Montana Public Service Commission
Docket No. 2022.07.078
Electric and Natural Gas General Rate Review

PRE-FILED DIRECT TESTIMONY

OF JOSEPH M. STIMATZ

ON BEHALF OF NORTHWESTERN ENERGY

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Witness Information

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

A. My name is Joseph M. Stimatz. I am NorthWestern Energy's ("NorthWestern") Manager of Asset Optimization in the Energy Supply group.

Q. Please provide a description of your relevant employment experience and other professional qualifications.

A. I have over 20 years of experience in the areas of electricity and natural gas trading and marketing, hedging strategy, and asset valuation. I joined NorthWestern in March of 2011 and lead NorthWestern's electric resource optimization efforts. Prior to joining NorthWestern, I co-founded Highland Energy, an energy trading firm that participated in electricity markets throughout the Western Electricity Coordinating Council region. I also worked for Montana Power Trading & Marketing Company and PPL Energy Plus in various positions related to trading, marketing, and portfolio management. I hold a Bachelor's degree in Finance, a Master's in Business Administration, and a Chartered Financial Analyst designation.

Purpose and Summary of Testimony

Q. What is the purpose of your testimony in this docket?

A. The purpose is to present an updated Power Costs and Credits Adjustment Mechanism ("PCCAM") Base Costs, discuss changes we have

seen in the regional electricity markets, and describe NorthWestern's participation in regional initiatives for the benefit of our customers.

Q. Please summarize your testimony.

A. The current PCCAM Base Costs are not adequate for NorthWestern to cover the actual costs of electricity, capacity, and fuel purchases. This is the result of changes we have seen in the marketplace, which include much higher electricity and natural gas prices and a shift toward the need for firm capacity contracts. Because of some of the same factors, annual updates to the PCCAM Base Costs are both necessary and potentially beneficial for customers.

PCCAM Base Costs Update

Q. Please provide an overview of the PCCAM Base Costs.

A. The PCCAM Base Costs are a forecast of costs and credits used to develop the rates through which NorthWestern recovers power costs such as fuel and purchased power expenses incurred to serve electric customers. More specifically, Costs and Credits recovered through PCCAM currently consist of: Power Costs and Credits, Purchased Capacity Costs, Qualifying Facilities ("QF") Costs, and any difference between base and actuals. Power Costs and Credits include energy-related costs associated with energy supply and are subject to a sharing provision. Demand Side Management ("DSM"), Montana Public Service

Commission ("MPSC" or "Commission") taxes, and Montana Consumer Counsel ("MCC") taxes are also recovered through the PCCAM, but are not included in the PCCAM Base Costs that I present in my testimony. The Pre-filed Direct Testimony of Danie L. Williams provides details on the DSM costs. DSM costs, MPSC and MCC taxes, and QF costs are not subject to sharing provisions.

Q. What PCCAM Base Costs did the Commission approve in the last rate review?

A. The Commission last approved total PCCAM Base Costs of $138,655,703 in Order No. 7604u, ¶¶ 94-95, Docket No. 2018.02.012 (Dec. 20, 2019). The 2019 approved PCCAM Base Costs included $96,353,668 of Power Costs and $34,650,171 of Power Credits related to Supply/Generating resources, for a net Base Power Costs and Credits of $61,703,497. The total PCCAM Base Costs also included $76,952,206 of QF costs.

Q. What costs and credits are included in the Base Power Costs and Credits?

A. The costs include items such as market purchases, fuel for Colstrip Unit 4 ("CU4") and the Dave Gates Generating Station ("DGGS"), and contract costs for Judith Gap and Basin Creek. The credits include revenue from market sales and production tax credits for the hydroelectric generation

("hydros") and wind facilities. A more specific listing of costs and credits is included in Exhibit JMS-1.

Q. Do the PCCAM Base Costs, approved in 2019, reflect an accurate estimate of NorthWestern's current costs?

A. No. The PCCAM Base Costs that the Commission approved in 2019 were the result of NorthWestern's 2018 electric general rate review. The forecast needs to be updated to include more recent market and fuel prices. In addition, there have been changes in NorthWestern's portfolio of resources that should be reflected in the PCCAM Base Costs.

Q. How does the current market for future delivery of electricity compare to the market prices that were used to determine the 2019 Base Power Costs and Credits?

A. Today's prices are much higher. Table 1 below shows the forward curve for July of 2019 through June of 2020, which was used to set the 2019 Base Power Costs and Credits, compared with the current forward curve for July of 2022 through June of 2023 at the Mid-Columbia trading hub ("Mid-C"). Note that prices in the summer and winter months have more than doubled since the 2019 update.

