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INDIANA UTILITY
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SOUTHERN INDIANA GAS AND ELECTRIC COMPANY
d/b/a CENTERPOINT ENERGY INDIANA SOUTH
(CEI SOUTH)

IURC CAUSE NO. 38708 FAC 136

DIRECT TESTIMONY

OF

WAYNE D. GAMES
VICE PRESIDENT POWER GENERATION OPERATIONS

ON

PURCHASED POWER AND COAL INVENTORY

(PUBLIC)

SPONSORING PETITIONER'S EXHIBIT NO. 1,
ATTACHMENT WDG-1

DIRECT TESTIMONY OF WAYNE D. GAMES

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Wayne D. Games. My business address is 211 NW Riverside Drive, Evansville, Indiana 47708

Q. By whom are you employed?

A. I am employed by Southern Indiana Gas and Electric Company d/b/a CenterPoint Energy Indiana South ("Petitioner", "CEI South", or "Company")[1].

Q. On whose behalf are you submitting this direct testimony?

A. I am submitting testimony on behalf of CEI South, which is an indirect subsidiary of CenterPoint Energy, Inc.

Q. What is your role with respect to Petitioner CEI South?

A. I am Vice President, Power Generation Operations.

Q. Please describe your educational background.

A. I received a Bachelor of Arts in Industrial Technology from Ohio Northern University in 1980 and a Master of Arts in Management from Antioch University in 2002.

Q. Please describe your professional experience.

A. I have over 30 years of varied experience in the utility industry. I started my career with The Dayton Power & Light Co. in 1991, where I held supervisory, manager, and regional manager titles on the energy delivery side of the business. Upon joining the Company in 2000, I served as Director of Construction and Service and Regional Manager in the Ohio service area. In 2003, I moved to Evansville, Indiana, and accepted responsibility as Director of the Company's A.B. Brown generating station. I

[1] For the sake of clarity, my testimony refers to CEI South, even though in certain situations, I may be referring to one of CEI South's predecessor companies.

was promoted to Vice President of Power Supply in April of 2011. I was named to my current position in February 2019.

Q. What are your present duties and responsibilities as Vice-President of Power Generation Operations?

A. I am responsible for the overall budgeting, operation, maintenance, and personnel decisions for the power generation fleet of CEI South. In addition, I have responsibility for ensuring the demand of CEI South's customers is met at the lowest reasonable cost through the production and purchase of electric energy, including fuel purchases, necessary to meet the needs of CEI South's jurisdictional customers. I am responsible for completing these functions while ensuring compliance with the environmental requirements of all applicable regulatory or governmental agencies.

Q. Have you previously testified before this Commission?

A. Yes. I regularly testify in the Company's fuel adjustment clause ("FAC") proceedings and in the related sub-dockets in this Cause No. 38708. I testified in support of the Company's proposal to install pollution control equipment on its coal-fired generation facilities in Cause No. 44446 and in support of the Company's proposal to construct solar facilities in Cause Nos. 44909, 45086, and 45501. Additionally, I testified in Cause No. 45564 in support of CEI South's request to construct two natural gas combustion turbines ("CTs"). Most recently, I testified in Cause No. 45754 in support of CEI South's request to purchase and acquire through a build transfer agreement a 130 megawatts ("MW") solar power electric generating facility in Pike County, Indiana.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to provide information regarding CEI South's power purchases and related costs as a participant in the Midcontinent Independent System Operator ("MISO") Energy Market, CEI South's fuel supply, and to sponsor Petitioner's Exhibit No. 1, Attachment WDG-1, which consists of schedules that present the calculations of the MISO components included in fuel costs, the calculations of the daily benchmark prices applicable to purchased power for March through May 2022 (the "Reconciliation Period"), and information about over-benchmark purchased power

costs that are reasonable and recoverable under the applicable settlement. I will also present an update to the 2022 / 2023 coal plan.

II. MISO

Q. Are you generally familiar with the operations of MISO, including MISO Day 2 Market Initiative and Day 3 Ancillary Services Market ("ASM")?

A. Yes, I am.

Q. Have you reviewed the Commission's June 1, 2005 Order in Cause No. 42685 ("June 1, 2005 Order") and June 30, 2009 Phase II Order in Cause No. 43426 ("ASM Phase II Order")?

A. Yes.

Q. Is CEI South's proposed recovery of costs for the Reconciliation Period consistent with your understanding of the Commission's June 1, 2005 Order and ASM Phase II Order?

A. Yes, CEI South's FAC 136 filing is consistent with my understanding of those Commission Orders.

Q. Please summarize your understanding of the impact of MISO Day 2 on CEI South's operations.

A. MISO's implementation of the Day 2 Market Initiative resulted in operational changes for CEI South. MISO Day 2 features a wide-area security constrained centralized dispatch across a significant geographic footprint spanning 36 Local Balancing Authorities across fifteen states and Manitoba. Through centralized dispatch, this market brings about an integration of system operations and market operations unlike what existed in this region prior to the start of Day 2. This caused both changes to existing operating procedures and the creation of new operational infrastructure. These operational changes result in costs and cost structures that differ in form from those that previously existed.

As a result of the existence of the Day 2 market, the cost for CEI South to serve its native load customers now includes both its own generation and MISO dispatched economic energy purchases.

Q. Briefly describe the MISO costs and revenues that CEI South is seeking to include in this FAC proceeding.

A. Consistent with the June 1, 2005 Order, CEI South is requesting that fuel-related MISO costs and revenues track through its current FAC. Petitioner's Exhibit No. 1, Attachment WDG-1, Schedule 1 contains a summary of the determination of MISO Components of Fuel Costs, exclusive of purchased power costs, for the Reconciliation Period. In addition, CEI South is requesting recovery of projected MISO costs for the period of November 2022 through January 2023. These projected costs include the estimated level of the net effect of delta Locational Marginal Pricing ("LMPs"), Day Ahead and Reliability Assessment Commitment ("RAC") recovery of unit commitment costs, Financial Transmission Right ("FTR") revenue and expenses, and Real Time Marginal Loss Surplus credits.

Q. Are costs associated with MISO's ASM included in the amounts for which you are seeking recovery in this FAC?

A. Yes. Consistent with the Commission's Phase I Order in Cause No. 43426 ("Phase I Order"), dated August 13, 2008, CEI South has included for recovery in the FAC those costs for charge types identified as "modified" under the ASM and which were previously recovered in the FAC. Additionally, the Commission issued its ASM Phase II Order on June 30, 2009, that authorized CEI South to include certain new MISO charges and credits as a cost of fuel for recovery in its FAC proceedings.

Q. Did the ASM Phase II Order contain any reporting requirements?

A. Yes. In compliance with the Phase II Order, CEI South must report the monthly average ASM Cost Distribution average dollar per megawatt hours ("MWh") paid for Regulation, Spinning, Supplemental, and Short-Term Reserves. The amounts for March through May 2022 are as follows:

	Regulation	Spinning	Supplemental	Short-Term
March 2022	$ 0.0447	$ 0.0460	$ 0.0027	$ 0.0155
April 2022	$ 0.0664	$ 0.0732	$ 0.0074	$ 0.0366
May 2022	$ 0.0825	$ 0.0773	$ 0.0059	$ 0.0286

Q. Given the centralized MISO economic dispatch structure of the Day 2 market, how does CEI South explicitly identify the quantity of purchased power and wholesale sales in each hour?

A. If in a given hour CEI South withdraws more MWh from the grid at its load zone than CEI South generating units inject to the grid, those excess MWh withdrawn are purchased power amounts . Conversely, if in a given hour CEI South generating units inject more MWh to the grid than CEI South withdraws from the grid at its load zone, those excess MWh injected are allocated to wholesale sale amounts.

Q. Is the proposed pass through of Revenue Sufficiency Guarantee ("RSG") amounts in this Cause consistent with your understanding of the Commission's July 16, 2008 Order in Cause No. 43475?

