REDACTED
Rocky Mountain Power
Docket No. 21-035-69
Witness: Craig M. Eller

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

REDACTED
Direct Testimony of Craig M. Eller

February 2022

INTRODUCTION OF WITNESS AND QUALIFICATIONS

Q. Please state your name, business address, and present position with PacifiCorp, d/b/a Rocky Mountain Power ("RMP" or the "Company").

A. My name is Craig M. Eller. My business address is 1407 West North Temple Street, Suite 310, Salt Lake City, Utah 84116. My present position is Vice President, Business Policy and Development for Rocky Mountain Power.

Q. How long have you been in your present position?

A. I have been in my present position since July 2020.

Q. Please describe your education and business experience.

A. I have a Bachelor of Science in Mechanical Engineering from the University of Nebraska. I have been employed with PacifiCorp since July 2020 as the Vice President of Business Policy and Development responsible for strategic planning, stakeholder engagement, regulatory support, and development and execution of major transmission projects. Prior to my current role, I worked at Northern Natural Gas Company, an affiliate of the Company, from 2007 through 2020 in various business development, commercial marketing and engineering roles.

Q. Have you testified in previous regulatory proceedings?

A. Yes. I have previously filed testimony on behalf of the Company in regulatory proceedings in Utah, Wyoming and Idaho.

PURPOSE OF TESTIMONY

Q. What is the purpose of your testimony?

A. The main purpose of my testimony is to present the Company's new Electric Service Agreement ("Proposed ESA") between the Company and Nucor Steel-Utah, a Division

of Nucor Corporation ("Nucor") effective March 1, 2022. My testimony explains how the prices, terms, and conditions of the Proposed ESA are reasonable and in the public interest. I describe general terms of the Proposed ESA but will focus on the changes made to the contract from the previous service agreement ("Existing ESA") between the Company and Nucor, which was approved in Docket No. 17-035-72.[1]

My testimony also discusses the timing of this filing including the extension of the Existing ESA that is effective from January 1 through February 28, 2022 ("ESA Extension"), and the Company's request for the Public Service Commission of Utah ("Commission") to approve the extension. The ESA Extension is provided as Exhibit RMP__(CME-2).

SUMMARY OF PROPOSED ESA AND CONTRACT TERM

Q. Please describe the general structure of the Proposed ESA between Nucor and the Company.

A. PacifiCorp and Nucor executed the Proposed ESA on February 9, 2022, which is provided as Confidential Exhibit RMP__(CME-1). The term of the Proposed ESA begins March 1, 2022, and expires on December 31, 2031, with some additional provisions I describe later in my testimony.

Under the Proposed ESA, PacifiCorp will continue to provide Nucor with retail full requirements service of electric energy and Nucor will provide PacifiCorp with certain interruptible products. Changes between the Existing ESA and the Proposed ESA consist of: (1) rate changes including an increased average rate and improved rate

[1] *Application of Rocky Mountain Power for Approval of Electric Service Agreement between PacifiCorp and Nucor-Plymouth Bar Division, a Division of Nucor Corporation*, Docket No. 17-035-72, Order Approving Electric Service Agreement (March 23, 2018).

structure; (2) changes to curtailment terms including a revised curtailment credit value, limitations on future curtailment credit value increases, and reduced allowances for Nucor downtime; (3) obligations of Nucor to procure its full electrical service from the Company and direct access restrictions; and (4) additional operational requirements to mitigate and minimize voltage flickers to improve performance parameters. I will describe each of these changes in more detail.

RATE CHANGES

Q. What is the rate structure of the Proposed ESA including the facilities charge, energy charge, and power charge?

A. The Proposed ESA includes a facilities charge of [redacted] per kilowatt-month (kW-month) multiplied by measured demand, an energy charge multiplied by measured energy, and a power charge multiplied by on-peak demand. The energy and power charges vary based on the season and on-peak periods as shown in the Confidential Table 1 below.

Confidential Table 1. Proposed ESA Retail Prices for Nucor

[redacted]

Q. How is the rate structure in the Proposed ESA an improvement to the Existing ESA?

A. The rate structure in the Proposed ESA is an improvement because it better reflects cost of service by more closely aligning demand and energy categories. It is also an improvement because it modernizes the seasons and time of use hours as was recently done for Electric Service Schedule No. 8 – Large General Service – 1,000 kW and

Over-Distribution Voltage ("Schedule 8") and Electric Service Schedule No. 9 – General Service – High Voltage ("Schedule 9") in the Company's last general rate case in Docket No. 20-035-04. In the Existing ESA, the current prices for Nucor included a nominal [redacted] per month customer service charge and a [redacted] per kW-month facilities charge (which was generally based upon on-peak demand, instead of the generally higher measured demand) plus higher energy charges based on energy consumption and lower power charges based on on-peak demand that varied by season and time of use period. Confidential Table 2 below summarizes these charges:

Confidential Table 2. Current Retail Prices for Nucor

[redacted]

Under these rates in the last general rate case, energy charges accounted for 62 percent of Nucor's annual revenue while demand charges accounted for 38 percent of Nucor's annual revenue. This compares with 45 percent and 55 percent of cost of service being energy-related and demand-related, respectively. The retail prices in the proposed ESA resolve this imbalance with higher demand-related charges and lower energy charges. During calendar year 2020, energy charges under the Proposed ESA would have represented 38 percent of revenue and demand-related charges would have represented 62 percent of revenue.

The retail rate structure of the proposed ESA is also an improvement because it moves the month of May to the lower cost winter season and limits the on-peak time of use window to a shorter seven hour on-peak period during non-holiday weekdays.

Both changes were approved by the Commission for large over one megawatt ("MW") customers on Schedule 8 and Schedule 9 in the Company's last general rate case.

Q. How did Nucor's annual electric service cost in the Proposed ESA change from the Existing ESA?

A. The rates and rate structure contemplated in the Proposed ESA result in an estimated annual cost increase to Nucor of approximately [redacted] before inclusion of the curtailment credit and surcharges.

Q. Will Nucor be subject to rate changes?

A. Yes. Similar to the Existing ESA, Nucor will be subject to base rate changes, and its retail prices will be uniformly adjusted by the average price change for all Utah retail customers in general and major plant addition rate cases. The Proposed ESA also provides for the base rates to be subject to revisions in the event Nucor's 36-month historical usage is less than 1,200,000,000 kWh.

Q. What surcharges will Nucor pay under the Proposed ESA?

A. As listed in Article I: Definitions 1.37, Nucor will continue to pay (or receive credit from) the following surcharges:

- Schedule No. 94 – Energy Balancing Account
- Schedule No. 98 – REC Revenue Adjustment
- Schedule No. 91 – Surcharge to Fund Low Income Residential Lifeline Program
- Schedule No. 196 – Sustainable Transportation and Energy Plan (STEP)
- Schedule No. 197 – Federal Tax Act Adjustment

The Proposed ESA also specifies that Nucor will be subject to other tariffs and schedules made applicable to it by the Commission.

Q. What surcharges will Nucor not be required to pay under the Proposed ESA?

A. As with the Existing ESA, Nucor will not be subject to the demand side management ("DSM") cost adjustment under Schedule No. 193. This is consistent with other special contracts and Nucor will not be eligible for any associated DSM programs.

Q. Does the Company anticipate that Nucor will be subject to the new Schedule No. 198 – Electric Vehicle Infrastructure Program ("EVIP") Cost Adjustment that was effective January 1, 2022?

A. Yes; the Company anticipates that the Commission's order will include that the EVIP charge will be applicable to Nucor as the STEP program funded through Schedule 196 has concluded.

Q. Why is it in the best interest of all customers for Nucor to have a special contract with a term of approximately 10 years instead of being on a general rate schedule, such as Schedule 9?

A. The proposed special contract structure has higher demand and power costs than the existing general rate schedules, such as Schedule 9, providing better alignment of cost generation and cost recovery. In addition, this rate structure along with the non-standard terms of the Proposed ESA which include commitments by Nucor to remain a full service customer, work to together to significantly reduce the risk of Nucor reducing its service requirements on the Company's system which could result in higher costs to other customers.

CURTAILMENT TERMS

Q. Please describe the curtailment terms in the Existing ESA and the Proposed ESA.

The curtailment terms of the Proposed ESA are similar to the Existing ESA with some notable improvements to the overall flexibility and value to the system. Nucor will continue to interrupt on a [redacted]-minute-notice basis, and PacifiCorp may direct such interruption at its sole discretion for any reason. Furthermore, the amount of load available for interruptions remains at 85 MW, for a total of [redacted] interruptible hours. While the number of interruptible hours and the amount of load available for interruption remains the same, the parties agreed to modify the split between 60-minute and 15-minute duration interruptions. The Proposed ESA decreases the amount of available 60-minute interruptions from [redacted]; conversely, the number of 15-minute interruptions are increased from [redacted]. These changes do not alter the total megawatt hours ("MWh") as provided for in the Existing ESA.

