BEFORE THE

KANSAS CITY BOARD OF PUBLIC UTILITIES

DIRECT TESTIMONY OF

SARAH SHENSTONE-HARRIS

ON BEHALF OF SIERRA CLUB

Issue:

Electric Revenue Requirements and Risks
for Nearman Creek Power Station (Unit 1)

Filed Electronically On
May 15, 2023

BEFORE THE

KANSAS CITY BOARD OF PUBLIC UTILITIES

2023 RATE HEARING

AFFIDAVIT

Pursuant to Kansas City, Kansas Board of Public Utilities Rules of Procedure for Public Hearing on Rate Increases I, Sarah Shenstone-Harris, hereby state:

1. My name is Sarah Shenstone-Harris. I am a Senior Associate at Synapse Energy Economics, Inc. My business address is 485 Massachusetts Avenue, Suite 3, Cambridge, Massachusetts 02139.

2. Attached hereto and made part hereof for all purposes is my Direct Testimony on behalf of Sierra Club, including exhibits, which has been prepared in written form for introduction into evidence in the above-referenced rate case.

3. I hereby swear and affirm that based upon my personal knowledge, the facts stated in the Direct Testimony are true. In addition, my judgement is based on my professional experience, and the opinions and conclusions stated in the testimony are true, valid, and accurate.

Under penalty of perjury, I declare that the preceding to be true and correct to the best of my knowledge and belief.

Date: May 15, 2023

Sarah Shenstone-Harris

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1. INTRODUCTION AND SUMMARY

Q Please state your name and occupation.

A My name is Sarah Shenstone-Harris. I am a Senior Associate at Synapse Energy Economics, Inc. ("Synapse"). My business address is 485 Massachusetts Avenue, Suite 3, Cambridge, Massachusetts 02139.

Q Please describe Synapse Energy Economics.

A Synapse is a research and consulting firm specializing in energy and environmental issues, including electric generation, transmission and distribution system reliability, ratemaking and rate design, electric industry restructuring and market power, electricity market prices, stranded costs, efficiency, renewable energy, environmental quality, and nuclear power.

Synapse's clients include state consumer advocates, public utilities commission staff, attorneys general, environmental organizations, federal government agencies, and utilities.

Q Please summarize your work experience and educational background.

A I provide research, analysis, and consulting services on various electricity-sector issues, including integrated resource planning and clean energy project evaluation. Before joining Synapse, I worked at Reading Municipal Light Department, one of Massachusetts's largest municipally owned utilities, as an Integrated Resource Analyst. I helped manage Reading Light's energy portfolio and secured reliable and cost-competitive long-term power contracts. I was also involved in rate design, and in the development and administration of energy efficiency and electrification programs.

I received a Master of Science in Environmental Sustainability from the University of Ottawa's Institute for the Environment, as well as a Bachelor of Science in Biology from Queen's University in Kingston, Ontario, Canada.

A copy of my current resume is attached as Exhibit SSH-1.

Q On whose behalf are you testifying in this case?

A I am testifying on behalf of Sierra Club.

Q Have you testified previously before the Kansas City Board of Public Utilities ("BPU" or the "Board")?

A No.

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

A I review BPU's proposal to increase its electric rates, and the specific requests therein for the operations of, and required capital expenditures for, Nearman Creek Power Station Unit 1 ("Nearman").[1] I evaluate Nearman's recent historical economic performance and its likely economic performance going forward. To minimize risks and costs for ratepayers, I recommend BPU commit to a retirement date for Nearman ahead of the 2040 estimate. I also provide a brief summary of options BPU should consider for replacement resources.

Q How is your testimony structured?

A This Section 1 provides my introduction. In Section 2, I summarize my findings and recommendations for the Board.

[1] Nearman Creek Power Station also includes a natural gas combustion turbine, "CT4". All references herein to Nearman refer specifically to Unit 1, the coal-burning unit, unless specified otherwise.

In Section 3, I contextualize Nearman and BPU's proposed operations and maintenance ("O&M") spending and capital expenditures ("Capex") included in the rate application.

In Section 4, I review Nearman's historical and future economic performance based on BPU's own data. I evaluate the assumptions BPU relies on for its own assessment of Nearman's ongoing and future operations, and I outline costs BPU can avoid if it retires Nearman and replaces it with alternatives.

In Section 5, I summarize the risks BPU is subjecting ratepayers to by continuing to operate Nearman.

In Section 6, I discuss the need to begin building or procuring replacement resources for Nearman immediately. I summarize the tax benefit options currently available through the federal *Inflation Reduction Act* ("IRA").

Q What documents did you rely on for your analysis, findings, and observations?

A My analysis relies primarily on the testimony and discovery responses of BPU staff in this rate case. I also rely on information from publicly available documents, including BPU publications.

2. FINDINGS AND RECOMMENDATIONS

Q Please summarize your findings.

A My primary findings are:

1. Between 2018 and 2020, Nearman incurred costs in excess of its market energy revenue and capacity value. These excess costs were passed on to BPU ratepayers.

2. My analysis, based on BPU's projections and assuming capacity value based on BPU's existing contracts, shows that Nearman is not expected to be economic going forward and is expected to incur total net losses of $47 million between 2023 and 2027 (on a net present value ("NPV") basis).

3. BPU's projections of the future costs required to operate and maintain Nearman are unusually high compared to plants of similar size across the country.

4. BPU does not fully account for the economic risks associated with using coal for electricity production. The electricity system is changing; maintaining the status quo is no longer the lowest-risk and lowest-cost option.

5. BPU and its ratepayers can avoid capital expenditures and O&M costs and mitigate the risks associated with continuing to operate Nearman by retiring the plant as soon as possible and replacing its energy and capacity with less expensive alternatives.

Q Please summarize your recommendations.

A Based on my findings, I recommend the following:

1. To reduce costs and avoid risks for its ratepayers, BPU should commit to retiring Nearman Unit 1 well ahead of the current 2040 estimate.

2. As part of its next Integrated Resource Plan ("IRP"), the Board of Directors should require BPU staff to conduct an assessment determining the most economic retirement date for Nearman using electricity production-cost and capacity expansion modeling. The analysis should also identify Nearman's replacement resources and determine the least-cost pathway forward for ratepayers.

3. To minimize losses from operating Nearman, BPU should avoid self-commitment into the Southwest Power Pool ("SPP") market as much as possible.

4. To protect ratepayers, the Board of Directors should direct BPU staff to avoid long-term coal contracts and contracts with must-take clauses.

5. To reduce exposure to the risks associated with BPU's continued operation of Nearman, BPU should take advantage of the tax benefits available through the IRA and build or procure more renewable energy and battery storage.

3. AN OVERVIEW OF THE NEARMAN COAL PLANT

Q Please provide some background on BPU's Nearman Creek Power Station (Unit 1).

A Nearman Creek Power Station (Unit 1) is a 245 MW (net rating) coal-fired unit located along the Missouri River in Kansas City, Kansas. BPU is the sole owner of the plant.[2] The plant was commissioned in 1981[3] and is currently 42 years old.