A. Yes.

Q. Are MISO fuel components also included in this FAC?

A. Yes. All the requested MISO components qualify for recovery in this FAC pursuant to the Commission's Orders in Cause Nos. 42685, 43475, 43426, and 38708 FAC 73. In addition, as a result of FERC Order 719 (issued on October 17, 2008) and FERC Order 745 (issued on March 15, 2011) additional charge types have been included for recovery. These charge types were effective June 12, 2012 and discussed in FAC 96 and FAC 97.

III. PURCHASED POWER RECOVERY

Q. Please describe the mechanism in place for recovery of the cost of energy purchased in MISO Energy Markets.

A. Pursuant to an approved settlement, the cost associated with each purchase is calculated for a given hour as the product of the number of MW purchased for that

hour and the purchase price for that hour. To assist in the FAC review of the reasonableness of power purchases, the settlement provides that a benchmark price is applied to purchases and any purchases made in the course of MISO's economic dispatch regime to meet jurisdictional retail load are a cost of fuel and are fully recoverable in the FAC up to the benchmark.

Above-benchmark purchases are also recoverable, so long as the purchases can be shown to be reasonable based on an evaluation conducted with factors set forth in the settlement. As explained by the Commission in Cause No. 41363:

> Our March 10, 1999, Docket Entry was clear that we contemplated that a benchmark would merely be a triggering mechanism-that is, if a benchmark is exceeded the utility would have the opportunity to submit additional evidence demonstrating the reasonableness of its power purchases for cost recovery purposes. Every electric generating utility should have the opportunity to request recovery of and justify the reasonableness of purchased power costs above the benchmark. In the event a utility exceeds the benchmark, the standard to be used to review such purchases will be of the reasonableness of the decisions under the circumstances which were known (or which reasonably should have been known) at the time the purchases were made, not an after the fact focus using hindsight judgment.

(IURC Order, Aug. 18, 1999, p. 11).

Q. What is CEI South's benchmark for purchased power costs?

A. In Cause No. 43414, the Commission approved the establishment of daily benchmarks. The daily benchmarks are established based upon a generic Gas Turbine ("GT"), using a generic GT heat rate of 12,500 British thermal unit (Btu")/ kilowatt-hour ("kWh"), and using the NYMEX Henry Hub Gas Day Ahead price plus $0.60/MMBtu gas transport charge for a generic gas-fired GT. Changes were approved in Cause No. 43414 to the parameters used to determine amounts over the daily benchmarks.

Q. Is a Schedule showing the Daily Benchmarks for purchased power for the Reconciliation Period included in this Cause?

A. Yes. Petitioner's Exhibit No. 1, Attachment WDG-1, Schedule 2 presents the Daily Benchmark amounts for each day in the Reconciliation Period.

Q. What are the amounts of purchased power in excess of the Daily Benchmarks incurred by CEI South during the Reconciliation Period?

A. As shown on Petitioner's Exhibit No. 1, Attachment WDG-1, Schedule 3, Pages 1-3, CEI South determined that purchased power costs exceeded the Daily Benchmarks during the Reconciliation Period as follows: March 2022, $8,214.97; April 2022, $42,644.86; and May 2022, $0.00. These costs were incurred pursuant to MISO's security constrained economic dispatch across its footprint because MISO elected to utilize other generation when CEI South needed additional power.

Q. Are all over-benchmark purchases during the Reconciliation Period determined to be recoverable?

A. Yes. Applying the criteria established by the Benchmark Settlement CEI South has determined that all the over benchmark purchases are recoverable (Petitioner's Exhibit No. 1, Attachment WDG-1, Schedule 3, Pages 1-3). The schedule provides the reason each purchase was made. As contemplated by the Commission in its Order in Cause No. 42770, all these purchases were within "the utility's reasonably expected cost of purchased power under an economic dispatch regime." CEI South acted appropriately in the operation of its generation and its participation in MISO to maintain safe, adequate, and reliable service to its retail customers. The beneficiaries of these purchases were CEI South's retail customers. Without these purchases, CEI South could not have met the demands of its retail customers while complying with MISO dispatch instructions. Recovery of these purchased power costs only makes CEI South whole for costs incurred to meet the demand of retail customers.

Q. Why does MISO at times choose to instruct CEI South to purchase from the market rather than operate generation internal to its control area?

A. Since the Commission's June 1, 2005 Day 2 Order, MISO has dispatched generation. MISO first considers its security constrained economic dispatch model to determine what generation is necessary to meet the next day's system demand with the lowest total cost. If this evaluation shows that the total daily cost is predicted to be less using market purchases rather than calling for CEI South's internal generation, then that is

the MISO directive the Company will be given for the Day Ahead market. Additional consideration will be given to the potential impact to system congestion, which is impacted by market purchases versus CEI South peaking generation operation. The summation of these variables is that every day's evaluation has a different set of conditions and inputs which can only be evaluated by MISO on a regional basis. Thus, like any generator, CEI South is sometimes required by MISO to make economic purchases at the lowest cost reasonably possible. With the influx of new generation sources such as wind, and the dramatic reduction in gas prices, other generation sources now are available in the market at competitive prices. Some of these sources, like wind, are so inexpensive in off peak hours that they are selected in the Day Ahead market. The reasonable purchase costs reflected in the FAC are the product of MISO's economic dispatch.

Q. Does CEI South ever deviate from MISO dispatch in order to operate its gas peaking generation?

A. Generally, CEI South follows instructions from MISO on when to operate gas peaking generation. The Company's on-duty system generation operators are provided plans from MISO, and they follow those dispatch plans. Most often, MISO will call on peaking units in the Real Time (intra-day) market but will on occasion also call for a Peaker through the Day Ahead market. The system generation operators will generally vary from these MISO plans only when notified by local transmission system operators that there is a local distribution or transmission constraint that would be eliminated by the use of peaking generation.

In terms of determining whether to operate the peaking units for purely economic reasons, CEI South's system generation operator evaluates the Real Time Market price of power and compares it to the alternative of starting a natural gas peaking unit for a brief period. The operator monitors the five-minute price signals to determine if they believe the hourly market price will integrate high enough to justify starting a gas turbine. This determination is made knowing that the next five-minute price signal will likely change. A higher price often exists due to an event on the system that sends a price signal for generators to increase production. Once generation is increased, the

price will drop; therefore, given these conditions the operator will almost always choose to follow the MISO dispatch signal rather than betting on a sustained higher price.

In addition, when evaluating the operation of a specific gas turbine, the operator must consider, among other things, (i) the time it takes to bring the unit on line, (ii) the actual cost of fuel consumed during the period of time from initial firing until the unit is synchronized to the system, as well as the cost of gas used during controlled unit shut down, and (iii) the likelihood that the unit will run at a reduced capacity factor, which increases the heat rate, adding to run costs. These must be spread over the total cost of the MWh produced by the machine. These are reasons why the cost of production during short periods often exceeds the price of power purchased from the economic marketplace.

Moreover, failure to comply with MISO's dispatch directive would result in assessment of uninstructed deviation charges of unknown amounts to CEI South. Given these cost and price risks, absent unusual market conditions, it is unlikely CEI South will ignore MISO dispatch and operate its peaking units for economic reasons.

Q. Are any purchases from the Benton County Wind Farm ("BCWF") and Fowler Ridge II ("FRII") included in this FAC?

A. Yes. Pursuant to the approval received in Cause No. 43259, CEI South began receiving power from BCWF on May 7, 2008, when the facility began commercial operation. CEI South's Renewable Energy Purchase Agreement ("REPA") with FRII was approved in Cause No. 43635 on June 17, 2009, and FRII began commercial operation on December 16, 2009. Consistent with the order in Cause No. 43635, CEI South has included in this FAC those charges or credits related to the REPA that are treated by the Commission as components of fuel.

Q. Are there any amounts shown as purchased power from BCWF and FRII included in the monthly work papers?

A. Yes. The details of power purchased from BCWF and FRII are included in the confidential work papers provided to the OUCC.

