiction.** Notice of the hearing in this Cause was given and published as required by law. CEI South is a public utility as defined in Ind. Code § 8-1-2-1. Under Ind. Code § 8-1-2-42, the Commission has jurisdiction over changes to CEI South's rates and charges related to adjustments in fuel costs. Therefore, the Commission has jurisdiction over CEI South and the subject matter of this proceeding.

2. **CEI South's Characteristics.** CEI South is a corporation organized and existing under the laws of the State of Indiana with its principal office located at 211 NW Riverside Drive in Evansville, Indiana. CEI South renders electric utility service to the public and owns and operates electric generating, transmission, and distribution plant, property, and equipment and related facilities for the production, storage, transmission, delivery, and furnishing of this service.

3. **Background.** Culley 3 tripped offline on June 24, 2022, at approximately 9:10 p.m. ("9:10 Trip"). The cause of this trip was the same as which caused the unit to trip offline at approximately 4:20 a.m. on that same day ("4:20 Trip"). Unlike after the 4:20 Trip, three water-side valves (consisting of the First Valve, Second Valve, and Third Valve) failed after the 9:10 Trip, which resulted in damage to the unit, causing it to remain offline line until March 14, 2023. The estimated repair costs for the unit are \$7-7.5 million, which have not been included in CEI South's fuel adjustment charge ("FAC") proceedings. CEI South contends that it did not incur any fuel procurement costs nor fuel costs due to the outage. The OUCC calculated the total maximum cost of replacement power due to the outage to be \$21,457,720.11. The Industrial Group calculated CEI South's fuel costs related to the outage to be approximately \$26.5 million. The OUCC and Industrial Group contend that CEI South should refund these amounts to ratepayers due to the utility's imprudence related to the outage. CEI South asserts that because it acted prudently, no refund is owed to its ratepayers.

4. **Petitioner's Case-in-Chief.** F. Shane Bradford provided an overview of the Culley 3 outage. He testified about the mechanical failure that resulted in extensive damage to CEI South's Culley 3 Boiler Feed Pump Turbine ("BFPT") and Boiler Feed Pump ("BFP"), and their foundation and appurtenances. Mr. Bradford indicated that no one was injured during the event. He stated that CEI South had never experienced an event of this nature.

Mr. Bradford stated CEI South conducted a root cause analysis ("RCA"), which was admitted as Confidential Attachment FSB-1C to Petitioner Exhibit 1-C. He explained that in addition to conducting its own RCA, CEI South obtained an independent inspection of the Second Valve, which was admitted as Confidential Attachment FSB-2C to Petitioner Exhibit 1-C. CEI South also requested Black & Veatch conduct an analysis of the cause of the BFPT damage. Black & Veatch's RCA was admitted as Confidential Attachment FSB-3C to Petitioner Exhibit 1-C.

Mr. Bradford testified that CEI South also engaged the original equipment manufacturer of Culley 3 to assist with damage evaluation and identification of the most efficient and economical means to return the unit to service. Through this collaboration, CEI South determined the quickest and lowest-cost option was to purchase a BFPT from a recently-retired coal plant. CEI South similarly worked with the BFP original equipment manufacturer to identify the most cost-effective means of returning the BFP to service. CEI South contracted restoration work to the foundation

and appurtenances to individual contractors. All mechanical work was completed on March 3, 2023, and Culley 3 was released for full operational service on March 14, 2023. Mr. Bradford stated CEI South did not include any of the repair costs (approximately \$7.0-\$7.5 million) related to the outage in its FAC filings.

Mr. Bradford testified that the June 24, 2022 to March 14, 2023 outage did not increase CEI South's fuel procurement costs or fuel costs. He explained that in 2022, CEI South experienced an overall reduction in need for coal. Mr. Bradford said the outage created an opportunity for the utility to divert coal originally planned for Culley 3 to its Brown plant, increasing Brown's short-term fuel inventory. Further, he stated CEI South negotiated alternative contractual arrangements to avoid penalties for its decreased coal utilization which provided various benefits to CEI South customers.