Table 1

	Forward Curve from 2019 PCCAM Base Power Costs/Credits	Current Forward Market
July	$ 50.80	$ 79.73
August	$ 62.94	$ 140.15
September	$ 39.25	$ 99.69
October	$ 28.83	$ 71.18
November	$ 29.17	$ 69.45
December	$ 40.53	$ 91.91
January	$ 37.54	$ 82.44
February	$ 34.78	$ 73.02
March	$ 31.67	$ 48.26
April	$ 25.48	$ 31.43
May	$ 24.25	$ 29.36
June	$ 23.18	$ 38.57
Mid-Columbia all hours prices, $/MWh		

Q. How does the current market for future delivery of natural gas fuel compare with the market prices that were used to determine the 2019 Base Power Costs and Credits?

A. As with the last answer, today's prices are much higher yet the change has been even more dramatic than the change in electricity prices. Table 2 below shows the forward curve for July of 2019 through June of 2020 compared with the current forward curve for July of 2022 through June of 2023 at the Alberta Energy Company ("AECO") hub. Prices are more than four times higher on average than they were when the Commission approved the 2019 Base Power Costs and Credits.

Table 2

	Forward Curve from 2019 PCCAM Base Power Costs/Credits	Current Forward Market
July	$ 0.881	$ 5.556
August	$ 0.956	$ 5.367
September	$ 0.970	$ 5.409
October	$ 1.122	$ 5.351
November	$ 1.467	$ 5.673
December	$ 1.706	$ 5.889
January	$ 1.809	$ 5.921
February	$ 1.823	$ 5.917
March	$ 1.524	$ 5.196
April	$ 1.020	$ 3.751
May	$ 0.928	$ 3.498
June	$ 0.972	$ 3.493
AECO Natural Gas Prices in $/MMBtu		

Q. Has NorthWestern's supply portfolio changed since the Commission approved the PCCAM Base Costs in 2019?

A. Yes. We have added an 80-megawatt ("MW") solar QF, which we expect to be online during the 2022-2023 tracker period as well as several capacity purchases that were not in the portfolio when the NorthWestern derived the previous PCCAM Base Costs. In addition, a number of Power Purchase Agreements ("PPA") that were in the portfolio at that time have expired or otherwise terminated. For example, we had Mid-C purchases that were executed as part of an earlier hedging program that were in the portfolio for the 2019-2020 tracking period, but have since expired. We

also had an 80-MW wind QF expected online during that period that never reached commercial operation. Another 80-MW QF wind project was forecast to come online mid-way through the 2019-2020 period. That facility has since come online and should be included in the PCCAM Base Costs for the full year.

Q. What PCCAM Base Costs does NorthWestern propose for approval in this case?

A. NorthWestern proposes total PCCAM Base Costs of $206,715,885. The total includes Base Power Costs and Credits of $73,662,254, associated with Supply/Generating resources, which are subject to 90/10 sharing. The anticipated QF costs are $77,520,939, which are not subject to the 90/10 sharing. In addition, NorthWestern expects Purchased Capacity costs of $55,532,692. For the reasons described below, we propose that capacity costs not be subject to sharing, similar to QF costs. I present the new PCCAM Base Costs in Exhibit JMS-1. These are also summarized in Table 3 below.

Table 3

Costs and Credits	Total
Base Power Costs & Credits	$ 73,662,254
QF Costs	77,520,939
Purchased Capacity Costs	55,532,692
Total PCCAM Base Costs	$206,715,885

Q. When does NorthWestern propose the new PCCAM Base Costs to take effect?

A. NorthWestern proposes the PCCAM Base Costs to take effect on July 1, 2022 on an interim basis.

Q. How did you develop the proposed PCCAM Base Costs?

A. NorthWestern retained Ascend Analytics, LLC to use the PowerSimm™ software to help forecast the expected costs and credits on our system. PowerSimm is an analytical software package that combines market dynamics with physical characteristics in power system modeling. PowerSimm creates multiple simulations of weather, load, renewable generation, and market prices. The simulations flow into a dispatch model where the physical parameters of the power system (generators, transmission, ancillary services, etc.) are used to simulate the operation of the power system over a range of possible future outcomes. NorthWestern has used PowerSimm for nearly a decade for services including resource planning, avoided cost modeling, evaluation of Requests for Proposals ("RFP"), and other supply planning activities.