Q. How has CEI South estimated the generation received from BCWF in this FAC?

A. In response to the fluctuations in CEI South's share of generation of BCWF, CEI South's projections reflect recent historical output from BCWF. CEI South has created an output profile for BCWF that is based on CEI South's monthly average actual share of generation received from BCWF since March 2013 when BCWF was designated a Dispatchable Intermittent Resource ("DIR"). CEI South will update this output profile and its estimates for BCWF in each future FAC based on recent historical data.

Q. Have negative LMPs from BCWF or FRII been experienced?

A. Yes. LMPs can be negative whenever there is congestion on a node. MISO uses negative pricing to rein in a bottleneck, which can occur with wind energy. For the FAC period there were 640 hours when the LMP was negative at BCWF, and 457 hours when the LMP was negative at FRII. This resulted in total charges of $417,162.68.

Q. Please describe how CEI South uses the Dispatchable Intermittent Resources ("DIR") designation.

A. MISO has attempted to address the operational challenges associated with the variable nature of wind power by allowing these resources to participate fully in MISO's economic dispatch under a DIR resource designation. After consulting with MISO regarding requirements and stipulations around registering wind farms, CEI South was notified that it was required to register BCWF as a DIR. The registration was completed in December 2012, and BCWF became a DIR on March 1, 2013. CEI South is not required to register FRII as a DIR because it meets an exception through its firm transmission into MISO.

Q. How has DIR impacted CEI South and its customers?

A. Generally, since BCWF was registered as a DIR in March of 2013, generation output for CEI South customers has been reduced.

IV. SALES OF RENEWABLE ENERGY CERTIFICATES

Q. Did CEI South include sales of Renewable Energy Certificates ("RECs") in this FAC?

A. Yes. Sales of RECs were recorded in the Reconciliation Period. The net amounts of those sales are included, as reductions to the cost of purchased power, in the calculation of purchased power costs for the respective months. For the Reconciliation Period, purchased power costs have been reduced by the net REC sales proceeds of $(1,502,053.99).

V. FUEL FOR GENERATION

Q. What sources of fuel does CEI South use for generating purposes, and what costs are incurred?

A. CEI South utilizes coal and natural gas for electric generation and incurs the costs of purchasing those fuels, including fuel-related transportation and storage costs. In addition, CEI South has solar, wind, battery storage, and landfill gas as part of the electric generation portfolio.

Q. Please describe the Company's coal purchasing practices.

A. CEI South utilizes Indiana coal as its primary fuel source for electric generation. Coal is purchased primarily under multi-year contracts to maintain a reliable source of coal.

Q. Does CEI South have a portfolio of supply contracts with staggered pricing terms in place to mitigate potential coal market volatility?

A. Yes. A portfolio of contracts is in place that supports re-pricing opportunities for portions of the Company's supply in each upcoming year, and given volume flexibility provided for under these contracts, also leaves opportunities for spot purchases as

needed. The contracts also provide coal with specifications that support CEI South's emissions compliance strategy.

Q. Has CEI South made every reasonable effort to provide power as economically as possible?

A. Yes. CEI South's generating units are offered into the MISO Day Ahead ("DA") and Real Time ("RT") markets and are dispatched by the MISO on an economic basis. CEI South has contracted through competitive processes to purchase its coal requirements from nearby mines at reasonable market prices. Purchasing from mines in close proximity to CEI South's generating stations helps minimize transportation costs while providing a reliable, reasonably priced fuel supply.

VI. COAL INVENTORY

Q. What is the status of the Company's coal inventory?

A. As of July 31, 2022, coal inventory at CEI South's coal-fired generating plants stood at approximately 253,371 tons. This is a decrease of 96,292 tons from the inventory level reported in FAC 135.

Q. Please provide the month-ending coal inventory levels by plant and total in 2022.

A.

Month	Brown	Culley	Warrick	Total
January	147,132	38,886	26,575	212,593
February	141,734	70,979	14,300	227,013
March	95,805	104,070	60,336	260,211
April	141,793	101,875	105,994	349,663
May	75,341	84,835	81,552	241,728
June	55,268	96,560	100,020	251,848
July	50,966	115,144	87,261	253.371

Q. Does CEI South have an inventory target to assure reliability?

A. Yes. CEI South's target inventory is driven in part by the risk CEI South is willing to take regarding deliveries being suspended due to a mine issue (safety, Mine Safety and Health Administration ("MSHA"), productivity issues, employee retention or strike,

etc.) or rail or truck transportation issues (equipment issues or employee retention or strikes), and how long these supply interruptions might reasonably be expected to last. The target inventory also attempts to account for the carrying costs for holding the inventory. Considering these various factors of mine risks, transportation risks, and carrying costs, CEI South generally targets a reserve inventory of about 45 - 60 days. The level of burn can vary, and therefore, target inventory should fall within a range. For CEI South's operating purposes, inventory of approximately 350,000 - 550,000 tons is a good target.

Q. Why was coal inventory currently below target at the end of July?

A. Calendar years 2021 and 2022 have been exceptionally strong years for coal burn with units operating at relatively high-capacity factors when compared to previous years. As explained in more detail in my FAC 134 testimony, coal production issues and high demand for coal due to high MISO energy prices resulted in coal units running at high-capacity factors resulting in low inventories at [redacted] coal mines as well as several utilities, including CEI South. In addition, the reliability of rail and truck service has been an issue throughout 2022.

Q. What action did CEI South take due to the low inventory level in 2021 and 2022?

A. As explained in FAC 135, CEI South was able to procure a spot purchase of [redacted] tons from [redacted] in 2022 and went through the formal process of issuing three separate RFP's, two in 2021 and one in 2022, to procure more coal supply. The first two RFPs did not result in a contract to purchase due to lack of response and inability to procure transportation. Finally in early May 2022, CEI South was able to procure [redacted] tons of coal from the [redacted] mine to be transported by rail to the Warrick facility. CEI South also procured another trucking company [redacted] in early June 2022 to supplement the transportation of coal to its plants. Lastly, as discussed in FAC 134 and 135, in 2021 and 2022, CEI South implemented a coal conservation strategy used to help conserve coal for CEI South customers.

Q. Does CEI South have plans to use the [redacted] at any point during the remainder of 2022?

A. No. As will be explained in more detail later in this testimony, CEI South's Culley Unit 3 will be out of service the remainder of 2022. This has resulted in a reduction in the need for coal supply in 2022 and allows CEI South to manage inventory as needed by deploying trucks that normally deliver to the Culley facility to wherever the largest need is. CEI South will continue to monitor inventory daily, keep abreast of MISO energy price projections, and continue to be in close communication with both [redacted] and [redacted] as well as our transportation providers but does not anticipate the need to use the [redacted] again in 2022.

VII. COAL SUPPLY PLAN

Q. Please provide an update to CEI South's 2022 coal supply plan to include delivery options with [redacted].

A. CEI South entered 2022 with 245,837 tons of coal in inventory. For 2022, CEI South currently has in place coal deliveries priced under three separate contracts previously reviewed by the Commission. Because CEI South negotiated the ability to adjust the contract amount in any given year, CEI South can reduce the total 2022 specified contract volumes of [redacted] tons to a 2022 firm commitment of [redacted] tons or increase the 2022 firm commitment to [redacted] tons. The table below shows the individual contracts and the [redacted] associated with each.

2022 Contracts	Contracted Volume	[redacted]	[redacted]
[redacted] Contract #1	[redacted]	[redacted]	[redacted]
Contract #2	[redacted]	[redacted]	[redacted]
Contract #3	[redacted]	[redacted]	[redacted]
Total Contracted	[redacted]	[redacted]	[redacted]

The following table shows the individual contracts and the [redacted] that can be exercised in tons associated with each contract:

2022 Contracts	Contracted Volume	[redacted]	[redacted]
[redacted] Contract #1	[redacted]	[redacted]	[redacted]
Contract #2	[redacted]	[redacted]	[redacted]
Contract #3	[redacted]	[redacted]	[redacted]
Total Contracted	[redacted]	[redacted]	[redacted]

The [redacted] must be decided by [redacted] of the year prior to the actual year the coal is taken or, in this case, by [redacted], for coal to be taken in 2022. [redacted]. Therefore, CEI South decided to exercise the [redacted] to reduce all three contracts' volumes by [redacted]. [redacted] must be decided thirty days before the beginning of each calendar quarter. CEI South chose to exercise both the [redacted] 2022 [redacted] to increase the quarterly volume by [redacted] on all three contracts and advised [redacted] that CEI South will likely increase the volumes in the remaining [redacted] for all three contracts by the maximum [redacted]. The tables below outline the [redacted] to be exercised in the current plan and the volume of coal from [redacted] that could be delivered in 2022.