5. OUCC's Case-in-Chief.

A. Michael D. Eckert. Mr. Eckert's testimony described the Culley 3 outage, provided an estimate of the fuel cost for CEI South's purchased replacement power due to the outage, described the OUCC's analysis of the outage, and explained the OUCC's position regarding cost responsibility for the outage. He stated that when the OUCC asked CEI South to document the cost impact on all of its FACs associated with the Culley 3 outage, CEI South stated it would not be possible to quantify the exact impact because it would require speculation about how the Culley 3 and CEI South's other generating units might have been dispatched by [Midcontinent Independent System Operator] had Culley 3 been operating." Public Exhibit 1 at 3-4.

Mr. Eckert testified that other Indiana electric investor-owned utilities have been able to estimate replacement power costs when they have had extended outages at their generating stations. Mr. Eckert explained how he calculated CEI South's total maximum cost of replacement power due to the outage, which he determined was \$21,457,720.11. He said that CEI South ratepayers should be refunded this amount due to CEI South's management, inspection, and maintenance practices. He further recommended that CEI South not be allowed to recover the \$7-7.5 million costs to repair Culley 3.¹

Mr. Eckert explained, in his confidential testimony, CEI South's response to the OUCC's inquiry about potential property insurance and warranty claims related to the June 24, 2022 to March 14, 2023 outage.

B. Gregory L. Krieger. Mr. Krieger provided a general overview of the events leading up to and during the Culley 3 outage. He also discussed the recent maintenance history of Culley 3, the OUCC's analysis of the outage at issue, and the OUCC's position regarding responsibility for the outage that resulted in the plant being offline for approximately nine months.

¹ We note CEI included this amount for recovery in its pending rate case under Cause No. 45990.

Mr. Krieger noted that in Cause 38708 FAC 137, CEI South Witness Wayne Games described the circumstances of the outage as follows:

For context, the BFPT uses steam from a low-pressure extraction off the main steam turbine to drive the [BFP], which in turn pumps water through the boiler. The boiler then heats the water, creating steam that is then used by the main steam turbine to turn the generator.

Culley Unit 3 tripped off-line on June 24, 2022. While ramping down, the check valves that prevent water from flowing back through the BFP failed to properly close. This resulted in high pressure water flowing back through the BFP, spinning it backwards. Because the BFP is coupled to the BFPT, the BFPT also spun backwards and at higher-than normal revolutions per minute (rpm). The high rpm resulted in some turbine blades breaking loose, damaging the internal components of the BFPT, and eventually breaking through the housing and damaging oil lines and other balance of plant components in the area. The BFP experienced internal damage and will require some machining and repair work. The foundation that holds the BFPT and BFP was also damaged and requires repair.

Pub. Ex. 2 at pp. 2-3.

Mr. Krieger discussed CEI South's Culley 3 RCA sponsored by Mr. Bradford, and testified that, in his experience, RCAs of significant failures should contain analysis by an independent third party, which provides reassurance that the analysis is not biased by in-house analysts. He asserted that CEI South's RCA did not present any independent analysis of the outage itself. He described the valves involved, and noted that the First Valve was replaced in 2014 and repaired in 2020.² He noted CEI South did not inspect the other water-side valves for various reasons, as described in CEI South's discovery responses (Confidential Attachment GLK-01 to Public Exhibit 2-C), when the First Valve was replaced and repaired. Further, he said CEI South admitted there was no planned maintenance for the Second Valve for the year prior to the BFP/BFPT failure.

Mr. Krieger indicated that CEI South hired Black & Veatch to perform an independent analysis of the failed valves. He discussed Black & Veatch's analysis and reported conclusions about the three failed valves, as well as Black & Veatch's final recommendation for post-event actions. Mr. Krieger testified that, prior to the Culley 3 event, CEI South did not have an operations nor maintenance manual for the water-side valves. Mr. Krieger discussed the confidential conclusions of CEI South's and Black & Veatch's RCA. He stated that based on his analysis, the issues of the Culley 3 outage were connected to a lack of periodic inspection and planned maintenance, because CEI South should have been periodically inspecting the valves but did not do so. Mr. Krieger stated ratepayers should not be financially responsible for CEI South's failure to properly maintain its equipment, which ultimately led to the nine-month outage. Mr. Krieger

² Petitioner's evidence indicates the valve was replaced in 2013 and repaired in 2019.

recommended that the Commission find CEI South responsible for the cost of the replacement power purchased due to the outage.