Q. Did the curtailment credit value change in the Proposed ESA when compared to the Existing ESA?

A. Yes; the parties agreed to a revised curtailment credit of [redacted] per kW-month versus the existing curtailment credit of [redacted] per kW-month. The curtailment credit change results in a [redacted] annual [redacted] of the credit paid to Nucor, amounting to approximately [redacted] over the term of the Proposed ESA.

Q. Is the estimated value of the curtailment credit in excess of the estimated cost?

A. Yes. The Company estimates curtailment products to have a levelized value of [redacted] per kilowatt-month over the 10-year term of the Proposed ESA, resulting in

approximately [redacted] of anticipated net present value savings over the contract term.

Confidential Table 3. Curtailment Product Cost Comparison Over 10-year Term

[redacted]

Q. Please describe how the estimated curtailment credit value was developed.

A. PacifiCorp assessed the value of the curtailment product to be provided under the Proposed ESA by evaluating three separate components: operating reserve value, capacity value, and intra-hour value. In total, the analysis resulted in an estimated curtailment product value of [redacted] per kW-month, as shown in Confidential Table 4.

Confidential Table 4. Estimated Curtailment Product Value

	$/kW-Month										
	10-Year PVRR	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Operating Reserve Value	[redacted]										
Capacity Value											
Intra-hour Value											
Total											

Q. Please describe how the estimated operating reserve value was developed.

A. To evaluate operating reserve value, PacifiCorp sought to calculate: 1) an annual system cost baseline based on PacifiCorp's 2021 Integrated Resource Plan ("IRP") preferred portfolio, which assumes the availability of curtailment rights from PacifiCorp's existing curtailment customers for the entire 20-year study period, and 2) the annual system cost when these curtailment products are removed, while the associated retail load remains on the system. The difference between the calculated

annual system costs represents the expected value of the curtailment products, specifically non-spinning and/or regulation reserves. The results of the analysis were then used to estimate yearly $/kW-month values and calculate the present value for the operating reserves; results shown in Confidential Table 4 above. The estimated levelized operating reserve value, over the 10-year term of the Proposed ESA, and before inclusion of the additional capacity and economic curtailment benefits mentioned above and further discussed below, is [redacted] per kW-month.

Q. Did PacifiCorp complete any supplementary analysis?

A. Yes; PacifiCorp completed supplementary analysis to incorporate benefits from the availability of Nucor's curtailment product not captured in the operating reserve value analysis during the out-years of the contract, specifically, capacity value during 2028 through 2031 and intra-hour economic curtailment value during 2025 through 2031.

Q. Please describe how the estimated capacity value was developed.

A. Interruptible load capability provides increased reliability by increasing the MW available to meet PacifiCorp's combined load and operating reserve requirements. As referenced in item two above, no incremental resources were added to the 2021 IRP preferred portfolio to make up for the operating reserve capability which was removed. Based on the curtailment restrictions in the Proposed ESA, and the capacity contribution assumptions from the 2021 IRP, the capacity contribution of Nucor's curtailment product is estimated at [redacted] of its 85 megawatt-interruptible load.

To assign an estimated capacity value of Nucor's curtailment products, PacifiCorp compared the features of the curtailment product with capacity characteristics for an array of resources. PacifiCorp concluded that Nucor's curtailment

product contemplated in the Proposed ESA shared characteristics with batteries and non-emitting peaking resources; it has duration limits, like a battery, though it does not need to recharge, and because of the limited annual hour count, it will be deployed infrequently, like a non-emitting peaking resource with a high variable cost. As such, PacifiCorp utilized the non-emitting peaking resource's costs, net of the operating reserve benefits, as a reasonable data point.

After adjusting for the relative capacity contribution of Nucor's curtailment product relative to the non-emitting peaking resource, and the avoidance of four years (2028-2031) of non-emitting peaking resource costs, the estimated levelized capacity value for Nucor's curtailment product over the 10-year term of the Proposed ESA is estimated to be [redacted] per kW-month, as shown in Confidential Table 4 above.

Q. Please describe how the estimated intra-hour curtailment value was developed.

A. The intra-hour curtailment benefit provided by Nucor's curtailment product was not considered in the operating reserve value or capacity value calculations. To quantify this benefit, PacifiCorp assessed the 100 highest-priced intervals for PacifiCorp's East Balancing Authority Area in the Energy Imbalance Market 15-minute market over the twelve months ending June 2021; the analysis resulted in an average price of [redacted]. PacifiCorp then estimated that if the Nucor resource were curtailed by the market during these intervals, the value would be approximately [redacted] million per year.

To avoid double counting the value of avoiding shortfall conditions, the historical intra-hour curtailment benefits were only added to the extent they exceeded the administrative $/MWh limits of $1,000 in the model used to estimate operating reserve values. The resulting levelized incremental intra-hour curtailment benefit over

the 10-year term of the Proposed ESA is estimated to be [redacted] per kW-month, as shown in Confidential Table 4 above.