2022 Contracts	Contracted Volume	[redacted]
[redacted] Contract #1	[redacted]	[redacted]
Contract #2		
Contract #3		
Total Contracted Volume		

2022 Contracts	[redacted]
[redacted] Contract #1	[redacted]
Contract #2	
Contract #3	
Total Contracted Volume	

Q. Given the spot purchases and 2021 shortfall from [redacted] discussed in previous FAC testimony please show the total 2022 coal that can be taken in 2022.

A. The following table shows the planned 2022 coal from [redacted] after the [redacted] as well as the [redacted] shortfall from 2021 and the two spot purchases made earlier in 2022 when low inventories were an issue.

	Contracted Volume		
[redacted] Contract #1	[redacted]	[redacted]	[redacted]
[redacted] Contract #2	[redacted]	[redacted]	[redacted]
[redacted] Contract #3	[redacted]	[redacted]	[redacted]
[redacted] 2021 Shortfall			[redacted]
Total 2022 [redacted] Volume			[redacted]
2022 [redacted] Spot Purchase			[redacted]
2022 [redacted] Spot Purchase			[redacted]
Total 2022 Projected Tons Available			[redacted]

Q. Has anything occurred that will impact CEI Souths 2022 coal plan?

A. Yes. On June 24, 2022, the Boiler Feed Pump Turbine (BFPT) on Culley Unit 3 failed resulting in the unit being unavailable for approximately the next 6-12 months.

Q. Please provide additional details regarding this event.

A. For context, the BFPT uses steam from a low-pressure extraction off the main steam turbine to drive the Boiler Feed Pump ("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.

As indicated earlier in my testimony, Culley Unit 3 tripped off-line on June 24, 2022. While ramping down, the check valves that prevent water in the boiler 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 BFPT foundation was also damaged and will require repair.

Q. Please describe the proposed plan to repair the BFPT .

A. Repairing the BFPT will require the creation of forgings as well as machining of parts to the exact specifications of this particular BFPT. To help evaluate the damage and identify the best options to repair or replace the BFPT, CEI South engaged the Original Equipment Manufacturer ("OEM") General Electric ("GE"). In consultation with the OEM, the quickest and lowest cost option identified was to locate and purchase a replacement BFPT from another facility.

Q. Has CEI South or GE located a replacement BFPT from another facility?

A. Yes. GE located a BFPT that is very similar to the one used on Culley Unit 3 located at a utility in Montana at a coal plant the was recently retired. GE has performed inspections and maintenance on this particular BFPT over the years and had a good idea of the condition. They visited the plant to perform a cursory inspection to ensure it was in reasonable condition and evaluate how it could be disassembled and removed. The utility agreed to sell the BFPT to GE who will disassemble and transport it back to their shop to inspect and refurbish ensuring it's in good condition. They will then transport the BFPT to the Culley plant to install and oversee the start-up process.

Q. How long will this process take?

A. GE has estimated this will take approximately 6-12 months.

Q. Is there anything else besides the BFPT that will need repair or replacement?

A. Yes. As mentioned earlier, the BFPT foundation will need repairs as well as several components of surrounding oil, steam and water piping and electrical systems that will require repair or replacement. Although the BFP appears to be in good condition, it along with its foundation as well as the Deaerator storge tank and heater are currently being evaluated.

Q. How has the Culley Unit 3 issue impacted the CEI South coal supply plan in 2022?

A. It has provided the opportunity to work towards increasing short term fuel inventory particularly at the Brown plant whose inventory level fell to 15,558 tons (a little more

than 3 days with both units at full load) in early July. This is being accomplished by continuing to rail coal into Brown as planned as well as sending trucks that normally deliver to Culley to the Brown facility. It has also reduced the amount of coal required by CEI South in 2022.

Q. How is coal being supplied to Warrick?

A. Because the [redacted] mine is close to Warrick and sits on the [redacted] rail it makes sense to rail this coal from [redacted] to the Warrick facility. In addition, the [redacted] mine does not have the ability to load trucks without adding additional cost.

Q. How is CEI South addressing this need for less coal than what is currently under contract in 2022?

A. CEI South contacted [redacted] regarding an opportunity to reduce the volumes under contract, however, after consideration, [redacted] was not able to accommodate this request. CEI South then began discussions with [redacted] who had previously approached CEI South and expressed interest in [redacted]. Eventually CEI South and [redacted] reached an agreement whereby CEI South agreed to limit its coal shipments from [redacted] to [redacted] tons in [redacted] 2022. In return, [redacted] would allow CEI South to defer any contractual volumes of coal [redacted].

Q. What is the projected volume of [redacted] coal that will be [redacted]?

A. The projected deferral is [redacted] tons.

Q. Please explain the benefit to CEI South customers with this approach.

A. [redacted]

[redacted]

Q. Why did [redacted] agree to this arrangement?

A. As mentioned earlier [redacted] was looking for a way to [redacted]. By reducing the planned shipments to CEI South additional [redacted] inventory was freed up to market at a much higher price than the current CEI South 2022 contractual price providing an opportunity to [redacted].

Q. Please show the total tons of coal CEI South plans to receive in 2022.

A. The following table shows total planned 2022 [redacted] contractual volumes, the 2021 [redacted] shortfall to be delivered in 2022, the anticipated [redacted] shortfall in 2022 that will be [redacted], the two 2022 spot purchases from [redacted] and [redacted] and the projected total tons of coal to be delivered in 2022.

	Contracted Volume	[redacted]	[redacted]
[redacted] Contract #1	[redacted]	[redacted]	[redacted]
[redacted] Contract #2	[redacted]	[redacted]	[redacted]
[redacted] Contract #3	[redacted]	[redacted]	[redacted]
[redacted] 2021 Shortfall			[redacted]
Projected [redacted] 2022 [redacted]			[redacted]
Total 2022 [redacted] Purchase			[redacted]
2022 [redacted] Spot Purchase			[redacted]
2022 [redacted] Spot Purchase			[redacted]
Total 2022 Projected Tons Delivered			[redacted]

Q. With the loss of Culley Unit 3, what is the projected coal burn and the projected year-end inventory in 2022?

A. The following table shows the 2022 beginning inventory, planned deliveries, total inventory, projected coal burn, and projected year-end inventory.

Beginning Inventory	[redacted]
Planned Deliveries	
Total Inventory	
Projected Burn	
Projected Year End Inventory	

Q. Please provide an update to the 2023 coal plan.

A. CEI South currently plans to manage the annual and monthly volumes of all three coal contracts to achieve an adequate target inventory level at the F. B. Culley plant. The following table shows the projected starting inventory, planned contractual deliveries, projected coal burn, total available inventory, and projected ending inventory.

2022 Projected Ending Inventory	[redacted]
2023 Deliveries	
2023 Total Available Inventory	
2023 Projected Coal Burn	
2023 Year-End Inventory	

Q. Does CEI South have opportunities to re-negotiate its contract prices over the next several years?

A. Yes, CEI South's contract portfolio contains contracts with staggered terms. The terms of each contract with the applicable re-opener years signified by "Price Re-opener" are set forth below. Prices are determined in negotiations the year prior, i.e., the 2022 price re-opener on Contract #2 was negotiated in 2021. Due to the planned exit of the Joint Operating Agreement ("JOA") with [redacted] for Warrick Unit 4 at the end of 2023, Contract #3 will expire at the end of 2022 and will not be renewed. The next price reopener is currently planned in 2024 to re-price Contract #2 for 2025-2027.

