STAFF MEMORANDUM

TO: COMMISSIONERS AND ADVISORS

FROM: BRITTANY MEHLHAFF, PATRICK STEFFENSEN, AND KRISTEN EDWARDS

RE: EL21-007 - In the Matter of the Filing by Montana-Dakota Utilities Co., a Subsidiary of MDU Resources Group Inc., for Approval of the Annual Update to Its Infrastructure Rider Rate: Lewis & Clark Regulatory Asset Recovery

DATE: November 2, 2021

BACKGROUND

On February 26, 2021, the South Dakota Public Utilities Commission (Commission) received a filing by Montana-Dakota Utilities Co., a Subsidiary of MDU Resources Group Inc. (MDU or Company) for approval of the annual update to its Infrastructure Rider Rate. The Infrastructure Rider was established in the Company's last rate case, Docket EL15-024. The Infrastructure Rider initially allowed for the recovery of Thunder Spirit Wind (TSW1).

Subsequently, in Docket EL19-010, the Commission approved recovery of MDU's Bowdle Substation project and the Thunder Spirit Wind Expansion project (TSW2). Most recently, in Docket EL20-009, MDU began recovering revenue requirements associated with the Sidney Transmission Line Project and phase one of the Mandan Substation and Lines Project.

In this docket, MDU proposed to recover additional costs associated with the Mandan Substation and Lines Project and costs associated with the Lewis & Clark Substation Project. The initially proposed rate to be effective May 1, 2021, was $0.00684 per kWh. MDU subsequently filed a revised proposed rate of $0.00687 per kWh. The Commission's April 30, 2021, Order Approving Infrastructure Rider Rate approved the revised rate effective May 1, 2021.

On March 11, 2021, MDU filed an update regarding the upcoming retirement of Lewis & Clark Unit 1. The Company proposes to reflect the annual revenue requirement savings due to this retirement to offset the related amortization of the accelerated depreciation, net of excess deferred income taxes, and the decommissioning and employee related costs as projected to be incurred in 2021. MDU's proposal results in no change in the Infrastructure Rider Rate effective May 1, 2021, since the revenue reflected in the Infrastructure Rider will match the related amortizations and the rate of return component. The Company states its proposal attempts to stabilize rates for customers while allowing for recovery of the regulatory asset in an expedited manner to minimize the overall cost to customers. Staff recommended the Commission delay any decision regarding recovery of the regulatory asset associated with retiring Lewis & Clark Unit 1 until a later date to allow time for Staff to complete its review of MDU's 2019 Integrated Resource Plan (IRP) and retirement analysis.

This memorandum outlines Staff's analysis of the Company's 2019 IRP, including the decision to retire coal fired units Lewis & Clark 1 and Heskett 1 & 2, as well as the impact to ratepayers of MDU's proposed treatment of the Lewis & Clark regulatory asset.

STAFF ANALYSIS OF 2019 INTEGRATED RESOURCE PLAN

On January 10, 2020, the Commission issued an Order approving deferred accounting treatment in Docket EL19-040 for costs related to the retirements of Lewis & Clark Unit 1, Heskett Unit 1, and Heskett Unit 2 coal-fired generators. In this Order, the Commission granted deferred accounting treatment of costs related to the retirement of the three coal fired units. The Commission's order also stated that the approval of deferred accounting treatment did not preclude the Commission from considering the prudency of these retirement decisions. On March 11, 2021, MDU filed a petition seeking a decision regarding the deferred balance as well as the retirement savings associated with the coal plants that are about to be retired. Since MDU petitioned for decisions related to the deferred regulatory asset as well as the retirement savings, it was determined that a review of the IRP to determine the prudency of retirement decisions was necessary. On behalf of Staff, KM Energy Consulting, LLC was tasked with reviewing the IRP and evaluating whether the decision to retire the three coal fired generators was prudent. Note that while the retirement results in the need for replacement capacity, MDU has not sought recovery of any new resources in this docket and therefore, the evaluation of any resource addition is outside the scope of the analysis presented in this memorandum.