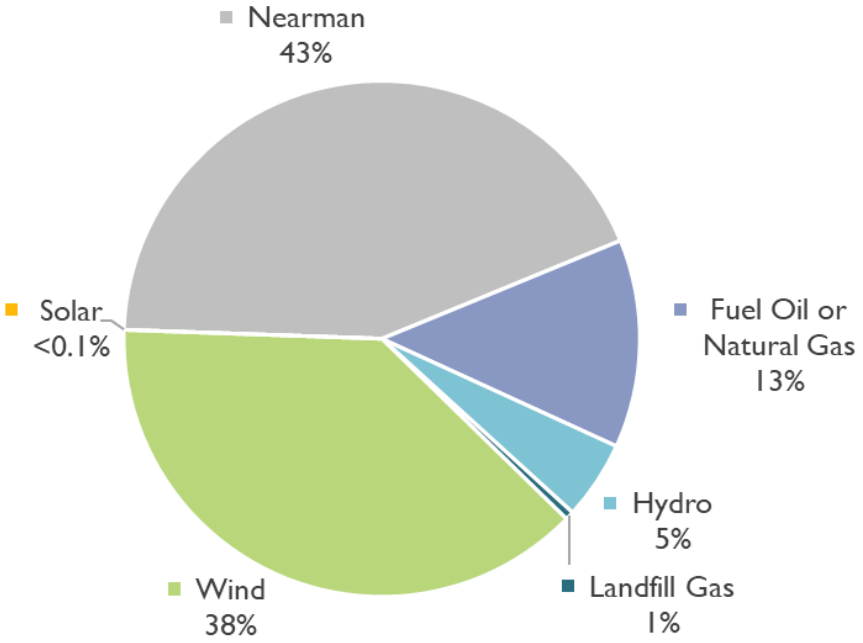
Q What is BPU's generation mix?

A Nearman Unit 1 provided 43 percent of the BPU's energy generation in 2022 (Figure 1).

[2] Kansas Corporation Commission. Electric Supply & Demand Biennial Report. 2023. *Available at* https://kcc.ks.gov/images/PDFs/legislative-reports/2023_Electric_Supply_and_Demand_Report.pdf.

[3] Kansas Corporation Commission. Electric Supply & Demand Biennial Report. 2023. *Available at* https://kcc.ks.gov/images/PDFs/legislative-reports/2023_Electric_Supply_and_Demand_Report.pdf.

Figure 1. BPU's generation mix in 2022



Source: BPU response to Sierra Club data request 1-22(c).

In 2015, coal represented 73 percent of BPU's energy.[4] But in recent years, BPU's coal reliance has declined due to the improving economics of renewable energy power purchase agreements ("PPA"), the conversion of Quindaro from coal to gas, and Nearman's declining operations.[5] However, going forward, BPU is not expecting any major changes to its energy portfolio. The Smoky Hill wind PPA is expiring in 2027,[6] and BPU currently plans to retire Quindaro CT2 and CT3 also in 2027.[7] Smoky Hills, Quindaro CT2, and Quindaro CT3 together generated 4 percent of BPU's energy in 2022.[8] In summary, BPU is planning to

[4] "Fitch Affirms Kansas City (KS) BPU Bonds 'A'; Outlook Stable." July 25, 2022. Fitch Ratings. *Available at*: https://www.fitchratings.com/research/us-public-finance/fitch-affirms-kansas-city-ks-bpu-bonds-a-outlook-stable-25-07-2022.

[5] Ibid.

[6] Kansas City, Kansas, Board of Public Utilities Integrated Resource Plan 2019, pg. 19.

[7] Kansas City, Kansas, Board of Public Utilities Integrated Resource Plan 2019, pg. 10.

[8] BPU response to Sierra Club data request 1-22(c).

continue producing a large portion of its energy from coal generation for the foreseeable future.

Q What years does this rate application cover?

A BPU is proposing to increase electric operating base rate revenues, on an annualized basis, for two 12-month periods starting July 1, 2023, and July 1, 2024.

Q What is BPU requesting in this rate case relating to Nearman?

A BPU seeks to include O&M, capital, and fuel costs in this rate application to continue operating Nearman in 2023 and 2024. These costs total $51.9 million and $52.3 million in 2023 and 2024, respectively (Table 1). [9]

[9] Costs also include common expenses for Nearman Unit 1 and CT4, "Nearman Common." BPU response to Sierra Club data request 1-3.

Table 1. Requested expenses for Nearman Creek Power Station in the current rate application, by fiscal year

Category	July 1, 2023 – June 30, 2024 ($millions)	July 1, 2024 – June 30, 2025 ($millions)
Nearman Common	$0.8	$0.8
Unit 1 Maintenance	$9.7	$9.9
Unit 1 Operations	$9.9	$10.1
Unit 1 Engineering	$3.9	$3.9
Unit 1 Fuel	$27.7	$27.7
Total	**$51.9**	**$52.3**

Source: BPU response to Sierra Club data request 1-3. Costs also include common expenses for Nearman Unit 1 and CT4, referred to as "Nearman Common."

Q What is the undepreciated balance of Nearman as of 2022?

A As of December 31, 2022, the Net Book Value for the Nearman coal unit was $305 million.[10]

Q When does BPU expect Nearman to be fully depreciated?

A BPU is projecting that Nearman will be fully depreciated by 2050.[11]

Q When does BPU currently plan on retiring Nearman?

A BPU's has estimated that Nearman will retire in 2040.[12] This means that Nearman will be online for another 17 years, until the plant is 59 years old.

[10] BPU response to Sierra Club data request 1-1.
[11] BPU response to Sierra Club data request 1-19.
[12] BPU response to Sierra Club data request 1-18.

Q Has BPU committed to this retirement date?

A No, BPU has not committed to 2040 as a retirement date; rather, it is an estimate.

Q What is BPU's rationale for estimating 2040 as a retirement date for Nearman?

A BPU is estimating the retirement date of 2040 to align roughly with the year that Nearman's bonds will be paid off, which is 2045.[13]

Q Is it reasonable to include sunk costs, such as debt costs, in selecting a unit's retirement date?

A No. Retirement decisions should be based on the economics of the generator relative to the economics of alternatives and based on minimizing costs and risks for ratepayers.

Q Has BPU conducted an economic or resource plan evaluation assessing Nearman retirement dates that are earlier than 2040?

A No, BPU has not conducted any recent analyses to evaluate the economic effect on ratepayers of an earlier retirement date than 2040 for Nearman.[14]

[13] BPU response to Sierra Club data request 4-3a.
[14] BPU response to Sierra Club data request 1-19.

4. NEARMAN UNIT 1'S COSTS HAVE EXCEEDED ITS REVENUE IN RECENT YEARS, AND THE COAL PLANT IS NOT EXPECTED TO BE ECONOMIC GOING FORWARD

i. BPU market-commits and self-commits Nearman into the SPP energy market

Q How can generators participate in the SPP energy market?

A Generator owners such as BPU have five options for generators in the SPP energy market: (1) market-commitment, (2) self-commitment, (3) reliability, (4) outage, and (5) not participating.[15]

Market-committed generators are offered into the market at a price that covers their marginal costs, which includes fuel and operating costs. SPP schedules the resource if its offer price is equal to or lower than the other generators selected to meet demand. The generator will then be paid for its generation at the market clearing price. Additionally, if a generator does not recover all of its costs (including its opportunity costs of providing operating reserve in lieu of energy), SPP will provide a make-whole payment that covers the remainder (a payment only available to market-committed resources). In this way, market commitment insulates a generator from energy-market risk.

Self-committed resources choose to generate regardless of whether the market clearing price will cover their marginal cost and the costs of startup and operating stably at minimally required output levels (though they can then be dispatched

[15] Reliability status is defined as "the resource is off-line and is only available for centralized unit commitment if there is an anticipated reliability issue," outage status is defined as "the resource is unavailable due to a planned, forced, maintenance, or other approved outage," and the not participating status is defined as "the resource is otherwise available but has elected not to participate in the day-ahead market." SPP Market Monitoring Unit: Self-committing SPP markets: overview, impacts, recommendations. December 2019. *Available at:* https://spp.org/documents/61118/spp%20mmu%20self-commit%20whitepaper.pdf.

economically at higher output levels). Self-commitment is typical for solar and wind, which have variable costs of zero or near-zero. Some coal generators choose to self-commit, despite the risk of operating at a loss. For example, coal generators with must-take coal supply agreements may self-commit so they can burn down their coal inventories to make room for a new delivery. Self-commitment exposes generators to energy-market risk.

