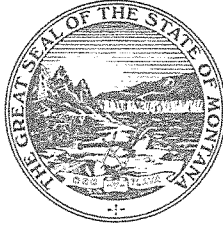


Montana Public Service Commission



Brad Johnson - Chairman
Travis Kavulla - Vice Chairman
Roger Koopman - Commissioner
Bob Lake - Commissioner
Tony O'Donnell - Commissioner

February 21, 2018

Mr. Joe Schwartzberger
NorthWestern Energy
11 East Park
Butte, MT 59701

RE: Data requests in Docket D2017.5.39

Dear Mr. Schwartzberger,

Enclosed please find Data Requests PSC-029 through PSC-044 of the Montana Public Service Commission to NorthWestern Energy in the above referenced Docket. Please begin the response to each new numbered data request on a new page. If the initial data request is objectionable or seeks confidential information, NorthWestern Energy must respond accordingly and proceed to object or file a motion for protective order no later than the deadline to respond. Please provide responses on or before March 7, 2018. If you have any questions, please contact me at (406) 444-6191.

Sincerely,

A handwritten signature in black ink, appearing to read "Neil Templeton", is written over a horizontal line.

Neil Templeton
Analyst, Regulatory Division
Montana Public Service Commission

Encl.

cc: Service List

Service Date: February 21, 2018

DEPARTMENT OF PUBLIC SERVICE REGULATION
BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MONTANA

IN THE MATTER of the Montana Public Service) REGULATORY DIVISION
Commission's Review of Rates to Recover)
NorthWestern Energy's Electricity Supply Costs) DOCKET NO. D2017.5.39

DATA REQUESTS PSC-029 THROUGH PSC-044
OF THE MONTANA PUBLIC SERVICE COMMISSION
TO NORTHWESTERN ENERGY

PSC-029

Regarding: PowerSimm Modeling
Witness: Markovich

- a. Do the PowerSimm runs submitted on June 8, 2017 in this docket reflect the use of generation assets for ancillary and other services that you refer to in your testimony at KJM-6:1-4?
- b. If yes, please explain how PowerSimm does this, and why PowerSimm would not have captured this optimization during its runs in the D2013.12.85 docket.
- c. If no, please explain PowerSimm's shortcomings in this regard and describe the modeling or analysis that NWE itself relies upon, if any, to create the expected levels of production from rate-based assets, for the purposes of assessing needs from other resources.
- d. Do the PowerSimm runs submitted on June 8, 2017 in this docket reflect the normalized production of rate-based assets or is the production specific to expectations about the year which is being modeled? Explain your answer.
- e. Please describe the stochastic modeling of outages and availability in PowerSimm for NorthWestern's owned generation assets.

PSC-030

Regarding: PowerSimm Modeling
Witness: Markovich

- a. Please re-calculate the Base Power Costs and Credits as presented in your testimony if, instead of the purchases and sales associated with PCC being driven by your estimates of normalized rate-based assets' production, the

production values associated with CU4, DGGS, Spion Kop, and the Hydros were instead based on the output expected from the assets as presented in each of their respective pre-approval dockets. Please provide Excel-readable workpapers to support the calculations.

- b. For each asset listed in part (a), please provide the level of production used to calculate power production costs in this proceeding and compare it to the level of production represented to the Commission in its pre-approval docket.

PSC-031

Regarding: Base Costs

Witness: Markovich

Please answer the following narratively, where appropriate, and by providing answers numerically in a single Excel file.

- a. Please confirm that, per the information provided in response to MCC-011(b) Attachment 6, that total tracker costs in tracker year 2015-2016 were \$429,505,086 and in tracker year 2016-2017 were \$411,132,721, when the revenue requirements of rate-based assets are included. If you do not confirm, please state your calculation of the costs and provide a work paper.
- b. Please provide, for the tracker years referred to in (a), a total cost associated with only Categories 1 & 2 of NorthWestern's PCCAM proposal. Please provide, for each type of cost and for the worksheet as a whole, the difference between the tracker year's actual cost and the cost for each cost type and category associated with the Base PCC that NorthWestern is proposing.
- c. For the tracker years in (a), please identify the mean, P5, and P95 portfolio costs, without loading capital costs associated with the revenue requirement of rate-based assets, derived by the PowerSimm runs associated with each time period—using an average of two calendar years if necessary—that were undertaken in the latest-filed Resource Procurement Plan before a given tracker year commenced (i.e., using the 2013 Plan and the runs reported in Volume 2 for the 2015-2016 tracker year; and using the 2015 Plan for the 2016-2017 year). Please provide these results in a form similar to the output provided on June 8, 2017, or in a form similar to your Exh. KJM-1.
- d. Please create a table where you add to the results from (c):
 - the revenue requirements of rate-based assets, and
 - any costs or credits included in the PCCAM proposal's Categories 1 and 2 which are not represented in PowerSimm (e.g., tax credits), explaining narratively your decision to add each.