Note that PowerSimm is used to forecast or estimate energy purchase costs, sales credits, fuel costs, and payments for deliveries under PPAs. Some costs and credits included in the total PCCAM Base Costs, such as

the fixed costs of capacity purchases, renewables forecasting costs, and production tax credits, are forecasted outside of PowerSimm.

Q. What assumptions and inputs are included in the PowerSimm forecast?

A. The basic assumptions in the PowerSimm base forecast are the same as those that were needed under the previous methodology for setting PCCAM Base Costs. The key assumptions are:

1. the forward price of electricity;
2. the forward price of natural gas;
3. the expected supply load; and
4. the resources in the supply portfolio, including those that are expected to come online during the forecast period.

Further details regarding the PowerSimm inputs and other assumptions are included in Exhibit JMS-2.

Q. How does PowerSimm use the inputs and assumptions to create a forecast of energy and fuel costs?

A. PowerSimm creates simulated futures or "sim reps." Each sim rep creates 8,760 hourly price and load combinations and the dispatch of resources that would occur in each hour based on the economics of the resources. Each sim rep also includes modeled output from wind, solar, and hydro

generation based on historical output. The correlation of the generation, load, and prices is based on several years of hourly data for each.

Q. Do you have an exhibit of the resulting PowerSimm outputs used to develop the proposed PCCAM Base Costs?

A. Yes. Exhibit JMS-3 illustrates the PowerSimm outputs.

PCCAM Base Costs Update - Methodology

Q. Has NorthWestern always used PowerSimm to develop the PCCAM Base Costs?

A. No. In the past, NorthWestern used a spreadsheet-based methodology, based on NorthWestern's supply portfolio of on-peak and off-peak positions by month. The hourly PowerSimm method used in this case improves upon the prior spreadsheet method in several ways. Using PowerSimm's probabilistic capabilities allows us to capture the load and price shapes more accurately and, as a result, better estimate the dispatch of our resources, the cost of fuel for those resources, market purchases, and market sales.

The prior spreadsheet methodology treated monthly on-peak and off-peak periods as blocks, assuming the same price, load, and resource output for the entire monthly on-peak and off-peak periods. PowerSimm recognizes that within a month, loads, prices, and resource outputs vary widely, in

ways that affect costs. The spreadsheet methodology frequently underestimated costs. The difference in forecasted and actual costs and revenues is explained in the Pre-filed Direct Testimony of Andrew D. Durkin.

Q. What other improvements does NorthWestern propose in forecasting the PCCAM Base Costs?

A. In our forecast, we estimate what energy purchases we will need to serve customers and include those costs in the PCCAM Base Costs. However, in past forecasts, we did not include a forecast of the cost for capacity that we anticipated purchasing, even though we expected it to be needed for resource adequacy and reliable service to customers. As a result, any capacity purchases for these purposes that occurred during the 12-month tracking period were treated as increased costs that were not forecasted, even though we did expect those costs. For a more accurate cost forecast, NorthWestern now includes costs associated with contracts for the purchase of capacity, including those that are anticipated within the 12-month tracking period, but are not yet in the portfolio at the time of forecasting. This is similar to how anticipated purchases of energy have previously been handled in the PCCAM Base Costs.

Q. How has NorthWestern forecasted the amount of capacity to include in the proposed Base Purchased Capacity Costs?

A. We estimated the amount of purchased capacity required as the difference between the capacity need and the total capacity contribution of the resources already in the portfolio. The capacity need is determined by applying a planning reserve margin of 16% to our peak load forecast in the summer and winter seasons. The total capacity contribution of the resources in our portfolio at the time of forecasting is provided in Exhibit JMS-4.

Q. How did NorthWestern forecast the cost of the capacity to include in the proposed Base Purchased Capacity Costs for approval in this docket?

A. We estimated the Purchased Capacity Costs based on the same methodology we use in our resource planning process and in calculating avoided costs for QFs. This cost is based on the revenue requirement for a simple-cycle natural gas-fired plant. As of the date of the forecast calculation, the rate is $168.31 per kW-year.[1]

[1] *See* Exhibit BKM-9 in the Prefiled Intervenor Testimony of Dr. Brandon K. Mauch in Docket No. 2021.12.134.

PCCAM Base Costs - Annual Updates

Q. What is NorthWestern's proposal for future updates to the PCCAM Base Costs?

A. NorthWestern proposes to update the PCCAM Base Costs annually using the PowerSimm modeling software.

Q. Why does NorthWestern support annual updates?

A. Quite simply, Base Power Costs and Credits, Base QF Costs, and Base Purchased Capacity Costs that are not updated for several years do not serve the basic role of providing an accurate estimate of actual costs. This is related to both of the two main drivers of supply costs – market conditions and resource availability.