All three units are old and relatively small in size: Lewis & Clark 1 went online in 1958 with a capacity of 44 MW. Heskett 1 was operational in 1954 with a capacity of 25 MW, and Heskett 2 went online in 1963 with a capacity of 75 MW.

In Docket EL19-040, MDU indicated the following with respect to the decision to retire the three coal generating stations[1]:

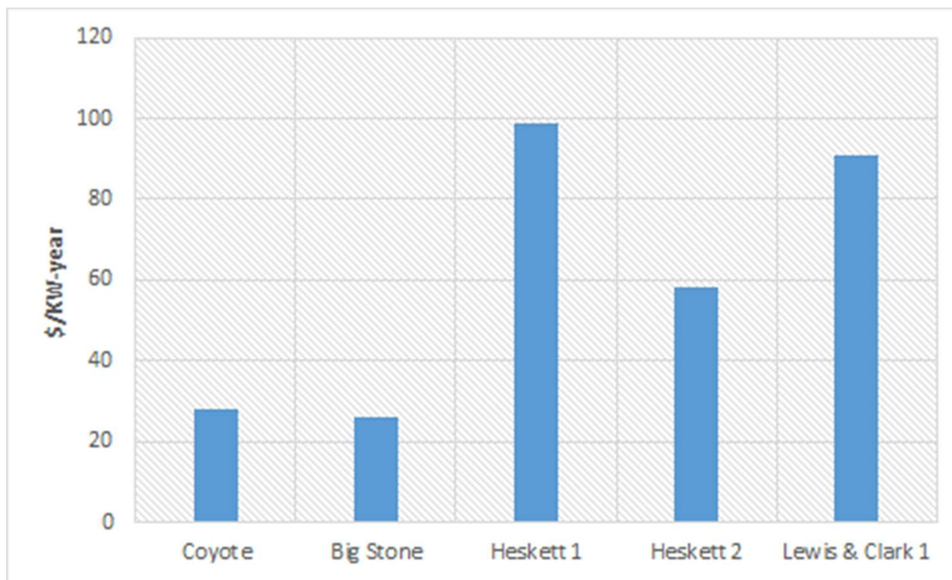
> On February 19, 2019, Montana-Dakota announced the Company's decision to retire the Lewis & Clark 1 coal-fired generator at the end of 2020 and the Heskett 1 and Heskett 2 coal-fired generators at the end of 2021. This decision was based on the age of the coal plants, the availability of low-cost natural gas driving low-cost power on the MISO market, as well as rising fuel-related costs and operating and maintenance (O&M) expenses at each of the units. This decision is fully supported in the Company's 2019 Integrated Resource Plan.

Since the decision was made in 2019, it was important and relevant to analyze the Company's decision at the time it was made. Further, since the decision was supported by the 2019 IRP, efforts were made to thoroughly evaluate the analysis included in this plan as well as issue several discovery requests and analyze responses.

[1] Refer to Docket EL19-040 Application, page 2

The 2019 IRP shows historical analysis to demonstrate the increasing trend of O&M and fuel costs for the three units and decreasing competitiveness against MISO prices.[2] Regarding fuel related costs, an alternate coal supply is not available for the Lewis and Clark Station due to its location and because no rail unloading capability is available on-site. An alternate coal supply for the Heskett Station is limited, as the plants' environmental pollution control equipment is designed specifically to work with Beulah Mine area lignite coal to ensure environmental permit compliance. Regarding the fixed O&M costs, as a result of the size and inability to gain economies of scale, the $/KW-year unitized costs for Heskett 1 and 2 as well as Lewis & Clark 1 are significantly higher than the coal generation stations that are co-owned with other utilities.