- e. Does a significant difference exist between the results of (b) and the mean result of (c)? If so, please describe the main factors driving the difference and explain the causal relations.

PSC-032

Regarding: Revenues through Tracker, Unit Rates, and PCCAM

Witness: Markovich

Please answer the following narratively, where appropriate, and by providing answers numerically in a single Excel file; or, if possible, include your work within the same Excel file as provided in response to the immediate prior data request.

- a. Calculate the revenues NorthWestern has collected through the unit rates for electric supply associated with the existing tracker for the two tracker years identified in subpart (a) of PSC-031.
- b. Calculate the revenues NorthWestern would have collected through the unit rates for electric supply associated with the existing tracker for the two tracker years identified in subpart (a) of PSC-031, had the rates not been updated through the monthly tracker but instead had remained fixed at the rate effective of July 1 (the first day of the tracker year).
- c. Calculate the revenue NorthWestern would have collected in those two tracker years if the revenue collected were based instead on the rate NorthWestern is proposing to adopt in this proceeding, (i.e., the rate that is a function of dividing the Base PCC of Categories 1-3 by normalized loads).
- d. Calculate, under the 90/10 sharing mechanism NorthWestern proposes, what the refund or surcharge would be to customers for (c). Explain how, through rate design, this would be billed to or refunded to customers.
- e. Provide a calculation of revenues NorthWestern has collected during 2015-2016 and 2016-2017 tracker years through the unit rates associated with rate-based assets.

PSC-033

Regarding: Update to Base Costs

Witness: Markovich

You testify, “The Base PCC does not serve as a presumptive base cost. The Base PCC will be updated using the same methodology that NorthWestern used to initially set the Base PCC, using a normalized view, but will include more recent information.” KJM 6:6-12.

- a. Please confirm that NorthWestern intends only to “update” the Base PCC in the context of rate cases.

- b. Would a more appropriate practice be to update the Base PCC only once every three or five years, outside of a rate case? Please explain why it would or would not.
- c. Please confirm that per NorthWestern's proposal the Base PCC is a "presumptive base cost" for the application or the sharing mechanism or, if applicable, a deadband, until and unless the Base PCC is updated.
- d. Do you intend to propose a clear normalization methodology for each of the PCC cost items, so that newer information can be simply input into the methodology for a transparent result based on a known methodology? If not, explain.
- e. Given that the Base PCC is of a relatively recent vintage, and is the object of extensive discovery in this proceeding, would it be reasonable to waive the requirement that it be updated in the rate case to be filed in 2018, and instead apply an update requirement only to either the next rate case or to some definite year in the future (e.g., such as contemplated in (b))?

PSC-034

Regarding: QF-1 Costs as Base Cost Proxy

Witness: Markovich

- a. Please provide a revised Exh. KJM-1 to replace line 43 of p.2 and lines 29 & 31 of p.3, with cost information that is a product of the estimated volumes from the exhibit for each line item multiplied by the last filed year one avoided energy cost in light-load hours and heavy-load hours used to calculate rates for the QF-1 tariff as approved by the Commission in D2016.5.39.
- b. Assume that the Commission were to use the QF-1 rate as a proxy for the purchases associated with the lines in (a) for the purpose of establishing base costs. Do you have a view of how much assumption of capacity should exist for the purpose of creating the appropriate QF-1 rate proxy?
- c. What are the percentages of HLH and LLH deliveries associated with the base volumes for each of the following: Off System Fixed Price Purchases, On System Market Purchases, Off System Market Sales, and On System Market Sales?
- d. Please provide copies of all off-system fixed price purchase contracts NorthWestern is currently holding, and explain the methodology used to incorporate the associated prices and volumes into baseline costs. For instance, how is NorthWestern proposing to deal with the Citigroup contract that is set to expire in June 2020?

