BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO

PROCEEDING NO. 20A-0528E

IN THE MATTER OF THE APPLICATION OF TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, INC. FOR APPROVAL OF ITS 2020 ELECTRIC RESOURCE PLAN.

HEARING EXHIBIT 803

Cross-Answer Testimony of Rachel Wilson

On Behalf of Natural Resources Defense Council, Sierra Club, and Western Colorado Alliance

January 4, 2022

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Attachment RW-5	Cochran, Jaquelin, et al. 2013. Flexible Coal: Evolution from Baseload. National Renewable Energy Laboratory
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Attachment RW-8	Letter From PVREA to Tri-State Re Notice of Intent to Withdraw (December 16, 2021).

I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, title, and employer.

A. My name is Rachel Wilson. I am a Principal Associate at Synapse Energy Economics, Inc. located at 485 Massachusetts Avenue, Suite 3, Cambridge, Massachusetts.

Q. Are you the same Rachel Wilson who submitted answer testimony in this case?

A. Yes.

Q. What is the purpose of your cross-answer testimony?

A. My cross-answer testimony addresses the recommendations of the Colorado Office of the Utility Consumer Advocate (UCA) and the Staff of the Colorado Public Utilities Commission (Staff) with respect to the coal-fired Craig 3 unit.

Q. Are some of the other parties aligned with the general recommendations in your answer testimony?

A. Yes. Similar to my recommendation in my answer testimony, both Staff and Colorado Energy Office (CEO) also support the removal of the 203 megawatts (MW) of load associated with the Partial Requirements customers in the Phase II modeling.[1] Staff goes on to say that the overstated load may be the reason that the model chooses not to retire the Craig 3 unit earlier than December 31, 2029.

[1] Hearing Exhibit 1100 at page 58, lines 11-14.

My answer testimony recommended retirement of the Craig 3 unit no later than December 31, 2025. Similarly, testimony submitted by Western Resource Advocates (WRA) also concludes that Craig 3 is uneconomic to operate beyond 2025.[2] While Staff does not recommend a specific retirement date, in its review of the new modeling submitted by Tri-State, Staff concludes that keeping Craig 3 online through 2029 may not be the correct choice.[3]

Lastly, my answer testimony noted my concerns around Tri-State's lack of analysis on the economics of Springerville 3. Staff also described its concerns with "apparent lack of interest in pursuing possible changes to current coal unit commitments,"[4] which include those at Springerville 3.

Q. Please summarize your responses to UCA and Staff.

A. UCA recommends that Tri-State add more renewables prior to 2025 in order to take advantage of applicable tax incentives, thereby reducing costs and emissions. It recommends that the Commission adopt Tri-State's announced retirement dates for its coal units, including Craig 3, and that it dispatch its coal generation to follow the output of new renewable resources.[5] UCA's recommendations around the addition of renewable resources and the changed dispatch of its coal units, if implemented, would have effects on the operation and costs of various units, which could change the economic retirement

[2] Hearing Exhibit 1300 at page 43, lines 12-14.
[3] Hearing Exhibit 700 at page 33, lines 7-9.
[4] *Id.* at page 32, lines 6-8.
[5] Hearing Exhibit 300 at page 5, lines 17-21.

date of Craig 3. UCA did not take these effects into consideration when supporting Tri-State's proposed coal retirement dates.

Staff recommends that Tri-State, in its Phase II modeling, continue to allow Craig 3 to retire any time between January 1, 2026 and December 31, 2029 as part of its revised preferred plan.[6] I recommend that this period be extended to begin in January 1, 2025 to allow Craig 3 to retire in 2025 if the model finds it to be economic.