6. Industrial Group's Case-in-Chief. Kenneth H. Ditzel provided an overview of the F.B. Culley Power Plant, including its facility makeup, operating characteristics, and the average monthly net generation, load, and capacity factor for Culley 3 from January 2017 through May 2023. He then confidentially recounted the events of June 23-24, 2022, based on his review of CEI South's responsive discovery, and CEI South's RCA. He argued that the evidence establishes that the Culley 3 forced outage, and resulting BFPT failure, was avoidable and that CEI South behaved imprudently. Mr. Ditzel recommended that the cost impact of the Culley 3 forced outage should be CEI South's responsibility and not its ratepayers and thus, CEI South should not be allowed to recover approximately \$26.5 million in fuel costs.

Mr. Ditzel stated that CEI South's RCA is fundamentally flawed because it did not address the ultimate root cause of the unit trip. Mr. Ditzel stated that CEI South's failure to address the ultimate root cause of the unit trip is contrary to RCA fundamentals. He cited to the American Society for Quality for the proposition that the root cause is the core issue—the highest-level cause—that sets in motion the entire cause-and-effect reaction that ultimately leads to the problem. Based on his review of CEI South's RCA, he stated that CEI South's RCA failed to address the “highest-level” cause, which is what also caused the 4:20 Trip. Furthermore, he explained that the RCA's failure to consider the “initiating cause” of the unit trip was not a mere oversight, but rather was due to instructions given by CEI South to Black & Veatch limiting the scope of the RCA. Mr. Ditzel testified that by not addressing the actual cause of the outage, there is a risk that additional issues could occur in the future, which could result in catastrophic equipment failure.

Based on Mr. Ditzel's review of the RCA, Mr. Ditzel concluded that had a proper RCA been performed on past Culley equipment operating concerns, the June 24, 2022 forced outage might have been avoided. He also stated that CEI South objected to discovery regarding whether its personnel were properly trained in RCA.

Mr. Ditzel also testified that the issue which caused the ultimate Culley 3 unit trip had occurred before on April 6, 2022. Mr. Ditzel testified that CEI South characterized this core issue as a “normal condition” and imprudently failed to recognize the risks that this issue posed. Mr. Ditzel analogized CEI South's conduct in not responding to the issue to “someone who continues to drive a car that abruptly shuts off when idling at a stop light but does nothing about it.” He explained that such a person “knows that at some point the car is likely not going to restart, and a tow truck will be required” which results in “a dangerous situation to that driver and those around the driver for traffic safety reasons.” Mr. Ditzel also testified that CEI South's failure to address this issue was contrary to industry standards, as expressed in a book titled, *What Went Wrong? Case Histories of Process Plant Disasters and How They Could Have Been Avoided* and characterized CEI South's operating culture as lacking diligence.

Further, Mr. Ditzel discussed the 4:20 Trip, which was caused by the same issue that caused the ultimate Culley 3 unit trip. He testified that CEI South should have investigated and corrected this event prior to the ultimate Culley 3 trip.

Mr. Ditzel stated that CEI South failed to demonstrate that it acted prudently. Furthermore, Mr. Ditzel testified that the record shows that CEI South's imprudence caused the forced outage. He pointed to a number of specific actions or inactions in support of this conclusion, such as CEI South's failure to routinely inspect key components of Cully 3, its decision not to perform an RCA when at least one water-side valve had failed in the past, and the utility's historical lack of concern regarding the issue that ultimately caused the Culley 3 forced outage. Mr. Ditzel added that these various examples demonstrate that CEI South's operating culture lacked a reasonable level of operational and maintenance diligence. He testified to other concerns regarding CEI South's Culley 3 event response, including that CEI South had not properly updated its maintenance logs/records, that maintenance manuals for key components of the generating unit were not available, that inspection and maintenance schedules for critical components of the unit were not maintained, that start up logs were not maintained for equipment restarts when the generating unit is online, and that experts were not consulted in response to equipment malfunctions on the day the outage began.

Mr. Ditzel provided an overview and discussion of four prior CEI South FAC proceedings, from Cause No. 38708 FAC 136 through Cause No. 38708 FAC 139. This overview included CEI South witness testimony discussing the Culley 3 outage, and a discussion on whether the outage was a driver of increased costs in each respective filing. Mr. Ditzel noted that Cause No. 38708 FAC 139 did not include a discussion on the Culley 3 outage, which instead attributed variance drivers to a different unit outage; however, he stated that Culley 3 should have also been included as a variance driver. He stated that although CEI South knew that Culley 3 would be out of service at the time CEI South projected its generation in Cause No. 38708 FAC 136 and subsequently sought its variance in Cause No. 38708 FAC 139, Mr. Ditzel stated that the unavailability of Culley 3 resulted in higher variance charges for Cause No. 38708 FAC 139, as well as lost opportunity costs associated with generation when energy prices were high during November and December 2022.