Contract	Tons	2022	2023	2024	2025	2026	2027
Contract #1	[redacted]	Year 2	Year 3	N/A	N/A	N/A	N/A
Contract #2	[redacted]	Year 1 Price Reopener	Year 2	Year 3	Year 1 Price Reopener	Year 2	Year 3
Contract #3	[redacted]	Year 3	N/A	N/A	N/A	N/A	N/A

Q. Please expand on the 2023 coal plan for the Brown and Warrick facilities.

A. As mentioned earlier, CEI South plans to exit the JOA with [redacted] on Warrick Unit 4 at the end of 2023 and retire the Brown units in October of 2023. The goal will be to reduce coal inventory at these locations to as close to zero as possible. CEI South will maintain the ability to increase or decrease the [redacted] tons of coal in Contracts #1 and #2 from [redacted] tons to [redacted] tons to meet the needs of all CEI South coal units. Contractually, CEI South has additional flexibility by reducing coal take on Contract #1 to only what is needed one year prior to units being retired. In addition, CEI South has an agreement with [redacted] to supply any supplemental coal required for Warrick Unit 4 in 2023 [redacted].

VIII. SEASONAL NOx ALLOWANCES

Q. Have there been any changes to the Group 3 Seasonal Nitrogen Oxides ("NOx") Allowances worthy of discussion?

A. Yes. As a result of the Cross State Air Pollution Rule, the Environmental Protection Agency ("EPA") has been gradually reducing the number of Seasonal NOx emission allowances that are allocated to Group 3 utilities. Once the allowances are exhausted, utilities can either purchase allowances from the market or surrender future allowances at a 2 to 1 ratio.

Q. Please describe CEI South's position in relation to Seasonal NOx allowances for 2022.

A. Seasonal NOx allowances are used for generation during the months of May through September. Due to the reduction in Seasonal NOx allowances allocated to CEI South – a Group 3 utility – and the high-capacity factors of CEI South's units, CEI South exhausted its allocated Seasonal NOx allowances in early August.

Q. Please show a five-year history containing the number of Seasonal NOx allowances allocated to CEI South, the number emitted, the number purchased and the purchase price.

A. The following table contains this information.

Year	Seasonal NOx Allowances Allocated	NOx Seasonal Emissions	Seasonal NOx Allowances Purchased	Purchase Price per Allowance
2018	1,381	2,153	350	[redacted]
2019	1,381	2,294	1,050	[redacted]
2020	1,379	2,205	800	[redacted]
2021	1,184	1,774	600	[redacted]
2022	851	~1,307*	~450*	[redacted]

* Current season estimated values

Q. Please explain the increase in price for Seasonal NOx Allowances in 2021.

A. Due to the EPA's reduction in allocating allowances and coal units running at high-capacity factors, the market was tight. Fortunately, CEI South decided to purchase the needed Seasonal NOx allowances in September 2021, while a reasonable supply remained available. However, supply has since tightened, and the price continues to rise. By April 2022, the 2021 Group 3 Seasonal NOx allowances were selling at over [redacted] per allowance.

Q. Please explain the current situation with 2022 Seasonal NOx allowances.

A. In 2022, the EPA again reduced the number of Group 3 Seasonal NOx allowances allocated to the industry. As shown in the table, earlier in my testimony, CEI South's allocation dropped by nearly 30% in 2022 from 2021. As mentioned earlier, these allowances are used for generation in the months of May-September. As it became clear that additional Group 3 Seasonal NOx allowances would be needed to cover 2022 emissions, CEI South began working with brokers to monitor the price and availability. As utilities with Group 3 allowances were uncertain of the number of surpluses they would have available, there was limited, if any, opportunity to purchase. As time progressed, small volumes became available which were purchased quickly and at very high prices. As energy prices and capacity factors of coal units remained high, Group 3 Seasonal NOx prices continued to rise resulting in larger volumes becoming available to purchase. Based on the experience of 2021 when prices continued to rise over time, CEI South began purchasing blocks as they became available. CEI South made several offers below asking price; however, the sellers

turned down the offers. Eventually CEI South was able to procure its first group of Seasonal NOx allowances at [redacted] per allowance in early August.

Q. Please describe in more detail the attempts to purchase Group 3 Seasonal NOx allowances as well as volumes purchased, and price paid.

A. As mentioned earlier in my testimony, CEI South worked with brokers to make several offers for additional Seasonal NOx allowances, each of which was below the asking price and each of which was turned down. Specifically, in late July, CEI South offered: (1) [redacted] per allowance; (2) [redacted] per allowance; and (3) [redacted] per allowance; however, as explained, all three offers were rejected by the sellers. Since then, CEI South was able to procure: (1) 194 Group 3 allowances for [redacted] per allowance on August 5, 2022; (2) 100 Group 3 Seasonal NOx allowances at [redacted] per allowance August 9, 2022; and (3) 100 Group 3 Seasonal NOx allowances at [redacted] per allowance on August 12, 2022.

Q. Has CEI South taken any action to ensure continuing to offer units into the MISO market and purchasing any needed Seasonal NOx allowances is better for the customer vs. simply not operating units and purchasing energy from the MISO market?

A. Yes. Each month CEI South adjusts its energy offer price into the MISO market for each unit based on efficiency and the cost of fuel as well as the market cost for environmental emissions required to produce a Megawatt Hour (MWHr) of energy. If the unit is economically dispatched by MISO it can be concluded that the cost to produce a MWHr of energy including the purchase of associated emissions is lower than the cost of purchasing the energy from the MISO market and avoiding the purchase of Seasonal NOx allowances.

Q. What is CEI Souths plan for obtaining the remaining Seasonal NOx allowances projected to be needed in 2022?

A. At this point CEI South is projecting a need for an additional 80-100 Group 3 Seasonal NOX allowances. CEI South will continue to work with brokers to monitor the asking price and number of 2022 Group 3 allowances available to purchase. As no one knows

where the market will eventually end up, CEI South will evaluate any opportunity we have to continue to procure additional allowances.

Q. What actions have CEI South taken to limit Seasonal NOx emissions?

A. CEI South has Selective Catalytic Reduction ("SCR") systems, which removes NOx on all units but Culley Unit 2 which has low NOx burners. CEI South has operated all SCR systems at the most aggressive NOx removal rate possible while minimizing other operational issues.

Q How much does a Seasonal NOx allowance add to the MISO energy offer price?

A. The table below shows the approximate increase in production costs per MWHr that a Seasonal NOx allowance has at a [redacted] price for each unit at the targeted NOx emission rate its capable of currently operating at.

Unit	NOx Seasonal Emission Rate (lbs./MMBTU)	NOx Cost per MWHr based on a [redacted] Allowance Price
Brown 1	0.08	[redacted]
Brown 2	0.08	
Culley 2	0.40	
Culley 3	0.08	
Warrick 4	0.12	

IX. TROY SOLAR PROJECT

Q. Please provide an update on the 50MW Troy Solar project.

A. As described in previous FAC filings, CEI South completed the process of installing and testing the control system on April 23, 2021, which enabled curtailment ability, allowing the field to be offered into the MISO market. The solar field has been operating very well since that point. Production from January 2022 – June 2022 from the Troy Solar field was 53,376 MWhr's. Production estimates for this FAC period are included on Petitioners Exhibit No. 2, Attachment RMW-2, Schedule 1, Line 4, under "Solar Generation."

X. NATURAL GAS PROCUREMENT FOR OPERATIONS OF PEAKING UNITS

Q. Please describe how CEI South's natural gas hedging strategy is evolving with Gas Supply taking the lead on procurement.

A. Since taking responsibility for natural gas purchases for the peaking units in April 2022, Gas Supply has implemented incremental changes to the processes inherited from the Wholesale Power group. One example is a baseload fixed transaction of 2,000 Dth/day with [redacted] for the month of August 2022. Natural gas pricing has been volatile in the summer of 2022 and putting a baseload volume in place at a known price is a practice that is in line with Gas Supply's practices for mitigating volatility. Working with the Wholesale Power group, changes to CEI South's natural gas hedging strategy for the peaking units will evolve to align that strategy as closely as possible to the hedging processes for the gas utility.