II. RESPONSE TO UCA REGARDING RENEWABLE ADDITIONS AND OPERATION OF EXISTING COAL UNITS

Q. What is the purpose of UCA's testimony in this docket?

A. Mr. Neil states that the purpose of his testimony is to make recommendations that would result in lower costs to Tri-State customers and/or lower emissions from the Company's resource portfolio.[7]

Q. What are the recommendations that Mr. Neil makes in support of this purpose?

A. Mr. Neil recommends that Tri-State "operate its coal units with flexibility in order to follow the output of additional renewable resources," curtailing generation during period with greater renewable generation.[8] He agrees with the retirement dates for all of Tri-State's units, including a 2029 date for Craig 3.[9] Mr. Neil also recommends adding more renewable capacity in the Phase II solicitation in order to take advantage of current

[6] Hearing Exhibit 700 at page 37, line 19.
[7] Hearing Exhibit 300 at page 5, lines 7-8.
[8] *Id.* at page 5, lines 17-21.
[9] *Id.* at page 6, lines 12-13.

federal tax incentives set to expire at the end of 2025, thereby lowering costs and achieving earlier emissions reductions.[10]

Q. Do you disagree with any of these recommendations?

A. Mr. Neil's recommendations have modeling implications that he overlooks, and these implications could change the resulting optimal retirement date for Craig 3 and the replacement portfolio. Mr. Neil states that electric resource planning has historically focused on capacity planning, but that now the emphasis is on increasing volumes of renewable energy in order to lower costs and emissions.[11]

However, utilities still must maintain a required reserve margin in order to meet reliability standards. While renewable generators are typically thought of as energy resources rather than capacity resources, they do have a capacity benefit based on their firm capacity value. Increasing the number of renewable generators on Tri-State's system would therefore increase the total capacity (including firm capacity), which could help to enable the earlier retirement of Craig 3, particularly when expected load reductions are taken into account.

Second, coal generators are not typically operated as load-following units for renewable generators, because coal units are slow to start up, shut down, and ramp up and down, which is commonly referred to as "cycling." Cycling tends to increase wear and tear at coal-fired power plants, resulting in additional capital and operating and maintenance

[10] *Id.* at page 15, lines 9-11.
[11] *Id.* at page 6, lines 5-9.

costs as well as increased failure rate and outage time. Modifications can be made at a plant to allow a plant to cycle more frequently, but again, these modifications come at a cost to the utility.[12]

Q. Did Mr. Neil explain how his recommendation regarding adding more renewables at earlier times, and his recommendation to increase cycling of coal units, would impact the optimal retirement dates for Tri-State's coal units?

A. No. Unlike other witnesses that use the results of Tri-State's supplemental modeling to support their positions, Mr. Neil did not point to any evidence in the record to support his recommendation about the optimal retirement dates for the coal units.

Q. Did Mr. Neil provide any analysis or explanation to justify his support of Tri-State's proposed retirement dates for coal units?

A. In his response to Conservation Coalition's discovery requests, Mr. Neil confirmed that UCA did not do any quantitative or qualitative analysis to support his opinion, nor did he do any optimization modeling.[13]

III. RESPONSE TO STAFF REGARDING CRAIG 3

Q. What is Staff's recommendation for Craig 3?

A. In her testimony, Ms. Lim notes that keeping Craig 3 online until 2029 may not be the right choice, given that the lowest-cost resource portfolio (Scenario 4) retires the unit at

[12] Hearing Exhibit 803, Attachment RW-5. Cochran, Jaquelin, et al. 2013. *Flexible Coal: Evolution from Baseload*. National Renewable Energy Laboratory. Available at: https://www.nrel.gov/docs/fy14osti/60575.pdf.
[13] Hearing Exhibit 803, Attachment RW-6. UCA Response to Conservation Coalition 1-1.

the end of 2025. She recommends that in Tri-State's Phase II modeling of its revised preferred plan, the Company allow Craig 3 to retire between January 1, 2026 and December 31, 2029.

Q. Is this a reasonable time frame for optimized retirement of Craig 3 in Tri-State's revised preferred plan?

A. In my answer testimony, I recommended that the Commission approve a retirement date for Craig 3 of December 31, 2025, given that Tri-State's supplemental modeling shows that earlier retirement is part of a least-cost portfolio.[14] If the Commission decided that additional modeling was needed in Phase II to demonstrate the value to ratepayers of an earlier retirement date, I would recommend that Ms. Lim's proposed timeline start earlier, and that Tri-State model a retirement window for Craig 3 that begins on January 1, 2025.