Figure 1: $/KW-Year O&M Costs



The age, size, and technology of Heskett 1, Heskett 2, and Lewis & Clark 1 makes them less competitive than larger units. The retirement of smaller and older coal units has been observed as part of a national trend. For example, in an analysis published in 2018, the Energy Information Administration (EIA) indicated that coal plants retired since 2008 were relatively old and small, averaging 52 years and 105 (MW) compared with the fleet of coal plants still operating, at 39 years and 319 MW.[3]

MDU conducted modeling retirement analysis in the 2019 IRP and used varying retirement dates for the three units – 2021, 2024, and 2029. The retirement modeling results indicated that on a 50-year present value of the revenue requirements (PVRR) basis, it was most cost effective to retire the three units by the end of 2021[4]. Given the increasing uncertainty of input assumptions over such a long period of time, Staff also asked MDU to provide the PVRR results for a 20-year time period. These

[2] See Volume IV of MDU's 2019 IRP, Attachment 1 pages 3-6 for economic competitiveness; Figure 6 and Figure 7 for fuel and transportation and Figure 9 and Figure 10 for O&M costs.
[3] See https://www.eia.gov/todayinenergy/detail.php?id=34452
[4] MDU's base case includes retiring Lewis & Clark 1 by the end of 2020 and Heskett 1 & 2 by the end of 2021.

results showed that retiring in 2024 was slightly more cost effective, compared to retiring in 2021 or 2029. Table 2 shows these results[5].

Table 2: PVRR Associated with Varying Retirement Cases[6]

	Retire-21	Retire-24	Retire-29
NPV 50 yrs ($M)	$2,860.37	$2,866.51	$2,942.92
NPV 20 yrs ($M)	$1,422.02	$1,418.41	$1,494.82
50 yrs Difference	0.00%	0.21%	2.89%
20 yrs Difference	0.00%	-0.25%	5.12%

Given the 20-year PVRR results, Staff investigated further to ascertain whether retiring the units in 2024 was a better decision than retiring in 2021. MDU explained the modeling analysis did not include future incremental capital or unit overhaul costs but rather assumed the same level of O&M and fuel costs with normal escalation assumptions. In response to Staff's discovery[7], the Company estimated that it would have potentially spent over $9 million in incremental capital costs. Aside from major maintenance, the Company indicated that it would need to incur costs to comply with EPA Section 316(b) fish impingement improvements in order to keep the units running through 2024. Given the age of the units, there is a risk that unexpected expenditures or breakdown of equipment could occur.

Efforts were also made to investigate whether the Company had conducted any analysis to ascertain the impact of not retiring all three coal units. MDU indicated the following in response to Staff's discovery[8]:

> No. The units are uneconomic to continue to operate. No project addition or modification can improve the economic position of the facilities as compared to other alternatives. Montana-Dakota ran a sensitivity model at higher MISO energy and natural gas prices and the resource planning model did not select any of the three coal units.

While the analysis of the 20-year PVRR results (which differs from the 50-year PVRR results relied upon by MDU), caused Staff to question the chosen retirement dates, the additional information provided regarding incremental capital costs and the sensitivity model ran at higher energy and natural gas prices, provides additional support for the relatively narrow margin between the Retire-21 and Retire-24 scenarios in the 20-year PVRR analysis. Furthermore, the size, age, and increasing O&M and fuel costs associated with these units validates the retirement decision.

In addition, MDU conducted a separate retirement analysis outside of the IRP modeling to demonstrate the projected savings customers will realize from a rate impact perspective. This analysis compared the estimated annual revenue requirement of the three coal units in 2023 if they continued to run with the estimated annual revenue requirement associated with the post-retirement costs for the three coal units plus the cost of replacing their output. Given some

[5] MDU Response to Staff DR 3-7, Attachment 1 – IRP Results 20-year NPV
[6] PVRR results are presented at the total company level.
[7] MDU Response to Staff DR 5-3 and 5-5
[8] MDU response to Staff DR 3-11

assumptions made in this analysis differ from those taking place today from a rate perspective, Staff instead focuses on the rate impact of the current proposal in this docket, as discussed below.