Q How does BPU commit Nearman into the SPP energy market?

A BPU prefers to market-commit Nearman,[16] but it did self-commit the generator for more than half of its operating time in 2018 through 2020 (Table 2).

Table 2. Percentage of time Nearman Unit 1 self-committed into the SPP energy market

Year	% Self-Committed
2018	54%
2019	73%
2020	71%
2021	4%
2022	5%

Source: BPU response to Sierra Club data request 3-1(a)ii.

BPU self-commits Nearman for a few reasons, including:

- Environmental and performance testing,
- Managing its Air Quality Control System ("AQCS")—BPU runs Nearman every 21 days to manage reagents in its AQCS,

[16] Kansas City Board of Public Utilities BPU. March 1, 2023 – Regular Session, at 1:17. *Available at:* https://www.youtube.com/watch?v=Nz6uXy0NW3E.

- Coal silo management—BPU periodically burns coal to avoid self-ignition of the fuel, and
- Managing coal inventories—BPU is charged $5 per ton if it is unable to receive coal shipments.[17]

BPU states that it intends to market-commit Nearman most of the time going forward.[18]

Q What are the risks associated with self-commitment?

A Self-committed resources choose to generate regardless of whether the market clearing price will cover their marginal cost. Given the high cost of operating Nearman (outlined below), self-commitment increases the risk and likelihood that BPU will not be able to recoup its marginal costs. Nearman is also ineligible for SPP make-whole payments when self-committed, further adding to potential losses. While each of the specific reasons offered by BPU for self-committing Nearman may seem reasonable in isolation—e.g., BPU must comply with its air permit—the list as a whole highlights the inflexibility of the unit and the risk it poses to ratepayers.

Losses during self-commitment are likely going to get worse. Wind already makes up over 35 percent of SPP's energy generation,[19] meaning that some hours of the day have very low-priced electricity. Since wind and solar resources have a dispatch price of zero, they displace the marginally priced resources, which are typically expensive coal plants or higher running-cost gas-fired peaking generation. The presence of more wind generation depresses locational marginal

[17] Kansas City Board of Public Utilities BPU. March 1, 2023 – Regular Session, at 1:20. *Available at:* https://www.youtube.com/watch?v=Nz6uXy0NW3E.

[18] BPU response to Sierra Club data request 3-1.

[19] Southwest Power Pool. Fast Facts: Energy production by fuel type (as of 1/19/2023). *Available at*: https://www.spp.org/about-us/fast-facts/.

prices ("LMP"). Coal units in general, and Nearman in particular, do not "follow" energy prices well. Nearman has a long start time and is an inflexible resource; it cannot turn on and off easily as LMPs go up and down over the course of a day. As SPP members continue to add more resources to the grid that cost nothing to dispatch, such as wind, solar, and battery storage, the number of hours with low-priced energy is only going to increase. Ultimately, this means that BPU will have fewer chances to recoup Nearman's costs when self-committed.

ii. BPU is forecasting unrealistically high utilization rates for Nearman

Q Describe Nearman's historical utilization rate.

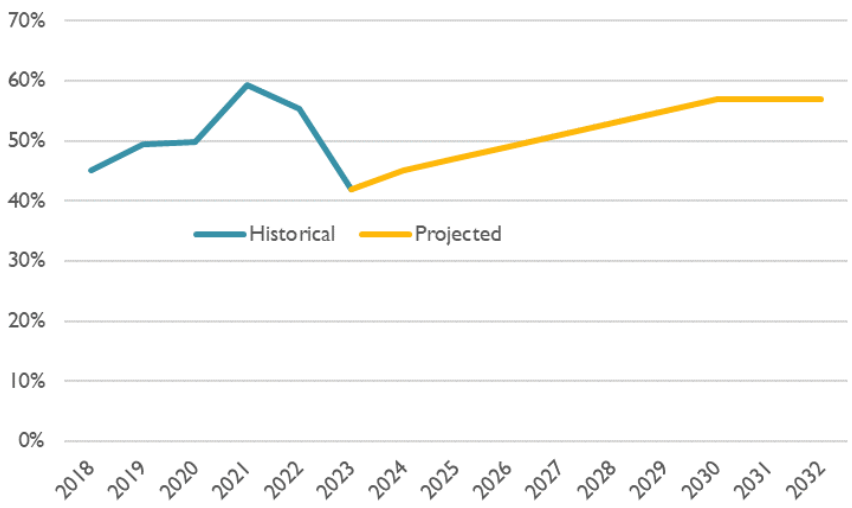
A Between 2018 and 2022, Nearman's utilization rate ranged from 45 percent to 59 percent (Figure 2, below).[20]

Q What is BPU projecting for Nearman's utilization rate going forward?

A BPU is projecting capacity factors that steadily increase from 42 percent in 2023 to 57 percent in 2032 (Figure 2).[21]

[20] BPU response to Sierra Club data request 1-6.
[21] BPU response to Sierra Club data request 1-7.

Figure 2. Historical and projected capacity factors for Nearman Unit 1



Source: BPU response to Sierra Club data requests 1-6 and 1-7.

Q How does BPU explain its capacity factor projections for Nearman?

A BPU predicts that plant retirements in SPP territory, transmission congestion, natural gas prices, and growth in demand from electrification will drive the increase in BPU's utilization rate.[22]

Q Do you have concerns about BPU's utilization rate projections for Nearman?

A Yes. BPU's projections that a coal plant will increase its capacity factors going forward deviates markedly from other utilities' projections of similar plants in recent years. Even if Nearman is well maintained, it is unreasonable to assume that the 42-year-old plant is immune from the forced outages and breakdowns that accompany an aging generator. Plus, when one considers the likelihood of increasing environmental regulation (discussed in Section 5), rising capacity factors seem especially unrealistic.

[22] BPU response to Sierra Club data request 1-7.

Further, BPU's assumption is at odds with market shifts already underway. As I noted, increasing amounts of wind and solar tend to drive down LMPs and displace expensive fossil fuel generators such as Nearman. In addition to Nearman becoming less cost-competitive and being dispatched less frequently in the coming decade, its energy margin will fall.

Barring my already stated concerns about forced outrages and environmental regulation, the only way Nearman could achieve these capacity factors by 2032 is through self-commitment. If BPU chose to rely on self-scheduling, given Nearman's operational inflexibility and high operating costs going forward, Nearman would operate at an increasingly large loss, which would detrimentally affect its ratepayers.

Q What evidence exists in support of increasing amounts of wind, solar, and battery energy storage coming to the SPP energy marketplace, and reducing the need for energy from Nearman?

A The SPP interconnection queue for new generation shows a dramatic leap upward in 2023 (compared to prior years) for solar, wind, and battery storage resources applying for interconnection to the SPP grid. As of May 9, 2023, there are more than 77,000 MW of solar and wind generation applying for interconnection, and more than 21,000 MW of battery energy.[23] While the entirety of these requests is

[23] At the DISIS ("Definitive Interconnection System Impact Studies") or Facility Study Stage. Additional wind and solar resources of more than 14,000 MW have signed interconnection agreements and are indicated on being "on schedule" in the queue data. *See, e.g.,* SPP interconnection queue data available at: https://opsportal.spp.org/Studies/GIActive, and the interconnection queue dashboard at https://app.powerbi.com/view?r=eyJrIjoiNWRlMjYyN2EtOTA2Ny00NTE0LWI2M2QtMGE3MTAxZTAxOGE0IiwidCI6IjA2NjVkY2EyLTExNDEtNDYyNS1hMmI1LTY3NTY0NjNlMWVlMSIsImMiOjF9.