Q. Did the Company perform any other analysis to further evaluate and estimate curtailment credit value?

A. Yes, similarly to the analysis discussed above, the Company replicated the cost comparison between annual system cost baseline based on the 2021 IRP preferred portfolio and the annual system cost when the curtailment products are removed; however, the Company capped the maximum marginal cost of expected reserve value at $300/MWh over the 10-year term of the Proposed ESA. This modification reduced the estimated operating reserve from [redacted] per kW-month, as described above, to [redacted] per kW-month.

Likewise, Company replicated the supplementary analysis referenced above to incorporate capacity and intra-hour benefits provided by Nucor's curtailment product not captured in the reduced operating reserve value analysis. The analysis resulted in a marginal increase to intra-hour value and no change in the previously calculated capacity value. As illustrated in Confidential Table 5, the modified calculations estimated a curtailment product value of $[redacted] per kW-month.

Confidential Table 5. Estimated Curtailment Product Value ($300 MWh Cap)

	$/kW-Month										
	10-Year PVRR	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Operating Reserve Value	[redacted]										
Capacity Value											
Intra-hour Value											
Total											

Q. What are the limitations on the curtailment credit adjustments?

A. The Proposed ESA provides a mechanism for adjusting the curtailment credit; however, unlike the Existing ESA which prescribes the curtailment credit be adjusted by the percentage in changes to rates and surcharges, the Proposed ESA stipulates that curtailment credit adjustments will only occur when cumulative changes to rates, because of general rate case changes and major plant additions cases, are more than a [redacted] increase from the effective date of the Proposed ESA. To identify the appropriate curtailment credit adjustment, PacifiCorp will evaluate the variance between any given rate change to the corresponding compounding percentage threshold as identified in Confidential Table 6 below. In the event the variance is positive, PacifiCorp will increase the curtailment credit by the applicable rate. However, if the variance is zero or negative, the curtailment credit will be reset to the original value. For illustrative purposes, hypothetical adjustments to the curtailment credit based on hypothetical future rate increase amounts are shown in Confidential Table 7.

Confidential Table 6. Cumulative Base Rate Increase Allowance

[redacted]

Confidential Table 7. Illustrative Hypothetical Credit Rate Adjustment Factors

Q. Please explain the reduced allowance for Nucor's facilities to be non-operational and receive the full curtailment credit.

A. Both the Existing ESA and the Proposed ESA contain provisions that outline the reduction of curtailment credit that results from Nucor's operating conditions during a given billing period. Specifically, the provisions allow PacifiCorp to reduce the curtailment credit to account for the inability to procure Nucor's curtailment product when Nucor's plant is not operational. The Proposed ESA refines these provisions to ensure PacifiCorp and Nucor have a common interpretation of what it means to be "down" and to improve the availability of Nucor's curtailment product.

The Proposed ESA defines and clarifies that a non-operational day is classified as [redacted]. This

clarification further improves the applicability of how the curtailment credit adjustment will be calculated.

The curtailment credit adjustment provisions in the Proposed ESA utilizes the ratio of non-operational days to the number of days in a calendar month; this is a change from the Existing ESA that calculated the ratio using non-operational hours. [redacted] before the curtailment credit adjustment provisions were triggered. The Proposed ESA modifies when the curtailment credit adjustments would be applicable; the modifications divided the year into two categories, [redacted] These categories allowed the parties to modify the triggering event for the curtailment credit adjustments. [redacted], resulting in a [redacted] percent decrease in the allowable number of unavailable days.

Q. Will the interruptions under the Proposed ESA for Nucor be treated as a system resource?

A. Interruptions under the Proposed ESA for Nucor will be treated consistent with the Commission approved allocation method. Under the 2020 Protocol allocation method currently used interruptions will be treated as a system resource.

OBLIGATIONS OF NUCOR

Q. Please explain the full requirements language of the contract and the limitations it places on Nucor regarding self-generation?

A. The Proposed ESA requires Nucor to procure all its full electrical service requirements from PacifiCorp and limits Nucor's ability to install any electrical generation facilities or enter into power purchasing agreements to offset the service provided by PacifiCorp with limited exception. The Proposed ESA allows Nucor to [redacted] As a condition to Nucor's limited ability to develop behind-the-meter generation, Nucor is required to coordinate its efforts with PacifiCorp and allow PacifiCorp to [redacted] as an alternative to further pursuing behind-the-meter renewable generation.