PSC-035

Regarding: Modeling Power Costs and Credits
Witness: Unknown

This question asks NorthWestern to use PowerSimm to generate Power Cost & Credit Forecasts for Categories 1 & 2. Please generate at least 1000 one-year runs projecting 2018-19 costs.

- a. Please calculate the minimum, maximum, mean (μ), mode, and standard deviation (SD) for net power cost (NPC) from the sample of forecasts.
- b. Please generate a histogram of the distribution of NPC.
- c. Please calculate the sample statistics $X = SD/\mu$ and $\alpha = 0.025 * \mu$.
- d. Assume for $i = 1$ to 1000:

$$\begin{aligned} \Delta_i &= NPC_i - \mu; \\ \text{If } |\Delta_i| \leq \alpha, \delta 1_i &= \Delta_i, \text{ else if } \Delta_i < 0, \delta 1_i = -\alpha, \text{ else } \delta 1_i = \alpha; \\ \text{If } |\Delta_i| \leq \alpha, \delta 2_i &= 0, \text{ else } \delta 2_i = \Delta_i - \delta 1_i \end{aligned}$$

Please calculate Δ_i , $\delta 1_i$, and $\delta 2_i$ for all i .

- e. Please generate histograms of the distributions of Δ , $\delta 1$, and $\delta 2$, and calculate $\Sigma \Delta_i$, $\Sigma \delta 1_i$, and $\Sigma \delta 2_i$ over all i .

PSC-036

Regarding: Modeling Power Costs and Credits
Witness: Unknown

Please expand the PowerSimm analysis requested in data request PSC-035 to generate 1000 five-year forecasts. Consider μ and α fixed at their previous values, deadband = $\mu \pm \alpha$, and deferral account with threshold level = α . For each year (j) in each forecast (i), if $NPC(i,j)$ falls outside of the deadband, place 90% of the residual into deferral account (i). If the net balance of deferral account (i) exceeds $\pm \alpha$, disperse the balance to ratepayers.

- a. Please generate a histogram of net dispersals to ratepayers over all i .
- b. Please generate histograms of net balances in deferral accounts (i) for all years (j).
- c. Please calculate the mean and standard deviation of net dispersals to ratepayers over all accounts i and years j .

- d. Please calculate the mean and standard deviation of net balances in deferral accounts (*i*) in all years (*j*).

PSC-037

Regarding: Alternative methodology to address the concepts raised in PSC-035 and PSC-036.

Witness: Unknown

- a. Does NorthWestern have an alternative method to ascertain a deadband's reasonableness that it prefers in lieu of the analysis conducted pursuant to PSC-035 and PSC-036? If so, describe that methodology, present its results, and provide the reasons why NorthWestern regards it as superior to the methodology laid out in the above two data requests.
- b. If NorthWestern believes there are more appropriate calculations to measure the probable distributions of power cost forecasts and deferral distributions contemplated in PSC-035 and PSC-036, please provide those calculations, the reasons why NWE believes they're more appropriate, and the necessary model runs or similar analysis to provide the Commission a sufficient alternative data set to implement a deadband and cost sharing policy based on a probabilistic distribution of forecasts.

PSC-038

Regarding: Load Growth Adjustment in Exhibit__(CDL-4) and Exhibit__(CDL-5)

Witness: Lail

At pp. 19-20 of Order No. 24806, and p. 5 of Order No. 30715, IPUC considers the adjustment of a PCA mechanism for load growth. Appendix A of Order No. 301715 describes the calculation of a stipulated load growth adjustment rate.

- a. Would NorthWestern support a load growth adjustment rate as part of a power cost and credit adjustment? If not, please explain why.
- b. If so, please describe the primary features of a load growth adjustment rate that NorthWestern would support.