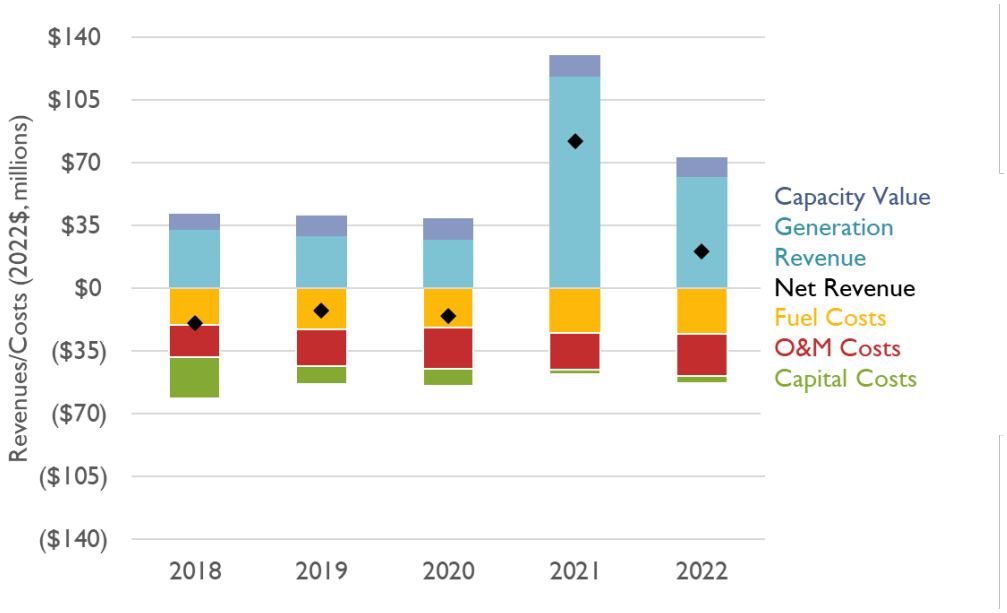
not likely to proceed to market development, the data indicate market responsiveness to the overall economics of these renewable resources. Further, as just one example, Evergy's 2021 IRP offers its plan to shift from a generation fleet in 2020 that is 27 percent wind and 0 percent solar to one that by 2030 would be 33 percent wind and 7 percent solar (on a capacity basis).[24]

iii. Nearman's costs have exceeded its revenue and value in recent years

Q Describe Nearman's financial performance in recent years.

A Based on BPU's own data, I find that Nearman incurred costs in excess of its market energy and capacity value each year from 2018 to 2020, losing on average $16 million (2022$) per year (Figure 3).

Figure 3. Nearman's historical costs and revenues

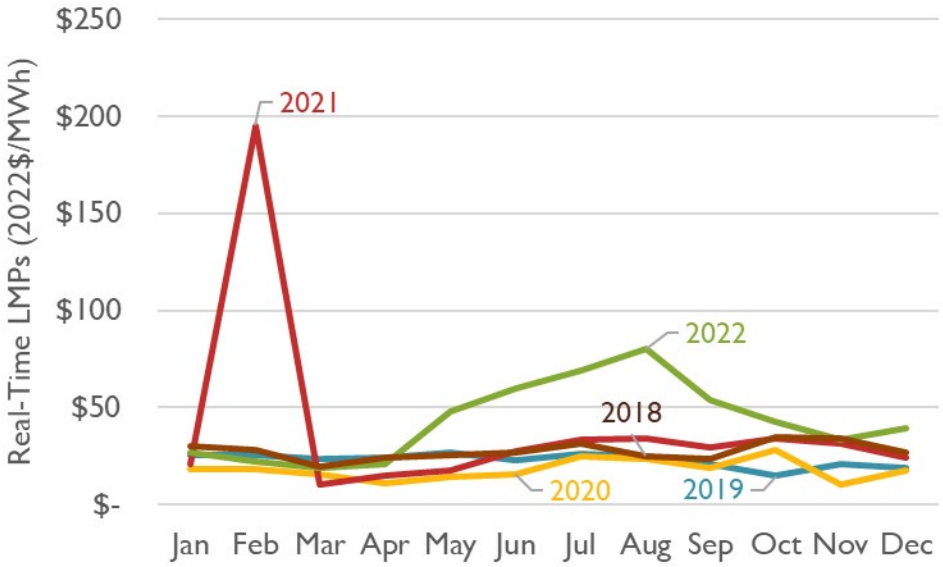


Source: see description in text.

[24] Evergy 2021 Integrated Resource Plan Overview, Figure 3, Generation Type By Fuel Type, *available at:* https://www.evergy.com/-/media/documents/smart-energy/evergy-2021-irp-overview.pdf.

As depicted above in Figure 3, for the years 2021 and 2022, Nearman's generation revenues were particularly high. Although average generation was roughly the same for all five years, LMPs were extremely high in February 2021 and greatly elevated for much of 2022 (Figure 4). These high LMP prices were responsible for uniquely high generation revenue in both 2021 and 2022 and should be viewed as an anomaly.

Figure 4. Average monthly SPP real-time energy market locational marginal prices, 2018–2022



Source: Figure 4-1 in SPP State of the Market Reports, available at https://www.spp.org/spp-documents-filings/?id=1859.

The high LMPs and associated energy revenues can be explained by two discrete factors: (1) a major cold weather event in February 2021, and (2) high gas and energy market prices in 2022 due to the war in Ukraine and other global market forces.

From February 6 to February 22, 2021, the Central United States experienced an extreme cold weather event that brought record-low temperatures and set record-high winter demand. SPP cited the event as its greatest operational challenge in its

80-year history.[25] Record-high electricity use drastically increased LMPs across the SPP region (Figure 4). This event was the greatest driver for Nearman's energy revenues in 2021. It appears that Nearman made nearly as much in the energy market in February 2021 as it did for the rest of year. Similarly, SPP, and the United States as a whole, experienced unusually high LMPs for much of 2022 (Figure 4). They were driven by numerous global factors, including changes in demand following COVID-19 pandemic lockdowns, fossil fuel constraints as a result of the war in Ukraine, and various compounding global energy market dynamics.

It may be tempting to view these extreme weather events and global crises as benefits for Nearman and BPU's ratepayers, but relying on extraordinary events to achieve profitability is a risky proposition. These types of events may not repeat themselves and/or have the same results. They are also typically associated with major risks to coal generation (I discuss the risk of extreme weather and volatile energy markets in Section 5, below).

Q Describe your methodology for evaluating the historical economic performance of Nearman.

A I relied on data BPU provided in its rate application and through discovery. I summed annual historical Nearman fuel costs,[26] O&M costs,[27] and capital

[25] Southwest Power Pool. 2021 Winter Storm Review. *Available at:* https://www.spp.org/2021-winter-storm-review#:~:text=In%20February%202021%2C%20SPP%20experienced,exceptions%20(approximately%20four%20hours).

[26] BPU response to Sierra Club data request 1-6.

[27] BPU response to Sierra Club data request 1-6.

expenditures[28] to determine total historical costs for each year. I estimated Nearman's historical capacity value based on the capacity value from BPU's fixed capacity contracts and Nearman's historical unforced capacity.[29] I summed this capacity value with Nearman's annual energy revenues in the SPP marketplace[30] to find the total historical value per year. I netted the annual costs and values to find Nearman's historical net value (or cost) for each year.

iv. My analysis shows that Nearman's projected costs exceed its projected energy revenues and capacity value, and these excess costs will be passed on to ratepayers

Q What do your findings show about the future financial performance of Nearman?