Q. Why would allowing the model to retire Craig 3 a year earlier make a difference in this analysis?

A. As Mr. Neil pointed out in his testimony, federal tax incentives for renewables and paired storage resources are currently set to expire at the end of 2025. The retirement of Craig 3 triggers the model to replace its capacity and energy, and this might be done more cost-effectively in 2025 rather than in 2026.

[14] Hearing Exhibit 802 at page 7, line 16.

Q. Are there any other factors that might enable an earlier, more cost-effective retirement date for Craig 3?

A. Yes. Ms. Lim points to the effect of the 203 MW load reduction coming from the partial requirements customers, saying that if Tri-State were to make this adjustment, it could make a material difference to the Company's capacity resource need.[15] She also points out that "Not including this load forecast update may be responsible for Tri-State's revised preferred plan modeling choosing not to retire Craig 3 before the end of 2029."[16]

Q. Is there new information to suggest that Tri-State's load, beginning in 2024, may be even lower than Tri-State has estimated in its modeling?

A. Yes. On December 14, 2021, United Power filed a Notice of Intent with the Federal Energy Regulatory Commission (FERC) to withdraw from its membership with Tri-State.[17] United Power is Tri-State's largest member and purchases approximately 20 percent of the electricity that Tri-State produces.[18] United Power plans to exit Tri-State by January 1, 2024. In addition, another Tri-State member, Poudre Valley REA ("PVREA"), filed a notice stating that it would withdraw from Tri-State effective January

[15] Hearing Exhibit 700 at page 34, lines 16-17.
[16] *Id.* at page 34, line 19 and page 35, lines 1-2.
[17] Hearing Exhibit 803, Attachment RW-7. United Power. December 14, 2021. *United Power Files Notice of Intent to Leave Tri-State Generation and Transmission*.
[18] Ethan Howland. December 15, 2021. *Will Tri-State's exit fee dispute at FERC shake up the cooperative utility model?* Utility Dive. Available at: https://www.utilitydive.com/news/will-tri-states-exit-fee-dispute-at-ferc-shake-up-the-cooperative-utility/611030/?utm_source=Sailthru&utm_medium=email&utm_campaign=Issue:%202021-12-15%20Utility%20Dive%20Newsletter%20%5Bissue:38618%5D&utm_term=Utility%20Dive.

1, 2024, subject to the outcome of FERC proceedings concerning the calculation of the exit fees that members would pay to withdraw from Tri-State.[19]

Q. **How could the exit of United Power, Tri-State's largest single member, as well as the exit of other members, affect the ability of Tri-State to retire Craig 3 earlier than Tri-State has proposed?**

A. Further load reductions would continue to reduce Tri-State's capacity need and help to enable earlier retirement of Craig 3. Tri-State has said that it does not want to retire the unit early because of the potential need for new gas resources; however, the combined load reductions attributable to the partial requirements customers and the loss of United Power are larger than the capacity deficit from the retirement of Craig 3.

IV. CONCLUSIONS AND RECOMMENDATIONS

Q. Have your conclusions regarding the most economic retirement date for Craig 3 changed since your answer testimony was filed?

A. No. I continue to find that the most economic retirement date for Craig 3 is December 31, 2025, particularly with the new potential for load reduction attributable to United Power's stated intent to exit Tri-State by 2024.

Q. Have any of your other conclusions changed in response to other parties' answer testimony?

[19] Hearing Exhibit 803, Attachment RW-8. Letter from PVREA to Tri-State, December 16, 2021.

A. No.

Q. Does this conclude your cross-answer testimony?

A. Yes, it does.

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AFFIDAVIT OF RACHEL WILSON

I, Rachel Wilson, state that the above Cross-Answer Testimony in Proceeding No. 20A-0258E was prepared by me or under my supervision and control. The testimony is true and correct to the best of my knowledge and belief. I would give the same testimony orally and would present the same attachments if asked under oath before the Commission.

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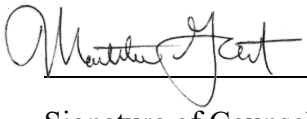

Signature of Counsel, Matthew Gerhart