PSC-039

Regarding: PSE Variable Production Costs Delivered Load Adjustment

Witness: Lail

Puget Sound Energy currently employs a delivered load adjustment mechanism that calculates baseline variable production costs as the product of a test year baseline power cost rate and current year delivered load. (*See* Dockets UE-130617 *et al*, Order 11 Aug. 7, 2015; Attachment A p. 5, Attachment A-1, Attachment B). Would NorthWestern support a delivered load adjustment of this type? If not, please explain why.

(Link to Washington Utilities and Transportation Commission Docket Search Page:

<https://www.utc.wa.gov/docs/Pages/DocketLookup.aspx>)

PSC-040

Regarding: Adjustment to Actual Load
Witness: Lail

Please assume that the Commission adopts a feature to adjust the baseline unit rate to actually delivered load, or otherwise include a feature in the PCCAM whereby projected and actual costs are reconciled to actual loads or actual revenue.

- a. Would NWE prefer the Idaho or PSE method as described in PSC-038 and PSC-039, respectively?
- b. Would NWE prefer some other method? If so, please describe it in your answer.

PSC-041

Regarding: Power Cost Symmetry
Witness: Lail

At CLD-20:18-21:5 you testify:

“First, for a deadband to have a legitimate conceptual basis, there must be a reasonable belief that the over-collection or under-collection of electricity supply costs are random events, caused by the fluctuating market price of fuel and purchased power, and, in the case of hydroelectric facilities, fluctuating stream flows. The conceptual validity of the approach necessarily assumes that because the “overs” and “unders” within the deadband are random, they will cancel each other out over time. However, if the likelihood is that there will only be “unders,” or predominately “unders,” a deadband approach is a conscious decision to deprive a utility of the reasonable recovery of its supply costs.”

- a. Do you believe it likely that electricity supply costs will be systematically under-collected? If so, please provide evidence to support this belief.
- b. Assume that realized market prices are lower than the forecasted market prices used to build supply rates, but all other realized determinants (e.g. loads, stream flows, net market purchases) are at expectation. In this case, would market purchase costs be under-collected?
- c. Please confirm or deny with explanation that if unbiased expectations of all rate determinants are used to design supply rates, then expected net over- and under-collection of electricity supply costs would be zero.
- d. At CDL-21:10-12 you testify, “Phrased another way, robust off-system sales create an opportunity for the ‘overs’ which are conceptually required for a deadband to have legitimacy and the opportunity for symmetry.” Do you believe that forecasts of net market purchases and off-system sales would be biased? If so, please provide evidence to support this belief.

- e. Please confirm or deny with explanation that if unbiased expectations of market prices, market purchases, and loads are used to build rates, then off-system sales are not required for symmetric over- and under-collection of electricity supply costs.

PSC-042

Regarding: Deadband and Financial Harm

Witness: Lail

Please quantify the financial effects to NorthWestern, if any, of implementing a deadband that is the product of $(0.025 \times \$140M = \$3.5M)$, i.e., a +/- \$3.5 million deadband.

PSC-043

Regarding: Regulatory Practice of Witness

Witness: Quackenbush

- a. Other than the incident referred to at 8:8-23, please identify each occasion when the Michigan Public Service Commission (MPSC) issued an order during your tenure which resulted in a disallowance in the Power Supply Cost Recovery proceedings you reference at 7:9-8:2, including a brief description of the amount disallowed and the reason for the decision.
- b. Please provide a copy of the order associated with the decision on the feedwater pump turbine that you relate at 8:8-23.
- c. What was the disallowance referred to in (b) as a percentage of earnings and of total electric operating revenue for Detroit Edison in that year?

PSC-044

Regarding: Metrics Associated with Cost-of-Capital Consequences

Witness: Quackenbush

Throughout your testimony you propose that regulators should be conscientious of the analyst community's perception of NWE, because negative perceptions could result in a higher cost of capital.

Are you aware of, and do you support, any method by which the trade-off between risk apportionment and cost of capital can be numerically quantified, or are you advising merely that it is a general principle to be kept in mind?

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the Notice of Data Requests PSC-029 through PSC-044 of the Montana Public Service Commission to NorthWestern Energy issued on February 21, 2018 in Docket D2017.5.39 was served upon the following, by mailing a true and correct copy, via first class mail, on the 21st day of February, 2018, addressed as follows:

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_____/s/Sydney Kessel_____
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