The Industrial Group issued Data Requests to CEI South, requesting CEI South to calculate the effect of the Culley 3 outage on the variance in fuel costs. Mr. Ditzel summarized CEI South's response that stated, in part, "it would not be possible to quantify the exact impact of the outage because this would require speculation about how the Culley 3 and CEI South's other generating units might have been dispatched by MISO had Culley 3 been operating." Conversely, Mr. Ditzel stated that an estimate on rate impacts could be approximated. Mr. Ditzel shared his method to estimate the impact resulting from the Culley 3 forced outage. He recommended a \$26.5 million disallowance due to CEI South's imprudence.

7. CEI South's Rebuttal Evidence. Mr. Bradford testified about the details leading up to the Culley 3 forced outage, including operating conditions, key equipment, and CEI South's responses to certain equipment signals—including CEI South's on the spot troubleshooting, precautionary measures taken, Culley 3 startup, repairs, and post-event remedial actions. He explained that the Culley 3 water-side of the system is designed with "triple redundancy" to prevent reverse flow.

Mr. Bradford stated that the First Valve was replaced in 2013 and inspected in 2019, after its failure necessitated a repair. He stated that the Second Valve was visually inspected once, when

it was removed to facilitate the repair of the First Valve in 2019. Mr. Bradford stated that visual inspection alone would not have been sufficient for CEI South to identify whether there was an issue preventing the valve from operating. Mr. Bradford claimed that because “the three water-side valves had been in-service for approximately 40 years with no issues,” “there is no indication that CEI South should have known to perform inspections on water-side valves.”

In response to Mr. Krieger’s criticism of CEI South’s RCA and assertion that it lacked third-party analysis, Mr. Bradford stated that CEI South engaged an outside firm, Black & Veatch, to perform an independent analysis of the BFPT failure. Additionally, Mr. Bradford contested Mr. Ditzel’s assertion that CEI South’s RCA was “fundamentally flawed” and missed the ultimate cause of the BFPT failure. While Mr. Bradford acknowledged the RCA did not address the cause of the 4:20 Trip, he stated that CEI South’s thorough RCA determined that if the three water-side valves had not failed, the BFPT would not have failed, which was ultimately confirmed by Black & Veatch’s conclusion.

Mr. Bradford noted the Industrial Group admitted in its response to CEI South’s Data Request 1.3 that the BFPT failure also would have occurred in a different, hypothetical Culley 3 trip scenario if all three water-side check valves did not close. Mr. Bradford stated that the circumstances to which Mr. Ditzel points as the root cause of the outage had occurred several hours earlier in the day and that these circumstances did not result in backflow on the water-side that ultimately led to the BFPT damage, showing that those other incidents were not the “but for” cause of the BFPT. He explained that those other incidents were unrelated to the failure of the water-side valves.

Mr. Bradford’s rebuttal detailed the valves in place to protect the BFPT. He explained that the First Valve was replaced in 2013 and was repaired in 2019. He explained the issues encountered with the First Valve in 2019 did not warrant an RCA as the issue only required a repair. He explained the 2013 and 2019 work on this valve was due to distinct issues. Mr. Bradford testified that neither the 2013 nor the 2019 event indicated a recurring issue and as such it would be unreasonable for CEI South to conduct a structured RCA, utilizing outside engineering firms to support, for every repair encountered.

Mr. Bradford explained the absence of operating and maintenance manuals and inspection frequency recommendations for the three water-side valves. He noted the original equipment manufacturer’s operating and maintenance manual did not provide recommendations for inspection of the water-side valves and that neither the OUCC nor the Industrial Group provided a recommended protocol or procedure that they believe to be reasonable. Mr. Bradford testified that CEI South has determined to inspect the three water-side valves every four years, to align with the original equipment manufacturer’s recommended inspection frequency for steam-side valves. He also testified the original equipment manufacturer has no record of a similar event to the BFPT failing from the BFP water-side check valves failing to close. Mr. Bradford pointed out that had CEI South instituted in 2019 the four-year inspection on the water-side valves that is recommended on the steam-side, that four years would not yet have passed since the 2019 repair of the valve and instead would have been performed during what was then the upcoming planned outage of Culley 3 starting in October 2022. He stated it is unlikely that an inspection of the First Valve after it was repaired in 2019 would have shown any issues. Further, he noted, an inspection based on what was