A My analysis finds that Nearman's costs exceed its revenues in each year going forward (Figure 5), incurring average net losses of $11 million (2022$) per year. On an NPV basis, Nearman is expected to incur total net losses of $47 million from 2023 to 2027, which will be passed on to ratepayers. Furthermore, given that Nearman's capacity factor forecasts are unrealistically high, and energy revenue forecasts are in part a function of utilization rates, Nearman's energy revenues are likely overestimated. As a result, annual net losses could be even higher than $11 million.

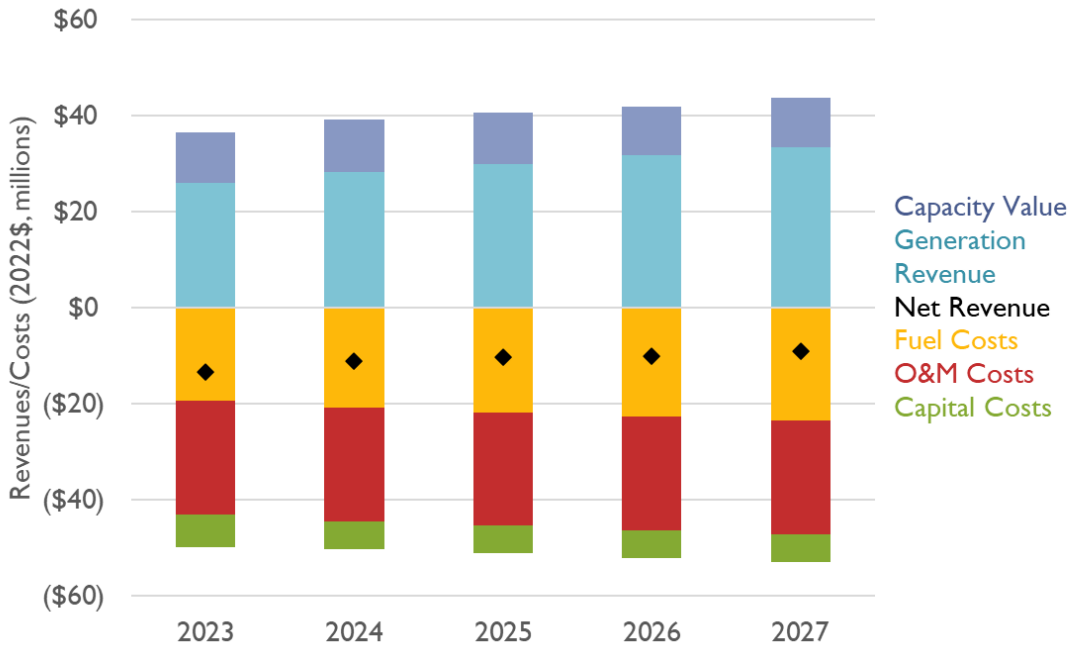
[28] I scaled Nearman Common expenses to Nearman Unit 1, proportionally based on relative capacities of Unit 1 and CT4. Values from BPU response to Sierra Club data request 1-10(a).

[29] Using a weighted average of capacity prices from BPU's fixed capacity contracts. Values from BPU response to Sierra Club data request 2-1. Unforced capacity projects from BPU response to Sierra Club data request 1-6.

[30] BPU response to Sierra Club data request 1-8.

BPU presently expects to retire Nearman 17 years from now, in 2040. With annual losses of at least $11 million, or possibly higher, Nearman's 5-year net costs of $47 million could balloon considerably over the course of its lifetime. If the Board of Directors does not act swiftly, these escalating costs will burden BPU ratepayers for the foreseeable future.

Figure 5. Projected net revenues for Nearman



Source: see description in text.

Q Why did you only look at Nearman's forward-going economics from 2023 to 2027?

A BPU only provided annual capital expenditures to 2027, so my analysis was necessarily limited to the period of 2023 to 2027. Nonetheless, the trend is clear; Nearman has been, and likely will continue to be, operating at a loss.

Q Describe your methodology for forecasting the economic performance of Nearman.

A I evaluated Nearman's forward-going economics using data provided by BPU in discovery and its rate application, as well as publicly available documents. Similar to my methodology for evaluating Nearman's historical economic performance, I summed BPU's own annual projected fuel costs,[31] O&M costs,[32] and capital expenditures[33] for Nearman to determine total projected costs per year. I estimated Nearman's capacity value based on its projected unforced capacity and its firm capacity contract prices.[34] I summed this capacity value with BPU's annual projected energy revenues[35] for Nearman to find the total value per year. I netted the annual costs and values to find Nearman's projected net value (or cost) for each year. To determine NPV, I used BPU's weighted average cost of capital[36] as a discount rate.

My analysis is not intended to calculate Nearman's full revenue requirements. Instead, it looks at Nearman spending relative to what it is earning, on a forward-going basis, and it identifies the costs that can be avoided for ratepayers if BPU retires Nearman in the nearer term.

[31] BPU response to Sierra Club data request 1-7.

[32] BPU response to Sierra Club data request 1-7.

[33] I scaled Nearman Common capital expenses to Nearman Unit 1, proportionally based on relative capacities of Unit 1 and CT4. Values from BPU response to Sierra Club data request 1-10(b).

[34] Using a weighted average of capacity prices from BPU's fixed capacity contracts. Values from BPU response to Sierra Club data request 2-1. Unforced capacity values from BPU response to Sierra Club data request 1-7.

[35] BPU response to Sierra Club data request 1-9.

[36] BPU response to Sierra Club data request 1-5.

Q Explain why you added the full cost of each expenditure in the year it was incurred instead of annualizing the costs over the remaining life of the plant.

A I expensed the full cost of each capital expenditure in the year it was incurred because this approach is more fitting if earlier retirements are a possibility. In years where BPU undertakes large projects, capital expenditures will likely exceed the resources' total revenues and value; but the reverse is also true. And over a multi-year timeframe, if the plant is operating economically, the total costs incurred and total energy revenues earned, plus capacity value, should at the very least net out. If they do not, meaning that the plant's total fixed and variable costs consistently sum to more than its total energy market revenues plus capacity value, then continuing to invest in the plant is not in ratepayers' interest on a forward-going basis.

In contrast, most utilities typically annualize capital expenditures (based on the utility's cost of capital) and spread the costs out over the remaining economic life of the plant. This approach is reasonable with expenditures for capital projects where there is a reasonable degree of certainty that the plant will operate through its planned retirement date. But it is a dangerous assumption with aging resources such as coal plants that are likely to retire early. A project might look economic when spread out over a long time with many years of energy market revenues and capacity value to balance it out. But if a project must be recovered over a shorter time frame instead, it suddenly becomes clear how expensive and uneconomic it was to expend capital on the plant.

Q How do the forward-going costs for Nearman compare to alternative generation types?

A Nearman's forward-going levelized cost of energy ("LCOE") is $54 per MWh (on an NPV basis),[37] which is higher than many alternatives (Table 3). Accordingly, ratepayers should benefit if BPU replaces Nearman with a portfolio of more economic resources, including natural gas-fired generation, solar, and wind resources.