Q. What are the limitations the Proposed ESA places on direct access?

A. Apart from the limitations described above, the Proposed ESA requires Nucor to [redacted]

PERFORMANCE PARAMETERS FOR PACIFICORP'S SYSTEM

Q. Please explain the increased performance requirements for flicker in the Proposed ESA.

A. To ensure PacifiCorp's customers are not negatively affected by the service to be provided under the Proposed ESA, PacifiCorp required Nucor to agree to various special operational requirements. These requirements are intended to mitigate and minimize voltage flickers which are inherent to Nucor's arc furnace operations. Nucor is required to limit voltage fluctuations by operating its own automatic static var and filter systems to prevent harmonic voltage migrating to PacifiCorp's transmission system. Furthermore, the Proposed ESA requires Nucor to maintain certain Pst flicker ("Flicker") limit samples during two bifurcating term periods: from the effective date of the Proposed ESA through December 31, 2023, Nucor is required to maintain Flicker at or below 1.51; following Nucor's installation and operation of new static var compensator, currently estimated to be installed by January 1, 2024, Nucor is required to maintain Flicker at or below 1.25. Similar to the Existing ESA, the Proposed ESA provides provisions for both companies to operationally cooperate to detect, identify, and resolve Flicker problems should they arise.

Q. How did the maximum contract demand level increase in the Proposed ESA?

A. Similar to the Existing ESA, the contract demand contemplated in the Proposed ESA remains at 110,000 kW during off-peak hours; however, the contract demand during on-peak hours is increased from 92,000 kW to 100,000 kW. Furthermore, the Proposed ESA provides for PacifiCorp to limit the on-peak contract demand to 92,000 kW if unfavorable Flicker conditions exist.

Nucor's future plans may require an increase in contract demand. To accommodate Nucor's need for additional electric service, the Proposed ESA provides for a contract demand increase, for up to 141,000 kW after adjustment for power factor, upon the completion of two conditions. First, the allowable flicker limit must be reduced to or below 1.25 prior to the increase. Second, PacifiCorp must complete all system upgrades necessary to provide the potential maximum contract demand of 141,000 kW.

TIMING OF REGULATORY APPROVAL FILINGS

Q. Can you please summarize the procedural history of this filing?

A. Yes. The Company commenced discussions with Nucor in March 2021 with the intention of having a new ESA executed in a manner that allowed for a regulatory approval process before the December 31, 2021 expiration of the Existing ESA. Although negotiations were productive, it became apparent that a new ESA would not be reached in time for a timely regulatory filing, so the parties agreed to a contract extension. On December 17, 2021, the Company filed a Courtesy Notice of Intent to File New Contract for Approval and Amendment to Extend Term of Electric Service Agreement between PacifiCorp and Nucor Corporation ("Extension Notice"). The Company and Nucor then finalized the Proposed ESA on February 9, 2022. The Company seeks Commission approval of both the Contract Extension and the Proposed ESA.

Q. Why is it in the public interest for the Commission to approve the Contract Extension?

A. The contract was a continuation of the existing terms and conditions that have previously been approved by the Commission and the reserve products remained important system resources for the Company to reliably serve its customers during the two month extension period.

Q. Is the Company requesting an expedited procedural schedule, so the Proposed ESA is approved by the March 1, 2022 effective date?

A. No. The Company has typically filed for approval of a contract extension or a new ESA with Nucor with timing that allows for it to be approved by the Commission prior to the effective date of the contract. However, in this case the Company sought improvements to the ESA as previously discussed that provide value to Utah customers and determined that the extra time required to negotiate the improvements offset the less than ideal situation of not having the contract approved prior to the effective date.

Q. What provisions are included in the Proposed ESA to help facilitate a more timely regulatory approval filing in the future?

A. The Proposed ESA provides that, prior to its expiration, the parties will commence negotiations by January 31, 2029, for electric service effective January 1, 2032, and beyond. In the event the Parties cannot reach agreement on extension terms by July 1, 2029, either Party may request an order from the Commission specifying the rates, terms and conditions for electric service effective January 1, 2032, and beyond. This pre-determined process should alleviate timing concerns for the next ESA approval.

CONCLUSION

Q. What is your recommendation for the Commission in this proceeding?

A. The Proposed ESA provides a fair interruption credit to Nucor against the rates it pays PacifiCorp in exchange for providing PacifiCorp with certain interruptible products. The rates for full requirements service that Nucor will pay PacifiCorp are negotiated rates but are consistent with rates applicable to other large industrial customers. The prices, terms and conditions of the Proposed ESA and ESA Extension are just and reasonable and I recommend the Commission approve the contracts.

Q. Does this conclude your direct testimony?

A. Yes.