known at the time would not have disclosed the issue with the Second Valve, because it would not have been detected without completely disassembling the valve, and it is only from this event that CEI South now knows the valve must be disassembled to assure that it is completely sealing. Finally, Mr. Bradford concluded the Third Valve would likely have passed any inspection because it did close during the event (just not quickly enough). He stated that based on four decades without issue and no recommended inspection frequencies, there is no indication CEI South should have known to perform inspections on water-side valves.

Mr. Bradford noted that the book and paper cited by Mr. Ditzel concerned chemical processing plants. Mr. Bradford also described efforts by CEI South to consult with other Indiana utilities with similarly designed systems about whether they have specific programs or processes to inspect the water-side valves. He stated as a result of this forced outage, CEI South consulted with four investor-owned electric utilities in Indiana as a part of best practices and to select an inspection protocol as a result of this incident. Two affirmatively responded that they have no protocols. One other utility responded that it does not have a similar system, and the final utility did not respond to CEI South's inquiry.

Mr. Bradford responded to Mr. Ditzel's claims of "operating culture concerns" by providing examples of CEI South's operational and maintenance diligence, including maintenance of equipment manuals, operating logs and a work management system with historical records. He contended that Culley 3 has an excellent operating history over its 40-year life span, which he said demonstrates the prudence of CEI South's operation of the unit.

Mr. Bradford stated neither CEI South nor the original equipment manufacturer was aware of any similar event ever occurring during a generation unit outage. Although the Black & Veatch report listed three potentially similar events, it appears that each event was caused by the failure of a single check valve. By contrast, he said the Culley 3 system is a triple-redundant system with three water-side check valves. Further, CEI South was not aware of the events identified by Black & Veatch at the time the Culley 3 event occurred (and neither, presumably, was the original equipment manufacturer). In addition, from the description of those events in the Black & Veatch report, he argued CEI South could not have reasonably foreseen that all three check valves would partially or completely fail at the same time in a "perfect storm" type event. He asserted this is most significantly evidenced by the fact that the same unit trip occurred earlier on the morning of the event, but the check valves did not fail. Mr. Bradford further said CEI South has a similar system installed on its A. B. Brown coal-fired generation units, which have never experienced a similar issue with the water-side check valves on the BFP.

Mr. Bradford also responded to OUCC witness Krieger's assertions as to insurance or warranty claims CEI South could have or should have brought. Mr. Bradford noted in part that the water-side valves were not covered by a warranty due to the length of time since the valves were installed.

Mr. Bradford then addressed the OUCC and Industrial Group recommended refund analyses in the event the Commission were to find some imprudence on the part of CEI South. He explained why the parties' calculations of the impact of the Culley 3 forced outage on fuel costs were overstated and the difficulty of performing such a calculation.

8. November 2, 2023 Evidentiary Hearing Testimony. The OUCC and Industrial Group cross-examined Mr. Bradford during the November 2, 2023 evidentiary hearing. Here, he testified that the BFPT failure did not cause the Culley 3 trip. Mr. Bradford distinguished between the cause of the outage itself (the unit trip), and the cause of the nine-month duration of the outage (the BFPT failure). Mr. Bradford also stated neither CEI South's nor Black & Veatch's RCA evaluated the steps CEI South undertook leading up to the 9:10 Trip. He acknowledged that CEI South limited Black & Veatch's review of the incident by instructing Black & Veatch to "review the supplied information and draw conclusions that would support the ongoing root cause analysis," which was conducted by CEI South. He explained in his confidential testimony why CEI South had Black & Veatch look at the BFPT damage specifically.

Mr. Bradford stated he does not know whether two of the valves failed at the same time. He acknowledged that one, or even two, of the three valves could have failed a while ago and that CEI South would not have known of the failure. He said any "numerous variations" of trips would have resulted in the BFPT failure if the water-side valves acted.

Mr. Bradford stated that it is possible that the same type of problems that affect check valves in a chemical processing plant also affect check valves at generating plants, but that he has never worked at a processing plant.