Table 3. LCOE of alternatives and BPU's PPA estimates ($/MWh), by generation type

Resource Type	BPU PPA Estimates $/MWh	Alternative LCOE Estimates $/MWh	Alternative Source
Wind	$24–$30	$17–$67	NREL (2022)
		$38	EIA (2022)
Solar (standalone)	$48–$58	$19–$33	NREL (2022)
		$33	EIA (2022)
Solar + 4-hour Battery		$55	EIA (2022)
Combined Cycle (natural gas)		$37	EIA (2022)

Source: BPU estimates from BPU response to Sierra Club data requests 2-3. National Renewable Energy Laboratory, "Annual Technology Baseline: 2022 Electricity ATB Technologies and Data Overview: Summary of Minimum and Maximum Values of CAPEX, Capacity Factor, O&M and LCOE," 2022, available at: https://atb.nrel.gov/electricity/2022/index. EIA estimates assume capacity weighted LCOE, from U.S. Energy Information Administration, "Levelized Costs of New Generation Resources in the Annual Energy Outlook

[37] LCOE based on projected generation and costs for 2023 to 2027, in NPV terms. Generation values from BPU response to Sierra Club data request 2-2(d). Costs include capital costs (BPU response to Sierra Club data request 1-10(b)), O&M costs and fuel costs (BPU response to Sierra Club data request 1-7).

2022," March 2022, available at: https://www.eia.gov/outlooks/aeo/pdf/electricity_generation.pdf.

Q How does O&M spending at Nearman compare to industry averages for comparable coal plants?

A BPU's O&M spending is concerningly high for Nearman. From 2023 to 2028, BPU is forecasting an average of $24 million (2022$) per year on O&M expenses, which equates to $95/kW-year (2022$). This is well above the industry average for similarly sized coal plants (Table 4). In fact, projected O&M spending at Nearman is 1.5 times greater than the industry average.

Overspending at O&M is not only an issue going forward; BPU's O&M costs for Nearman were also above average over the last five years. This indicates that BPU ratepayers have been overpaying to keep Nearman operating and will increasingly do so in the coming years.

Table 4. U.S. EIA (Sargent & Lundy) industry averages and Nearman historical and projected average annual O&M costs

	Average Annual O&M Costs (2022)$/kW-year
Industry Average (Sargent & Lundy estimates)	$62
Nearman historical (2018–2022)	$85
Nearman projected (2023–2028)	$95

Source: BPU response to Sierra Club data requests 1-6 and 1-7, and U.S. EIA, Generating Unit Annual Capital and Life Extension Costs Analysis (December 2019), available at https://www.eia.gov/analysis/studies/powerplants/generationcost/pdf/full_report.pdf. Sargent & Lundy O&M costs are specific to coal plants smaller than 500 MW.

Q How does capital spending at Nearman compare to other resources in BPU's portfolio?

A Coal-burning power plants generally have high capital costs relative to other generating resources.[38] Plants such as Nearman with flue gas desulfurization ("FGD") are particularly cost-intensive for capital maintenance. Chemicals and reagents corrode equipment such as pumps, valves, etc., and parts need replacement more frequently compared to plants without FGD.[39]

Nearman represented 65 percent of capital spending for BPU between 2023–2027[40] (relative to Nearman representing 41% of generation). [41] On a per MW basis, Nearman will cost BPU and its ratepayers $127,000 per MW,[42] which is double the cost of the Quindaro Power Plant CT2 and CT3,[43] and six times the cost of the Dogwood Energy Facility.[44,45]

The capital costs to sustain Nearman Unit 1 are much higher than for other generators in BPU's portfolio. Furthermore, when considering future

[38] National Renewable Energy Laboratory, "Annual Technology Baseline: 2022 Electricity ATB Technologies and Data Overview: Summary of Minimum and Maximum Values of CAPEX, Capacity Factor, O&M and LCOE," 2022, *available at:* https://atb.nrel.gov/electricity/2022/index.

[39] U.S. EIA, Generating Unit Annual Capital and Life Extension Costs Analysis (December 2019), *available at*: https://www.eia.gov/analysis/studies/powerplants/generationcost/pdf/full_report.pdf.

[40] Direct testimony of BPU witness Glen Brendel, pg. 2-4.

[41] Annual average for 2019-2022. Values from BPU response to Sierra Club data request 1-22c.

[42] I scaled Nearman Common capital expenses to Nearman Unit 1, proportionally based on relative capacities of Unit 1 and CT4.

[43] Quindaro Power Plant CT2 and CT3 are peaking oil-fired units.

[44] Costs and MWs scaled to BPU's 17 percent share in Dogwood Energy Facility. Dogwood is a gas-fired combined cycle facility.

[45] Capital expenditure data from direct testimony of BPU witness Glen Brendel, pg. 2-4.

environmental regulation for coal generators, costly capital upgrades are a near certainty that will further drive-up spending.

v. To avoid unnecessary costs for ratepayers, BPU should commit to retiring Nearman in the near term

Q What do your findings suggest about continuing to operate and expend capital for Nearman Unit 1?

A My analysis shows that Nearman has been operating at a loss in recent years and is expected to do so continuously going forward. In addition, the O&M costs to keep Nearman running are markedly high compared to the industry average. To avoid locking in spending on fuel, O&M, and capital expenditures for the long term, and continuing to harm ratepayers by operating at a loss, BPU must consider an earlier retirement date. This date should be well before the current date of 2040.

Q Are you suggesting a specific retirement date for Nearman?

A Based on my findings that Nearman is expected to continue operating at a loss, I recommend that BPU commit to an earlier retirement date for Nearman and take the plant offline as soon as possible. However, I do not suggest a specific retirement date. Instead, BPU must conduct a robust study to determine a Nearman retirement date that is in the best interest of ratepayers.

Specifically, BPU must conduct detailed technical analyses using electricity production-cost and capacity expansion models. These types of analyses are considered best practice in the industry. If done properly, the analyses identify the most economic retirement date for Nearman and the least-cost set of replacement options. As a public utility, Nearman's top priority should be providing reliable energy to ratepayers while minimizing costs and risks.

Q Should BPU wait to retire Nearman until more of its balance depreciates?

A No. Nearman's undepreciated balance is already a sunk cost (ratepayers will pay for it regardless). Continuing to operate Nearman at a loss will only add to Nearman's debt. However, retiring Nearman will save money for ratepayers by not adding to the existing capital balance, and by no longer operating the plant at a loss. Plus, if the BPU replaces the plant with resources that have high energy margins (such as with wind and solar resources, which have minimal variable costs), BPU can pay off that balance ahead of schedule.

5. THERE ARE MOUNTING RISKS AND COSTS ASSOCIATED WITH OPERATING NEARMAN THAT CAN BE AVOIDED WITH AN EARLY RETIREMENT

Q Are there avoidable costs and risks associated with continuing to operate Nearman as a generating asset?

A Yes. There are numerous risks and costs for BPU ratepayers, who receive over 40 percent of their energy from a single coal plant with negative going-forward value. Many of these can be mitigated with early retirement. They include (1) issues with coal supply and delivery, (2) coal supply contract risks, (3) fuel price volatility, (4) reliability risks posed by extreme weather, (5) future environmental compliance costs, (6) operational costs associated with running an aging fossil fuel resource, and (7) forced outage risks associated with operating an aging plant.

Q Please describe the risks posed by coal delivery, supply, and transportation issues that would be mitigated with an earlier Nearman retirement.