STAFF ANALYSIS OF RATEPAYER IMPACT

MDU is currently recovering the revenue requirements associated with Lewis & Clark Unit 1 and Heskett Units 1 and 2 through base rates. The annual revenue requirements included in base rates, at the South Dakota level, are $616,582 for Lewis & Clark Unit 1 and $920,896 for Heskett Unit 1 and 2, for a total of $1,537,478. MDU determined the revenue requirements associated with these units based on the information used to develop rates in Docket GE17-003.

Given Lewis & Clark Unit 1 ceased operations on March 31, 2021, MDU proposes to return to customers the annual revenue requirement associated with this plant of $616,582. These savings will be used to offset the related amortization of the accelerated depreciation, net of excess deferred income taxes, and the decommissioning and employee related costs as projected to be incurred during 2021. The Company was allowed to defer these expenses associated with the retirement and record these costs in a regulatory asset per Commission approval in Docket EL19-040. The Company's estimated regulatory asset balance, return on rate base, and amortization of related expenses are shown on Attachment A to the Company's March 11, 2021, filing.

The depreciation study relied upon in the Company's last rate case, Docket EL15-024, assumed Lewis & Clark Unit 1 would be retired in 2025. Normally this close to end of plant life, the net plant in service balances would be nearing $0. However, following this depreciation study, Lewis & Clark plant in service balances increased approximately $37 million primarily related to environmental upgrades associated with the MATS, Regional Haze Rule, and Coal Combustion Residuals Rule[9]. Therefore, the depreciation rates authorized in Docket EL15-024 would not result in a net plant balance of $0 upon retirement. This results in the need to accelerate the depreciation. The accelerated depreciation and retirement results in an acceleration of the recognition of excess deferred income taxes (EDITs) which is included as an offset to rate base. MDU staff began performing pre-decommissioning activities earlier this year. The remainder of the decommissioning will be completed by a contractor[10]. Decommissioning costs collected from customers in base rates offset decommissioning costs incurred from April through September. Beginning in October 2021, decommissioning costs outweigh the revenue collected and the additional costs are reflected in the Company's Attachment A.

The accelerated depreciation and decommissioning costs, net of the offset associated with the EDITs, include a return component based on the rate of return authorized in Docket EL15-024. Employee retention expenses[11] and other miscellaneous fees are amortized over a 36-month period beginning in

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[9] See Docket EL19-040.
[10] See EL19-040 Application, pages 6-7.
[11] These costs include severance, retention, retraining, and job search assistance costs. Some employees will be retained to operate the existing and new natural gas units and the Company will offer training for employees who wish to fill open positions in other areas. Those who do not have another position were offered a severance package. (See EL19-040 Application, pages 7-8).

April 2021. MDU does not propose to earn a return on these expenses given the shorter amortization period consistent with similar treatment agreed to in the settlement in Docket EL15-024.

The amortization of the regulatory asset rate base items is calculated so that when combined with the other amortization expenses and other components of the revenue requirement, it results in a $0 revenue requirement when offset with the revenue requirement associated with Lewis & Clark Unit 1 currently recovered in base rates. MDU proposes to true up the amortization in its next annual update to the Infrastructure Rider in 2022. This proposed treatment results in no impact to current customer rates.

However, it is important to note that this treatment does have a positive future impact for customers. Staff's review of this proposal and the rate impact for customers was a key factor in the analysis. The proposed treatment accelerates the amortization of the regulatory asset by making use of the amount customers are already paying for in base rates and thereby lessening the amount remaining to be amortized at the time of the Company's next rate case. Absent this treatment, the entire regulatory asset balance would need to be amortized and recovered from customers when MDU files its next rate case or otherwise requests rate recovery of the regulatory asset. In the meantime, customers would have continued to pay the revenue requirement associated with Lewis & Clark 1 in base rates of $616,582 annually.