He explained in his confidential testimony why CEI South viewed the 2019 repair of the First Valve as a repair not requiring an RCA.

9. Commission Discussion and Findings.

A. Scope of this Subdocket. The Culley 3 outage that is at issue in this subdocket began on June 24, 2022. On December 6, 2022, in Cause No. 38708 FAC 137, the OUCC filed a motion requesting the Commission open a subdocket regarding the outage. In response to this request, the Presiding Officers opened the current subdocket proceeding "for the purpose of considering whether and how the forced outage of Culley 3 impacts CEI South's fuel procurement, contracting and hedging and whether modifications should be made to CEI South's proposed and future fuel factors."

The fuel cost factors approved in Cause Nos. 38708 FAC 137 through FAC 140 were approved on an interim basis and subject to refund pending final resolution of the current subdocket proceeding. In this subdocket, CEI South must demonstrate, pursuant to Ind. Code § 8-1-2-42(d)(1), that it has made every reasonable effort to acquire fuel and generate or purchase power or both so as to provide electricity to its retail customers at the lowest fuel cost reasonably possible. If the utility fails to meet this burden, then CEI South's ratepayers would be entitled to a refund for any costs associated with the outage. We therefore conduct a prudence review to determine whether CEI South has made every reasonable effort to generate power. All parties cite to following Commission statement on "prudence":

"[P]rudence is a standard by which a utility's conduct or actions are evaluated. ... It is the degree of care required by the circumstances under which the action or

conduct is to be exercised and judged by what is known, or could have reasonably been known, at the time of the conduct.” *Duke Energy Ind., Inc.*, Cause No. 43114 IGCC 4S1 (IURC Dec. 27, 2012), p. 111, 2012 WL 6759528; *see also Duke Energy Ind., Inc.*, Cause No. 38707 FAC 76 S1 (IURC Oct. 21, 2009), pp. 15-16, 2009 WL 3455937. “It is a term often used interchangeably with what is considered ‘reasonable’ under the circumstances. The Commission must determine whether decisions were made in a reasonable manner in light of the conditions or circumstances that were known or reasonably should have been known when the decision was made.” [Cause No. 43114, 2012 WL 6759528 at p. 111] (citations omitted). The prudence of an electric utility’s actions is not judged with twenty-twenty hindsight. Rather, the Commission will focus on the prudence of the decisions when made, based on the facts and circumstances as they existed at the time. *N. Ind. Pub. Serv. Co.*, Cause No. 44340 FMCA 12 (IURC Jan. 29, 2020), p. 12, 2020 WL 529286; *see also Northern Ind. Pub. Serv. Co.*, Cause No. 43849 (IURC July 13, 2011), p. 11.

N. Ind. Pub. Serv. Co., Cause No. 38706 FAC 130 S1 (IURC June 15, 2022), p. 45, 2022 WL 2270139 at *48.

The OUCC and Industrial Group assert in their post-hearing brief that CEI South must demonstrate a lack of imprudence. However, this misstates the test we have historically used in assessing a utility’s actions. As noted in the above quotation, we look to whether the utility’s actions were prudent under the circumstances. The OUCC and Industrial Group also argue that CEI South must show that its imprudence did not cause the Culley 3 trip. However, this improperly frames the prudence review in this case. While the 9:10 Trip may have revealed the failure of the triple-redundant water-side valve system, something the 4:20 Trip did not do, it is the failure of the water-side valve system that resulted in the extended outage of Culley 3 that is under review.

B. Prudence Analysis.

i. Inspection History. CEI South argued it operated Culley 3 prudently. The OUCC and Industrial Group contend that CEI South failed to establish it took all reasonable efforts to generate power in part because the utility did not routinely inspect the water-side valves. There is no evidence that the utility ever inspected these valves prior to the incident at issue. Indeed, the evidence establishes that the only maintenance the utility performed on these valves consisted of replacing the First Valve in 2013, repairing this valve in 2019, and visually inspecting the Second Valve in 2019. CEI South’s lack of an inspection regimen for the three valves, however, is consistent with the original equipment manufacturer’s manual for the unit as this manual did not include a recommendation to inspect the valves, much less an inspection frequency or a description of the type/extent of inspection to perform. Notably, the original equipment manufacturer did include an inspection schedule for the steam-side valves. The evidence indicates CEI South followed the inspection recommendations regarding the steam-side valves. Given that the manufacturer provided inspection guidance regarding the steam-side valves but not the water-side valves, it is reasonable that CEI South only inspected the steam-side valves. This position is also supported by the fact that two other Indiana utilities which operate a unit similar to Culley 3 do not have an inspection plan for their water-side valves.