Q. What portions of this testimony is CEI South requesting to be treated as confidential information?

A. CEI South's confidentiality request relates to the pricing of Seasonal NOx allowances, [redacted] with some coal supply contracts, re-pricing of coal contracts, and other concessions, as well as tonnage figures calculated using such optionality ("Confidential Provisions") and details related to costs. Confidentiality also relates to rail transportation rates, fuel surcharges, competitive bids, and minimum requirements.

Q. Why has CEI South requested that such information be treated as confidential?

A. These Confidential Provisions of the testimony contain pricing of Seasonal NOx allowances as well as [redacted] and other confidential terms that were negotiated between CEI South and its natural gas and coal suppliers. If the pricing and optionality became generally known or readily ascertainable to the other parties with whom CEI South is negotiating or to other utilities with whom CEI South would compete, this knowledge would provide considerable economic value to such parties. In effect, knowledge of pricing and optionality provisions by other suppliers would establish a ceiling in future negotiations, thereby limiting the potential terms and

benefits that could accrue to ratepayers, shareholders, and CEI South. Knowledge of the pricing and optionality provisions by potential coal suppliers could enable them to gain an unfair advantage in future competitive situations and negotiate a lower price and optionality provision than would otherwise be possible. The lower optionality provisions would diminish the flexibility available to Applicant's operations to the disadvantage of Applicant and its customers. Further, disclosure of the coal suppliers' optionality provisions would be of significant value to the coal suppliers' competitors, which could prove harmful to the coal suppliers. In addition, CEI South request coal transportation rates, competitive bids, and contract terms remain confidential to protect supplier's confidential information well as the economic value competitive parties could gain from this information in an open energy market. CEI South is requesting that, pursuant to Indiana Code § 5-14-3-4(a)(4), the Commission find that the Confidential Provisions of the Contract contain "trade secrets" as that term is defined in Indiana Code § 24-2-3-2 and are thereby excepted from the access to public records provisions contained in Indiana Code §§ 5-14-3-3 and -3.5 and 8-1-2-29.

Q. Has CEI South taken any steps to maintain the confidentiality of this information?

A. Yes. In accordance with Indiana Code § 24-2-3-2, the information contained in the Confidential Provisions of the testimony has been the subject of efforts that are reasonable under the circumstances to maintain its secrecy. Within CEI South, this information will be disclosed only to those people directly involved with negotiating coal supply contracts. Outside of CEI South, this information will be disclosed only to individuals who have signed a confidentiality agreement.

XI. CONCLUSION

Q. Does this conclude your direct testimony?

A. Yes, at the present time.

VERIFICATION

I affirm under penalties for perjury that the foregoing representations are true to the best of my knowledge, information, and belief.

SOUTHERN INDIANA GAS AND ELECTRIC COMPANY D/B/A CENTERPOINT ENERGY INDIANA SOUTH

Wayne D. Games
Vice President, Power Generation Operations

08/15/2022
Date

CENTERPOINT ENERGY INDIANA SOUTH
Determination of MISO Components of Fuel Cost
March 2022 and April and May 2022

		Actual March 2022	Actual April 2022	Actual May 2022
	Energy Market & ASM FAC Adjustment Components			
1	Delta LMP	$ 768,219.78	$ 1,272,899.23	$ 1,352,280.70
2	DA Virtuals Bids and Offers for Load	-	-	-
3	DA RSG 1st Pass Distribution Amount	11,841.60	10,902.88	26,213.95
4	DA RSG Make Whole Payment	-	(6,872.60)	(6,180.13)
5	DA Regulation Amount	(33,675.12)	(167,127.10)	(59,133.04)
6	DA Spinning Reserve Amount	(56,169.03)	(107,935.41)	(14,472.85)
7	DA Supplemental Reserve Amount	-	(81.00)	-
8	DA Ramp Capability Amount	(11,435.89)	(12,760.87)	(1,702.87)
9	DA Short-Term Reserve Amount	(11,154.80)	(28,438.50)	(599.06)
10	RT Marg. Loss Surplus Credit	(55,700.00)	(141,739.36)	(99,959.02)
11	RT Virtuals Bids and Offers for Load	-	-	-
12	RT RSG 1st Pass Distribution Amount	15,046.48	30,250.38	103,320.36
13	RT RSG Make Whole Payment Amount	(44,940.49)	(89,284.05)	(45,890.49)
14	RT Price Volatility Make Whole Payment Amount	(1,633.72)	(14,897.88)	(9,191.83)
15	RT Net Inadvertent Energy	(2,285.72)	7,642.73	5,077.69
16	RT Revenue from Uninstructed Deviation	-	-	-
17	RT Uninstructed Deviation	-	-	-
18	RT Demand Response Allocation Uplift Charge	14,833.86	27,503.14	41,112.41
19	RT Regulation Amount	-	-	-
20	RT Spinning Reserve Amount	7,263.33	61,865.77	(9,904.62)
21	RT Supplemental Reserve Amount	18,336.91	27,455.52	(1,773.43)
22	RT Regulation Cost Distribution Amount	-	(11.75)	(710.81)
23	RT Spinning Reserve Cost Distribution Amount	16,186.72	22,953.19	33,312.63
24	RT Supplemental Reserve Cost Distribution Amount	16,666.33	25,289.77	31,205.66
25	RT Excessive Deficient Energy Deployment Charge Amount	994.41	2,564.15	2,363.15
26	RT Contingency Reserve Deployment Failure Charge Amount	12,564.09	65,543.28	25,844.97
27	RT Net Regulation Adjustment Amount	(4,163.29)	(12,242.20)	(2,601.65)
28	RT Ramp Capability Amount	3,044.14	103.28	(325.82)
29	RT Short-Tem Reserve Amount	3,596.41	(396.63)	(284.71)
30	Short-Term Reserve Cost Distribution Amount	5,621.94	12,638.20	11,544.91
31	Short-Term Reserve Deployment Failure Charge Amount	-	-	-
32	FTR (Revenue) / Expenses	(3,963.72)	-	-
33	ARR (Revenue) / Expenses	(65,212.19)	(65,212.19)	(65,212.19)
34	Subtotal	603,882.03	920,611.98	1,314,333.92
35	Plus: Residual Load Adjustment Volume Changes			
36	Plus: MISO Charges (above) on sales billed to IMPA	-	-	-
37	Total (To RMW-2, Sch 5, line 21)	$ 603,882.03	$ 920,611.98	$ 1,314,333.92

Negative amount is a credit to expense (**payment from MISO**)
Positive amount is a debit to expense (**payment to MISO**)

CENTERPOINT ENERGY INDIANA SOUTH
Calculation of Daily Benchmark
Based on NYMEX Henry Hub Day Ahead Natural Gas Price