The benefit of MDU's proposed treatment depends on the length of time between April 1, 2021, and the time MDU would otherwise request recovery of the regulatory asset and reset base rates to exclude the current revenue requirement associated with Lewis & Clark Unit 1. While Staff's recommendation in this docket does not evaluate the prudency of MDU's decision to construct the new Heskett Unit 4, Staff believes the timing of a potential rate case at the time a new large unit goes into service is logical. Therefore, Staff used the Heskett Unit 4 projected in-service date for purposes of this analysis. Assuming the recovery of the regulatory asset was deferred from April 1, 2021 until the anticipated in-service date of the Heskett Unit 4 plant on April 30, 2023, customers would continue to pay the annual revenue requirement associated with Lewis & Clark Unit 1 of $616,582 in base rates. Over this 25-month period, that would result in customer payment through base rates of $1,284,550. The revenue requirement will be reduced to exclude the annual revenue requirement associated with Lewis & Clark Unit 1 at the time of the next rate case. Total deferred costs are estimated at $2,725,700 which would have to be amortized and recovered from customers beginning in 2023. At that time the Commission would have to determine an appropriate amortization period. In comparison, under the proposed treatment, a total of $991,714 is anticipated to be amortized over the same 25-month period, with the current Lewis & Clark Unit 1 revenue requirement being used as an offset. This leaves an estimated balance of $1,733,986 to be recovered after April 30, 2023, instead of the total. The proposed treatment results in a savings to customers of approximately $1 million regarding the deferred costs to be recovered as of April 30, 2023[12], reducing the increase in rates required at that time if a rate case is filed. The following table

[12] This benefit amount depends on the date MDU changes it base rates or otherwise requests a change in the regulatory asset amortization methodology.

summarizes the estimated ratepayer impact. This savings is approximately 6% of MDU's current total revenue requirement.

Table 3: Ratepayer Impact

Line	Description	4/30/2023 Recovery	MDU Proposed Recovery Approach	Difference
(a)	L&C I Base Rates 4/1/21 through 4/30/23	$ 1,284,546	$ 1,284,546	$ -
(b)	Deferred Retirement Costs through 4/30/23	$ 2,725,700	$ 2,725,700	$ -
(c)	Recovered Retirement Costs through 4/30/23	$ -	$ 991,714	$ 991,714
(d)	Remaining Retirement Costs to be Recovered as of 4/30/23	$ 2,725,700	$ 1,733,986	$ (991,714)
(e)	Total Customer Payments through Rates (a) + (d)	$ 4,010,246	$ 3,018,532	$ (991,714)

Essentially, the proposed treatment allows MDU to reflect more of the regulatory asset amortization up front and allows customers to use current rates to pay for that amortization, saving customers in the long run. Additional savings will be realized assuming similar treatment when Heskett Units 1 and 2 are retired, which is anticipated to be at the end of March 2022.

Had the Company continued to operate the coal units until 2024, while the plant balances would continue to depreciate for another three years, given the current depreciation rates are not set at a high enough level to deplete the net plant balance to $0, there would still be a large balance left requiring accelerated depreciation at that time. The Company would also incur similar decommissioning and employee retention costs in 2024 as it is incurring with the current retirement plan. In sum, delaying retirement for a few years would result in a minimal reduction to the overall regulatory asset balance. Compared with the savings customers will realize by retiring Lewis & Clark Unit 1 in March 2021 and Heskett Units 1 and 2 the following year, customers are much better off from a rate impact perspective under MDU's proposal.

CONCLUSION

Considering all of the above, Staff believes MDU provided adequate evidence to demonstrate that the Company's decision to retire Heskett 1, Heskett 2, and Lewis & Clark 1 was reasonable. The ratepayer benefit of MDU's proposed treatment of the current Lewis & Clark Unit 1 revenue requirement being used to offset the regulatory asset amortization, combined with the age, size, and increasing costs associated with the units outweighs any concerns Staff had about review of the retirements modeled in the IRP. Staff anticipates similar treatment in this rider regarding Heskett 1 and 2 when those plants are retired next year.

RECOMMENDATION

Staff recommends the Commission approve MDU's request to reflect the annual revenue requirement savings due to the Lewis and Clark I retirement to offset the related amortization of the accelerated depreciation, net of excess deferred income taxes, and the decommissioning and employee related costs as projected to be incurred during 2021.