The evidence does not establish that CEI South should have known the three water-side valves would fail or even that more frequent inspections would have prevented the event that is the subject of this subdocket. CEI South's engineers, Black & Veatch, and the BFPT original equipment manufacturer were not aware of a single similar failure of a triple-redundant system of three water-side check valves such as exists at Culley 3. Additionally, the evidence establishes that the protective triple-redundant water-side valve system did not fail after the 4:20 Trip. CEI South has a similar system installed on its A.B. Brown coal-fired generation units, which have never experienced a similar issue with the water-side check valves on the BFP. Therefore, based on CEI South's overall experience with Culley 3, the lack of knowledge about any similar triple redundant water-side valve system failure, including at CEI South's A.B. Brown generation units, and the lack of a recommended inspection frequency by the original equipment manufacturer, we find the evidence does not establish that CEI South should have known to perform inspections on water-side valves.

The OUCC and Industrial Group argue that industry guidance, as evidenced in a book published prior to the outage at issue in this Cause and a paper presented at a 2019 American Institute of Chemical Engineers meeting, establish that CEI South should have known to inspect the water-side valves. We do not find this argument persuasive. Mr. Bradford distinguished the focus of these texts from Culley 3 by noting the book and the paper are chemical-process-plant related publications. The relevance of these texts is diminished by Mr. Bradford's explanation of why inspections of the water-side valves likely would have had minimal value. First, he stated it is unlikely that an inspection of the First Valve after it was repaired in 2019 would have shown any issues. Mr. Bradford explained that such inspections would not have disclosed the issue with the Second Valve, because it would not have been detected without completely disassembling the valve, and it is only from this event that CEI South now knows the valve must be disassembled to assure that it is completely sealing. Finally, Mr. Bradford concluded the Third Valve would likely have passed any inspection because it did close during the event (just not quickly enough). For these reasons, we are unpersuaded by the OUCC and Industrial Group's industry guidance arguments.

The OUCC and Industrial Group also argue that CEI South's replacement of the First Valve in 2013 and the 2019 repair of this valve put the utility on actual notice that it needed to establish a regular inspection regimen for the water-side valves and that its failure to do so was imprudent. For the reasons we explained above, we do not find the OUCC and Industrial Group's argument persuasive.

Relatedly, the OUCC and the Industrial Group argue CEI South should have conducted an RCA of the valve that was replaced in 2019. They argue such an analysis may have allowed the utility to learn of a common problem between the cause of the 2019 repair of the First Valve and the valve failure on June 24, 2022. Mr. Bradford explained in his confidential testimony why the issues identified in 2013 and 2019 were viewed as mere repairs that did not necessitate an RCA utilizing outside engineering firms to support. We agree. We have previously noted that root cause analyses "are extensive, very detailed, time consuming analyses completed only for significant generating unit outages and events." *Duke Energy Indiana*, Cause No. 45253 (IURC 6/29/2020) at 166. It is not reasonable for a utility to undertake an RCA for every repair encountered. In

hindsight, an RCA might have been helpful, but under the circumstances and based on the information known to the utility at the time, we find utility acted reasonably in not conducting an RCA of the 2013 and 2019 repairs.

The OUCC and Industrial Group took issue with the fact CEI South did not have a maintenance manual for the three water-side valves. Mr. Bradford explained two of the valves are not complex and therefore no such manual was needed. Additionally, CEI South has a maintenance repair manual for the Third Valve, but this manual did not provide an inspection frequency.

ii. CEI South's Actions on June 24, 2022. The parties agree that the 4:20 Trip and the 9:10 Trip share the same cause. CEI South contends that it acted prudently regarding its handling of the 4:20 Trip. Mr. Bradford testified that CEI South brought in electricians to examine the cause of the 4:20 Trip, the utility inspected a component related to the cause of the 4:20 Trip, and personnel attempted, without success, to replicate the issue that caused the 4:20 Trip. Additionally, CEI South took various safeguards in light of the 4:20 Trip.