March 2022						April 2022						May 2022					
Date	Day Ahead Cost $/MMBtu	Transportation $/MMBtu	Allowed Gas Price $/MMBtu	Heat Rate Btu/kWh	Daily Benchmark $/MWh	Date	Day Ahead Cost $/MMBtu	Transportation $/MMBtu	Allowed Gas Price $/MMBtu	Heat Rate Btu/kWh	Daily Benchmark $/MWh	Date	Day Ahead Cost $/MMBtu	Transportation $/MMBtu	Allowed Gas Price $/MMBtu	Heat Rate Btu/kWh	Daily Benchmark $/MWh
03/01/22	4.280	0.60	4.88	12,500	61.00	04/01/22	5.480	0.60	6.08 [6]	12,500	76.00	05/01/22	6.845	0.60	7.45 [7]	12,500	93.06
03/02/22	4.335	0.60	4.94	12,500	61.69	04/02/22	5.470	0.60	6.07	12,500	75.88	05/02/22	6.845	0.60	7.45	12,500	93.06
03/03/22	4.650	0.60	5.25	12,500	65.63	04/03/22	5.470	0.60	6.07	12,500	75.88	05/03/22	7.300	0.60	7.90	12,500	98.75
03/04/22	4.570	0.60	5.17	12,500	64.63	04/04/22	5.470	0.60	6.07	12,500	75.88	05/04/22	7.860	0.60	8.46	12,500	105.75
03/05/22	4.730	0.60	5.33	12,500	66.63	04/05/22	5.655	0.60	6.26	12,500	78.19	05/05/22	8.295	0.60	8.90	12,500	111.19
03/06/22	4.730	0.60	5.33	12,500	66.63	04/06/22	5.955	0.60	6.56	12,500	81.94	05/06/22	8.405	0.60	9.01	12,500	112.56
03/07/22	4.730	0.60	5.33	12,500	66.63	04/07/22	6.245	0.60	6.85	12,500	85.56	05/07/22	8.365	0.60	8.97	12,500	112.06
03/08/22	4.920	0.60	5.52	12,500	69.00	04/08/22	6.030	0.60	6.63	12,500	82.88	05/08/22	8.365	0.60	8.97	12,500	112.06
03/09/22	4.580	0.60	5.18	12,500	64.75	04/09/22	6.300	0.60	6.90	12,500	86.25	05/09/22	8.365	0.60	8.97	12,500	112.06
03/10/22	4.555	0.60	5.16	12,500	64.44	04/10/22	6.300	0.60	6.90	12,500	86.25	05/10/22	7.840	0.60	8.44	12,500	105.50
03/11/22	4.595	0.60	5.20	12,500	64.94	04/11/22	6.300	0.60	6.90	12,500	86.25	05/11/22	6.485	0.60	7.09	12,500	88.56
03/12/22	4.730	0.60	5.33	12,500	66.63	04/12/22	6.360	0.60	6.96	12,500	87.00	05/12/22	7.510	0.60	8.11	12,500	101.38
03/13/22	4.730	0.60	5.33	12,500	66.63	04/13/22	6.560	0.60	7.16	12,500	89.50	05/13/22	7.305	0.60	7.91	12,500	98.81
03/14/22	4.730	0.60	5.33	12,500	66.63	04/14/22	6.700	0.60	7.30	12,500	91.25	05/14/22	7.700	0.60	8.30	12,500	103.75
03/15/22	4.575	0.60	5.18	12,500	64.69	04/15/22	6.930	0.60	7.53	12,500	94.13	05/15/22	7.700	0.60	8.30	12,500	103.75
03/16/22	4.475	0.60	5.08	12,500	63.44	04/16/22	6.930	0.60	7.53	12,500	94.13	05/16/22	7.700	0.60	8.30	12,500	103.75
03/17/22	4.670	0.60	5.27	12,500	65.88	04/17/22	6.930	0.60	7.53	12,500	94.13	05/17/22	7.975	0.60	8.58	12,500	107.19
03/18/22	4.795	0.60	5.40	12,500	67.44	04/18/22	6.930	0.60	7.53	12,500	94.13	05/18/22	8.225	0.60	8.83	12,500	110.31
03/19/22	4.870	0.60	5.47	12,500	68.38	04/19/22	7.555	0.60	8.16	12,500	101.94	05/19/22	8.445	0.60	9.05	12,500	113.06
03/20/22	4.870	0.60	5.47	12,500	68.38	04/20/22	7.385	0.60	7.99	12,500	99.81	05/20/22	8.170	0.60	8.77	12,500	109.63
03/21/22	4.870	0.60	5.47	12,500	68.38	04/21/22	7.035	0.60	7.64	12,500	95.44	05/21/22	7.975	0.60	8.58	12,500	107.19
03/22/22	4.775	0.60	5.38	12,500	67.19	04/22/22	6.875	0.60	7.48	12,500	93.44	05/22/22	7.975	0.60	8.58	12,500	107.19
03/23/22	5.005	0.60	5.61	12,500	70.06	04/23/22	6.550	0.60	7.15	12,500	89.38	05/23/22	7.975	0.60	8.58	12,500	107.19
03/24/22	5.260	0.60	5.86	12,500	73.25	04/24/22	6.550	0.60	7.15	12,500	89.38	05/24/22	8.145	0.60	8.75	12,500	109.31
03/25/22	5.165	0.60	5.77	12,500	72.06	04/25/22	6.550	0.60	7.15	12,500	89.38	05/25/22	8.770	0.60	9.37	12,500	117.13
03/26/22	5.485	0.60	6.09	12,500	76.06	04/26/22	6.395	0.60	7.00	12,500	87.44	05/26/22	9.295	0.60	9.90	12,500	123.69
03/27/22	5.485	0.60	6.09	12,500	76.06	04/27/22	6.815	0.60	7.42	12,500	92.69	05/27/22	9.065	0.60	9.67	12,500	120.81
03/28/22	5.485	0.60	6.09	12,500	76.06	04/28/22	6.935	0.60	7.54	12,500	94.19	05/28/22	8.265	0.60	8.87	12,500	110.81
03/29/22	5.435	0.60	6.04	12,500	75.44	04/29/22	6.790	0.60	7.39	12,500	92.38	05/29/22	8.265	0.60	8.87	12,500	110.81
03/30/22	5.310	0.60	5.91	12,500	73.88	04/30/22	6.790	0.60	7.39	12,500	92.38	05/30/22	8.265	0.60	8.87	12,500	110.81
03/31/22	5.335	0.60	5.94	12,500	74.19							05/31/22	8.265	0.60	8.87	12,500	110.81

Total (To RMW-2, Sch 5, line 21)

CenterPoint Energy Indiana - South
Market Settlements Group
Purchased Power Over Benchmark Explanations - March - Cause No. 38708 FAC 136

S55's through 03/31

Mar Benchmark Costs	Trade Date	HE	Cost of Purchased Power	Purchases Volume	Price	Purchases Volume @ Benchmark $	Amount Over Benchmark $	Reason for Purchasing Power	Available Capacity of Units Not Selected	MISO Economic Dispatch / Purchased MWs above Capacity	Purchase Power Costs at Risk	Test for Outages and Derates: MWs Out of Service	Test for Outages and Derates: 11% of Winter Rated Capacity 1261	Test for Outages and Derates: Are Unit MWs Out of Service > 11% Winter Capacity?	Test for Outages and Derates: Recoverable @ 0%, 85%, or 100%	MWs Subject to 85%-15%	Over Benchmark Price	Total Unrecoverable Dollars
61.00	Mar 1	8	$ 392.22	5.620	$ 69.79	$ 342.82	$ 49.40	*Culley 2 and Culley 3 were on outage*	534	-	$ -	534	138.71	YES	100	-	$ 8.79	$ -
65.63	Mar 3	8	$ 364.08	5.190	$ 70.15	$ 340.59	$ 23.49	*Culley 2 and Culley 3 were on outage*	534	-	$ -	534	138.71	YES	100	-	$ 4.53	$ -
68.38	Mar 21	19	$ 980.41	10.100	$ 97.07	$ 690.59	$ 289.82	*Culley 2, Culley 3, and Warrick 4 were on outage*	734	-	$ -	734	138.71	YES	100	-	$ 28.70	$ -
70.06	Mar 23	10	$ 1,342.04	13.530	$ 99.19	$ 947.95	$ 394.09	*Culley 2, Culley 3, and Warrick 4 were on outage*	684	-	$ -	684	138.71	YES	100	-	$ 29.13	$ -
75.44	Mar 29	5	$ 614.45	8.070	$ 76.14	$ 608.78	$ 5.67		734	-	$ -	734	138.71	YES	100	-	$ 0.70	$ -
75.44		6	$ 1,996.03	20.870	$ 95.64	$ 1,574.39	$ 421.64	*Culley 2, Culley 3, and Warrick 4 were on outage*	734	-	$ -	734	138.71	YES	100	-	$ 20.20	$ -
75.44		7	#########	64.590	$ 176.64	$ 4,872.54	$ 6,536.59		734	-	$ -	734	138.71	YES	100	-	$ 101.20	$ -
75.44		8	$ 4,369.53	51.370	$ 85.06	$ 3,875.25	$ 494.28		734	-	$ -	734	138.71	YES	100	-	$ 9.62	$ -
Total			**$ 21,467.89**	**179.340**		**$ 13,252.91**	**$ 8,214.97**		**5,422.000**	**-**	**$ -**	**5,422.000**				**-**		**$ -**