A BPU has experienced issues with coal supply and delivery over the last few years. Specifically, from mid-April to the end of June 2022, BPU's coal supplier was not able to deliver the contracted amount of coal as a result of coal car maintenance

delays and Union Pacific labor disputes.[46] During this period, coal deliveries fell from 45–60 kilotons per month down to 27 kilotons, resulting in a derate (reduction in available capacity) for Nearman that burdened ratepayers with $960,000 in replacement power costs.[47]

Coal supply and delivery issues are not limited to BPU; they are occurring across the country. For instance, the coal supplier for the San Juan Power Station in New Mexico was unable to supply the contracted amount of coal to that plant in 2022, resulting in a derate.[48] In Arizona, labor shortages in 2022 prevented Burlington Northern Santa Fe Railroad from delivering all the coal it was contracted to provide to Tucson Electric Power Company in 2022.[49] More generally in 2022, rail labor shortages—with employment down 20.4 percent since January 2019—inhibited the movement of coal throughout the country and contributed to soaring prices.[50] Similarly, the potential but avoided rail strike in the fall of 2022 was a major threat to the coal industry. In fact, the coal industry is largely dependent on railways, further exposing vulnerabilities of the coal supply chain.[51]

[46] BPU response to Sierra Club data requests 1-15(a) and 1-15(b).

[47] BPU response to Sierra Club data request 1-15(c), 1-15(d), and 1-15(e).

[48] Direct Testimony of Devi Glick, pg. 32. Docket No. E-01933A-22-0107. Arizona Corporation Commission (January 11, 2023).

[49] Ibid.

[50] Kuykendall, T., "Rail service 'meltdown' constraining US coal sector in hot market," S&P Global Market Intelligence (May 9, 2022). *Available at* https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/rail-service-meltdown-constraining-us-coal-sector-in-hot-market-70189190#:~:text=During%20an%20April%20conference%20hosted,the%20second%20half%20of%202021.

[51] Bittle, J., "Railroad strike threatens power in coal-dependent states," Grist, (September 14, 2022), *available at* https://grist.org/energy/railroad-strike-coal-power-shortage/.

BPU's continued operation of the Nearman coal plant exposes ratepayers to the risk of fuel supply constraints as a result of these kinds of transportation and delivery issues, which could translate to high costs for replacement energy—potentially for a lengthy period of time.

Q Please describe the risks posed by coal supply contracts.

A Currently, BPU purchases coal through the Western Fuels Association ("WFA"), which in turn contracts with coal producers and railroads.[52] WFA's current coal supply contract extends to 2024, and its coal transportation contract is set to expire at the end 2025. As part of these contracts, BPU must pay a penalty of $5 per ton if it is unable to accept coal shipments. This penalty poses a major risk to BPU and its ratepayers and presents BPU with only lose-lose options. On one hand, BPU can pay exorbitant penalties if it cannot accept the coal. On the other hand, BPU can self-commit Nearman so it can burn coal unnecessarily to make room for more fuel. If LMPs are below Nearman's marginal costs during this self-commitment, BPU will not recoup Nearman's marginal costs, thereby burdening ratepayers.

Additionally, to avoid paying must-take penalties, BPU staff indicated that they attempt to sell unwanted coal shipments to other utilities.[53] Given the issues with coal transportation that I outlined above, this strategy is in itself risky. Further, with more coal retirements planned for this decade, the number of willing off-takers is only expected to decline.

During BPU's next contract renewal with WFA or other coal suppliers or brokers, the Board of Directors should ensure that future coal contracts minimize risks for

[52] BPU response to Sierra Club data request 3-4.

[53] Kansas City Board of Public Utilities BPU. March 1, 2023 – Regular Session, at 1:32. *Available at*: https://www.youtube.com/watch?v=Nz6uXy0NW3E.

ratepayers. In particular, BPU should avoid long-term contracts to prevent contractual issues if Nearman retires early. This is especially important considering Nearman's age and the risk of future environmental regulation, discussed below. To avoid unnecessary fuel consumption, must-take clauses should not be considered.

Q Please describe the avoided fuel costs associated with an earlier Nearman retirement.

A With such a significant portion of BPU's energy coming from coal, ratepayers have high exposure to fuel price volatility. Coal, natural gas, and oil prices are determined in large part by global markets and are influenced by numerous factors including rail and pipeline access, natural gas reserves in Europe, volume of exports and imports, extreme weather, etc. When fuel prices are high, ratepayers are on the hook to pay for high-cost electricity.

If BPU retires Nearman early and adds more solar and wind resources to its portfolio, ratepayers will have a buffer from potential coal price volatility. If BPU continues to operate Nearman to generate a substantial share of its energy, its ratepayers will bear the full burden of high and volatile fuel prices. One alternative to address volatility—entering into long-term coal contracts—presents long-term risks that likely outweigh the hedge benefit.

Q Please describe the risks posed by extreme weather that will be mitigated with an earlier Nearman retirement.

A Nearman may not be adequately designed for extreme weather such as winter storms and prolonged cold weather snaps. During these types of events, Nearman can suffer from equipment failures, resulting in derates or even complete shutdowns. LMPs can be very high during extreme weather events, as multiple

generators fail and demand peaks. When this occurs, BPU and its ratepayers are forced to pay for very expensive replacement energy; or worse, reliability suffers.

For instance, Nearman experienced a derate during Winter Storm Elliot in December 2022. After equipment froze, Nearman was limited to 150 MW from 6:30pm on December 22 to 9pm on December 24.[54] During this period, BPU purchased replacement power from the energy market, where LMPs averaged over $230/MWh, with one hour reaching as high as $1,391/MWh.[55] In total, replacement power during the derate event cost ratepayers an estimated $900,000.[56]

Q Please describe the risks and costs from environmental regulation that can be avoided with an earlier Nearman retirement.

A Based on current trends, most experts in the industry agree that there is a potential for greater regulation for coal-fired power plants going forward. Though nobody can predict exactly what future regulations will be, such regulation would most likely increase the cost to operate coal-fired power plants. Relative to other energy resource types, coal-fired power plants have numerous environmental compliance costs and regulatory risks. These include (1) carbon emissions, (2) air emissions (e.g., particulate matter), (3) water emissions (e.g., wastewater), (4) by-products and waste (e.g., coal ash), and (5) plant inputs (e.g., coal mining). Even if Nearman is fully compliant with all finalized environmental regulations now,

[54] BPU responses to Sierra Club data request 1-17(c).
[55] BPU responses to Sierra Club data request 1-17(f).
[56] BPU responses to Sierra Club data request 1-17. I assumed Nearman would have been operating at 230 MW through the period of December 22-24, 2021.

the risk of future regulation touching on at least one, or even more than one, of these inputs and outputs is likely.

As an example, on May 11, 2023, the U.S. Environmental Protection Agency ("EPA") announced a proposed Clean Air Act rule limiting carbon dioxide ("CO_2") emissions from fossil fuel-fired power plants.[57] Specifically, the newly proposed Clean Air Act rule would require BPU to either commit to retiring Nearman by 2032, reduce its utilization factor to 20 percent and commit to retiring Nearman by 2035, or install expensive technology such as carbon capture and storage technology ("CCS") or equipment to enable natural gas co-firing.[58] Although not yet finalized, this rule is an example of the risk of environmental regulation.

Additionally, BPU only looks at capital costs five years into the future. The costs from environmental regulations go well beyond 2027. To make prudent economic decisions about Nearman and the rest of BPU's resource portfolio, BPU should consider capital expenditures, including potential environmental costs, beyond 2027. As part of BPU's next IRP, the Board of Directors should require BPU staff to consider long-term costs beyond 2027 that include potential environmental compliance costs.

[57] U.S. Environmental Protection Agency. Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants, Docket No. EPA-HQ-OAR-2023-0072. *Available at:* https://www.epa.gov/stationary-sources-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power.

[58] U.S. Environmental Protection Agency. Fact Sheet: Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants Proposed Rule. *Available at:* https://www.epa.gov/system/files/documents/2023-05/FS-OVERVIEW-GHG-for%20Power%20Plants%20FINAL%20CLEAN.pdf.

Q Please describe the avoided O&M and sustaining capital costs associated with an earlier Nearman retirement.