The OUCC and Industrial Group contend that CEI South's actions were imprudent by not thoroughly investigating nor correcting the issue that caused the 4:20 Trip and which eventually led to the 9:10 Trip. The Industrial Group also asserts CEI South should have conducted an RCA of the 4:20 Trip before restarting the unit prior to the 9:10 Trip. In support, the OUCC and the Industrial Group note that at the evidentiary hearing Mr. Bradford distinguished between the cause of the outage (the unit trip), and the cause of the nine-month duration of the outage (the BFPT failure). In so testifying, Mr. Bradford stated the cause of the trip and the failures of the water-side check valves, which caused the BFPT failure, are "separate and distinct" events. As such, the OUCC and Industrial Group assert CEI South's failure to investigate and correct the issue that caused the 4:20 Trip was imprudent.

Based on the circumstances and what CEI South knew at the time, we find CEI South acted prudently in its handling of the unit on June 24, 2024. At that time, CEI South was not aware of a single instance of a triple-redundant water valve failing. As such, the risk of the damage eventually caused to the BFPT was unforeseeable. Additionally, CEI South utilized electricians to examine the 4:20 Trip cause, the utility inspected a component, and the utility unsuccessfully tried to replicate the issue that caused the 4:20 Trip. In light of these steps, which we find to have been reasonable, we find CEI South acted prudently in its investigation of the 4:20 Trip. In hindsight, an RCA of the 4:20 Trip might have been warranted, but the evidence does not support a determination that CEI South should have known to conduct an RCA of the 4:20 Trip. As such, we find it was reasonable for CEI South to continue operations without first resolving the cause of the 4:20 Trip nor conducting an RCA.

iii. CEI South Operating Culture. The OUCC and Industrial Group argue that CEI South's operating culture lacked a reasonable level of operational and maintenance diligence. We have addressed the facts and arguments applicable to the outage at issue. As such, we do not need to further address the OUCC and Industrial Group's allegations regarding CEI South's overall operating culture.

iv. **Conclusion.** Consistent with the Commission’s discussion and findings above, the Commission finds CEI South acted reasonably and prudently with respect to the events that gave rise to the June 24, 2022 through March 14, 2023 Culley 3 outage. CEI South complied with Ind. Code § 8-1-2-42(d)(1) by taking every reasonable effort to acquire fuel and generate or purchase power or both so as to provide electricity to its retail customers at the lowest fuel cost reasonably possible. As such, CEI South does not owe ratepayers a refund for costs associated with this outage.

C. **Confidential Information.** On March 27, 2024, Petitioner filed its Motion for Protection of Confidential and Proprietary Information with a supporting affidavit asserting that certain information to be submitted to the Commission was trade secret information as defined in Ind. Code § 24-2-3-2 and should be treated as confidential in accordance with Ind. Code §§ 5-14-3-4 and 8-1-2-29. A Docket Entry was issued on April 10, 2024, in which the Presiding Officers determined the information should be held confidential on a preliminary basis, after which the information was submitted under seal. After review of the information and consideration of the affidavit, we find the information is trade secret information as defined in Ind. Code § 24-2-3-2, is exempt from public access and disclosure pursuant to Ind. Code §§ 5-14-3-4 and 8-1-2-29, 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. Consistent with the Commission’s discussion and findings above, the Commission finds CEI South acted reasonably and prudently with respect to the events that gave rise to the June 24, 2022 through March 14, 2023 Culley 3 outage. CEI South complied with Ind. Code § 8 1-2-42(d)(1) by taking every reasonable effort to acquire fuel and generate or purchase power or both so as to provide electricity to its retail customers at the lowest fuel cost reasonably possible.

2. CEI South does not owe ratepayers a refund for costs associated with the June 24, 2022 to March 14, 2023 outage. The “subject to refund” obligations imposed in Cause Nos. 38708 FAC 137 through 38708 FAC 140 related to this subdocket proceeding are removed.

3. The information submitted under seal in this Cause pursuant to Petitioner’s request for confidential treatment is determined to be confidential trade secret information as defined in Ind. Code § 24-2-3-2 and shall continue to be held as confidential and exempt from public access and disclosure pursuant to Ind. Code §§ 5-14-3-4 and 8-1-2-29.

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

BENNETT, FREEMAN, VELETA, AND ZIEGNER CONCUR; HUSTON ABSENT:

APPROVED: JUL 03 2024

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

**Dana Kosco
Secretary of the Commission**