CenterPoint Energy Indiana - South
Market Settlements Group
Purchased Power Over Benchmark Explanations - April - Cause No. 38708 FAC 136

S55's through 4/30

Apr Benchmark Costs	Trade Date	HE	Cost of Purchased Power	Purchases Volume	Price	Purchases Volume @ Benchmark $	Amount Over Benchmark $	Reason for Purchasing Power	Available Capacity of Units Not Selected	MISO Economic Dispatch / Purchased MWs above Capacity	Purchase Power Costs at Risk	Test for Outages and Derates: MWs Out of Service	Test for Outages and Derates: 11% of Winter Rated Capacity 1261	Test for Outages and Derates: Are Unit MWs Out of Service > 11% Winter Capacity?	Recoverable @ 0%, 85%, or 100%	MWs Subject to 85%-15%	Over Benchmark Price	Total Unrecoverable Dollars
76.00	Apr 1	3	$ 1,070.11	8.340	$ 128.31	$ 633.84	$ 436.27	*Culley 2, Brown 2, and Warrick 4 were on outage*	709	-	$ -	709	138.71	YES	100	-	$ 52.31	$ -
75.88	Apr 3	20	$ 876.32	11.300	$ 77.55	$ 857.39	$ 18.93	*Culley 2, Brown 2, and Warrick 4 were on outage*	709	-	$ -	709	138.71	YES	100	-	$ 1.68	$ -
81.94		11	$ 2,470.34	28.540	$ 86.56	$ 2,338.51	$ 131.83		572	-	$ -	572	138.71	YES	100	-	$ 4.62	$ -
81.94		12	$ 10,102.09	95.550	$ 105.73	$ 7,829.18	$ 2,272.91		659	-	$ -	659	138.71	YES	100	-	$ 23.79	$ -
81.94	Apr 6	13	$ 9,293.86	85.160	$ 109.13	$ 6,977.84	$ 2,316.02	*Culley 2, Brown 2, and Warrick 4 were on outage*	659	-	$ -	659	138.71	YES	100	-	$ 27.20	$ -
81.94		14	$ 12,017.53	133.900	$ 89.75	$ 10,971.50	$ 1,046.03		659	-	$ -	659	138.71	YES	100	-	$ 7.81	$ -
81.94		15	$ 13,105.92	159.420	$ 82.21	$ 13,062.56	$ 43.36		929	-	$ -	929	138.71	YES	100	-	$ 0.27	$ -
81.94		16	$ 20,127.34	125.170	$ 160.80	$ 10,256.18	$ 9,871.16		929	-	$ -	929	138.71	YES	100	-	$ 78.86	$ -
82.88		8	$ 4,551.18	47.360	$ 96.10	$ 3,924.96	$ 626.22	*Culley 2, Brown 2, and Warrick 4 were on outage*	659	-	$ -	659	138.71	YES	100	-	$ 13.22	$ -
82.88	Apr 8	9	$ 1,606.36	18.500	$ 86.83	$ 1,533.19	$ 73.17		659	-	$ -	659	138.71	YES	100	-	$ 3.96	$ -
82.88		20	$ 764.28	9.000	$ 84.92	$ 745.88	$ 18.41		709	-	$ -	709	138.71	YES	100	-	$ 2.05	$ -
86.25	Apr 11	20	$ 1,225.55	11.800	$ 103.86	$ 1,017.75	$ 207.80	*Culley 2, Brown 2, and Warrick 4 were on outage*	659	-	$ -	659	138.71	YES	100	-	$ 17.61	$ -
86.25		21	$ 1,045.74	11.600	$ 90.15	$ 1,000.50	$ 45.24		709	-	$ -	709	138.71	YES	100	-	$ 3.90	$ -
87.00	Apr 12	7	$ 8,021.86	69.740	$ 115.03	$ 6,067.38	$ 1,954.48	*Culley 2, Brown 2, and Warrick 4 were on outage*	709	-	$ -	709	138.71	YES	100	-	$ 28.03	$ -
95.44	Apr 21	20	$ 10,295.25	91.400	$ 112.64	$ 8,723.03	$ 1,572.22	*Culley 2 was on Reserve Shutdown, Brown 2 was on outage*	559	-	$ -	559	138.71	YES	100	-	$ 17.20	$ -
93.44	Apr 22	17	$ 19,259.06	156.370	$ 123.16	$ 14,610.90	$ 4,648.16	*Culley 2 and Culley 3 were on Reserve Shudown, Brown 2 and Warrck 4 were on outage*	929	-	$ -	929	138.71	YES	100	-	$ 29.73	$ -
89.38		14	$ 673.61	5.940	$ 113.40	$ 530.89	$ 142.72		929	-	$ -	929	138.71	YES	100	-	$ 24.03	$ -
89.38		16	$ 23,614.58	253.750	$ 93.06	$ 22,678.91	$ 935.67	*Culley 2 and Culley 3 were on*	929	-	$ -	929	138.71	YES	100	-	$ 3.69	$ -
89.38	Apr 24	17	$ 28,185.18	284.960	$ 98.91	$ 25,468.30	$ 2,716.88	*Reserve Shudown, Brown 2 and Warrck 4 were on outage*	929	-	$ -	929	138.71	YES	100	-	$ 9.53	$ -
89.38		18	$ 35,589.68	312.060	$ 114.05	$ 27,890.36	$ 7,699.32		929	-	$ -	929	138.71	YES	100	-	$ 24.67	$ -
89.38		19	$ 29,256.49	264.800	$ 110.49	$ 23,666.50	$ 5,589.99		659	-	$ -	659	138.71	YES	100	-	$ 21.11	$ -
89.38	Apr 25	6	$ 1,245.99	10.830	$ 115.05	$ 967.93	$ 278.06	*Culley 2 was on Reserve Shudown, Brown 2 was on outage*	559	-	$ -	559	138.71	YES	100	-	$ 25.67	$ -
Total			**$ 234,398.32**	**2,195.490**		**$ 191,753.48**	**$ 42,644.86**		**16,351.000**	**-**	**$ -**	**16,351.000**				**-**		**$ -**

CenterPoint Energy Indiana - South
Market Settlements Group
Purchased Power Over Benchmark Explanations - May - Cause No. 38708 FAC 136

S55's through 5/31

												Test for Outages and Derates						
May Benchmark Costs	Trade Date	HE	Cost of Purchased Power	Purchases Volume	Price	Purchases Volume @ Benchmark $	Amount Over Benchmark $	Reason for Purchasing Power	Available Capacity of Units Not Selected	MISO Economic Dispatch / Purchased MWs above Capacity	Purchase Power Costs at Risk	MWs Out of Service	11% of Winter Rated Capacity 1261	Are Unit MWs Out of Service > 11% Winter Capacity?	Recoverable @ 0%, 85%, or 100%	MWs Subject to 85%-15%	Over Benchmark Price	Total Unrecoverable Dollars
					$ -	$ -	$ -		-	-	$ -	-	138.71	N/A	N/A	-	$ -	$ -
					$ -	$ -	$ -		-	-	$ -	-	138.71	N/A	N/A	-	$ -	$ -
					$ -	$ -	$ -		-	-	$ -	-	138.71	N/A	N/A	-	$ -	$ -
					$ -	$ -	$ -		-	-	$ -	-	138.71	N/A	N/A	-	$ -	$ -
					$ -	$ -	$ -		-	-	$ -	-	138.71	N/A	N/A	-	$ -	$ -
					$ -	$ -	$ -		-	-	$ -	-	138.71	N/A	N/A	-	$ -	$ -
					$ -	$ -	$ -		-	-	$ -	-	138.71	N/A	N/A	-	$ -	$ -
Total			**$ -**	**-**		**$ -**	**$ -**		**-**	**-**	**$ -**	**-**				**-**		**$ -**