A On a per MW basis, Nearman is expensive to own and operate, relative to other BPU resources and industry averages (as discussed in Section 4(iv), above). These are costs that are passed on to ratepayers. Protecting ratepayers from unnecessary costs is especially important given Nearman's age. Total spending on sustaining capital expenses is likely to increase with the need for additional refurbishment of aging equipment, replacement of older parts, etc.

For wind and solar, O&M and sustaining capital costs are relatively low.[59] If Nearman is replaced with more renewable resources, BPU's O&M spending should decline. This in turn will lower revenue requirements and reduce costs passed on to ratepayers.

Q Please describe the forced outage risks associated with operating a 41-year-old plant that will be mitigated with an earlier Nearman retirement.

A The risk of forced outages is also a concern, especially given that Nearman is over 40 years old. As generators age, the likelihood and frequency of forced outages increases. For instance, CenterPoint Indiana South's Culley Unit 3 in Indiana was shut down unexpectedly for nearly six months due to a turbine failure. Not only did this put reliability at risk, but it also led to a rate hike for CenterPoint customers to cover the cost of replacement energy.[60] Similarly, as Nearman

[59] National Renewable Energy Laboratory, "Annual Technology Baseline: 2022 Electricity ATB Technologies and Data Overview: Summary of Minimum and Maximum Values of CAPEX, Capacity Factor, O&M and LCOE," 2022, *available at:* https://atb.nrel.gov/electricity/2022/index.

[60] Schneider, K., "CenterPoint Energy request 3-month rate hike for 2023 following coal plant failure," Indianapolis Star, (November 25, 2022), *available at:* https://www.indystar.com/story/news/2022/11/25/centerpoint-files-for-rate-hike-following-coal-plant-malfunction/69670232007/.

continues to age, total spending on replacement parts and maintenance will continue to grow, increasing costs to BPU and its ratepayers and increasing the likelihood of more forced outages.

Q What do you conclude about the risks posed by continuing to operate Nearman and producing a large portion of energy from coal generation?

A As of 2022, BPU generates more than 40 percent of its energy from coal. Given the risks of derates, outages, escalating costs, and reliability issues associated with coal generation that are summarized above, BPU should commit to retiring Nearman early and start replacing its energy and capacity with lower-risk and lower-cost resources. In other words, maintaining the status quo is no longer the lowest-risk option.

6. BPU SHOULD START BUILDING OR PROCURING REPLACEMENT RESOURCES FOR NEARMAN SOONER RATHER THAN LATER, AND TAKE ADVANTAGE OF THE TAX BENEFITS OFFERED THROUGH THE *INFLATION REDUCTION ACT*

Q What alternatives has BPU considered for future energy supply?

A BPU has not indicated that it is planning for Nearman's retirement or considering replacement resources or PPAs. Its most recent IRP from 2019 says nothing specifically about future energy supply. BPU conducted a study in 2014 to evaluate the feasibility of converting Nearman to a gas-fired unit.[61]

As part of its next IRP, the Board of Directors should request that BPU staff conduct a full analysis to determine Nearman's most economic retirement date and the least-cost set of replacement resources. Specially, BPU should consider

[61] Kansas City Board of Public Utilities. Nearman Creek Station. Natural Gas Firing Feasibility Study. June 26, 2014. BPU response to Sierra Club data request 3-3.

building out or procuring from the marketplace renewables and other low-cost resources that minimize the risks and costs I summarize above.

Q Should BPU wait before starting to procure or build replacement resources?

A No, BPU should begin building or procuring replacement resources for Nearman as soon as possible after completing the robust analysis I am recommending.

As I have shown in my analysis, Nearman is expected to operate at a loss every year going forward; it appears to be becoming too uneconomic to justify further investment and operations. Additionally, as I discussed, the electricity market is changing, and Nearman will likely be outcompeted over time and with greater frequency by renewables. The plant is also aging and exposed to risks that include extreme weather and fuel supply constraints. Nearman may be placed on reserve shutdown more frequently, experience more forced outages and derates, or be forced to retire early. Preparing now to avoid expensive replacement energy purchases in the future will benefit ratepayers.

Furthermore, the build-out or procurement of new resources can take years. There are multiple implementation barriers, including interconnection queue backlogs. Starting early improves BPU's preparedness for Nearman's retirement.

Lastly, there are numerous tax benefits available that BPU should act on now. The IRA increased the tax credits available for solar and wind and introduced new tax credits for batteries. However, many of these incentives could expire within the next 10 years; acting now ensures that BPU and its customers can still benefit.

Q Please describe the IRA tax benefits for solar, wind, and batteries in more detail.

Through the IRA, utility-scale wind and solar are now both eligible for a 30 percent investment tax credit ("ITC"), which increases to 40 percent if the facility

is located in an 'energy community,' as defined in the IRA.[62] Stand-alone battery storage is also newly eligible for a 30 percent ITC. The IRA also increased production tax credits ("PTC"): it increased wind and solar PTCs to $26/MWh ($2022). When the ITC and PTC are applied to new renewable and battery storage projects, cost savings can be considerable. However, the new ITC and PTC options could be phased out by 2032.[63]

Q What are some other examples of IRA tax options available?

A Additional examples of tax options available through the IRA are summarized in Table 5. The table includes funding for refinancing undepreciated assets and reinvesting in renewables, which could be particularly advantageous for BPU considering Nearman's large undepreciated balance.

[62] Parts of Kansas City would qualify as an energy community. Energy communities include census tracts where a coal-fired electric generating unit has been retired since 2009, statistical areas with 0.17% or greater fossil fuel employment since 2010, or 25% or greater local tax revenues related to fossil fuel extraction, processing, or transport.

[63] The later of 2032 or the first year that greenhouse gas emissions from U.S. electricity production are less than or equal to 25 percent of 2022 levels. Congress.gov. "Text - H.R.5376 - 117th Congress (2021-2022): Inflation Reduction Act of 2022." August 16, 2022. *Available at:* https://www.congress.gov/bill/117th-congress/house-bill/5376/text.

Table 5. Examples of tax benefits available through the *Inflation Reduction Act*

Funding for refinancing undepreciated assets and reinvesting in renewables	
Sec. 50141. Funding for DOE Loan Programs Office	Loans to retool, repower, repurpose, or replace energy infrastructure that has retired or to improve efficiency and reliability of existing resources ($40 billion of authority through FY2026)
Sec. 50144. Energy Infrastructure Reinvestment Financing	Loans to retool, repower, repurpose, or replace energy infrastructure no longer in operation or enable operating energy infrastructure to avoid greenhouse gas emissions ($5 billion to guarantee up to $250 billion in loans through FY2026)
Sec. 60103. Greenhouse Gas Reduction Fund	Financial assistance for projects that reduce greenhouse gas emissions or deploy zero-emission technology ($27 billion available through FY2024)
Transmission development	
Sec. 50151. Transmission facility financing	Loans supporting the construction and modification of national interest electric transmission facilities ($2 billion through FY 2030)
Sec 50152. Grants to Facilitate the Siting of Interstate Electricity Transmission Lines	Grants to study impacts of transmission projects, hosting negotiations, participating in regulatory proceedings and economic development for communities affected by construction and operation ($760 million)

Source: Congress.gov. "Text - H.R.5376 - 117th Congress (2021-2022): Inflation Reduction Act of 2022." August 16, 2022. Available at: https://www.congress.gov/bill/117th-congress/house-bill/5376/text.

BPU can access some of these tax benefits to enable the early retirement of Nearman and adoption of lower cost, lower risk resources to the ultimate benefit of ratepayers and Kansas City, Kansas community members.

Q Does this conclude your testimony?

A Yes.