Forward energy prices are higher than they were in prior years, driven in part by tight capacity conditions. Lower regional capacity margins mean that energy will be difficult to acquire when loads are high. This drives high forward energy prices because of the expectation that prices will spike on very hot and very cold days. An on-peak forward energy price of $180/megawatt-hour ("MWh") for August, for example, does not indicate an expectation that the price on each day in August will be close to $180/MWh; it indicates that on relatively mild August days the price will be much lower and on hot days it will spike to much higher levels.

The forward energy market currently reflects these anticipated shortages and potential spikes during high-demand hours. The average, around the clock forward price at Mid-C for July 2022 through June 2023 is approximately $71.25/MWh, which is at a very high level compared to previous price forecasts. The comparable price for the July 2019 through June 2020 period, which is the basis for the current Base Power Costs and Credits, was $35.80/MWh. This forward price clearly does not reflect a reasonable expectation of prices over the 12-month tracking period.

It is important to note that annual updates can be beneficial for customers. NorthWestern proposes annual updates regardless of whether the update results in an increase or a decrease to the PCCAM Base Costs. Since prices are now at a relatively high point, annual updates that reflect the most up-to-date forward prices could very well benefit customers by reducing the PCCAM Base Costs in subsequent periods.

Q. Are there other reasons that updating the PCCAM Base Costs annually is important?

A. Yes. NorthWestern's supply portfolio also changes each year. PPAs expire and new agreements are entered with different price and volume terms as normal portfolio management. In addition, NorthWestern has made capacity purchases for resource adequacy and we expect to continue to do so. We also expect a new QF facility to come online in

December 2022, and because QF volumes affect the market purchases and sales, this is reflected in the proposed PCCAM Base Costs. If this facility comes online as expected, it will be in the portfolio for the entire 2023-2024 tracking period, and the PCCAM Base Costs should be updated to reflect that. If, like some past QFs, it does not come online as expected, this should also be reflected in the PCCAM Base Costs. Further, we may well have additional QFs online in the following tracker period. However, none of these situations will be appropriately reflected without annual updates to the PCCAM Base Costs. To properly reflect expected costs and credits, it is important to update the model to reflect the latest information about the supply portfolio.

As is the case with changes in forward prices, updates to the PCCAM Base Costs to reflect portfolio changes can benefit customers. This will be the case, for example, with the QFs that are expected to come online during the 2022-2023 period. An update to the PCCAM Base Costs for the 2023-2024 period would include those QFs for the entire period (assuming that they come online as expected), so the PCCAM Base Costs market purchases will be reduced after they come online.

Q. How does NorthWestern propose to make updates to the PCCAM Base Costs each year?

A. NorthWestern proposes to update the key model inputs, as noted above, on an annual basis: 1) the forward price of electricity; 2) the forward price of natural gas; 3) the expected supply load; and 4) the resources in the supply portfolio that will be used to serve the load, including those that are expected online during the forecast period. These changes would include the addition of any new contracts and resources, including QFs, that have come online or that are expected to come online during the year, removal of contracts that have expired, and any other changes to the portfolio. The update will also include a current hydro generation forecast based on the latest available snowpack and streamflow information.

Q. How will NorthWestern present the annual update each year?

A. We will run PowerSimm with the updated inputs described above and provide an exhibit in the form of Exhibit JMS-1, along with the workpapers supporting the exhibit.

Q. What will be the process for NorthWestern filing annual updates?

A. In rebuttal testimony in this docket, NorthWestern will provide estimated PCCAM Base Costs to take effect on July 1, 2023 that will be updated in a compliance filing in June 2023. Mr. Durkin discusses this process in more detail.

Changes in the Market

Q. How have changes in the market affected NorthWestern and its ability to serve its customers?

A. The tight regional capacity position has made it increasingly important for NorthWestern to procure capacity in advance so that we can ensure meeting peak customer loads. The market changes have made reliance on the short-term energy markets an approach that is not only costly, but also risky from a reliability perspective. If we do not acquire enough capacity to meet load well in advance, we will be at risk of not being able to find the energy in the short-term market.

Q. Have market changes spurred NorthWestern to change the way it plans to serve customers in the future? Please explain.

A. Yes. We have been moving away from an approach where we rely on short-term energy purchases to meet load and toward an approach where we own, or have under long-term contract, the resources we need to meet our load. We believe that this is the prudent approach given the changes we have seen in the market. We will continue to have market purchases as well as market sales, but increasingly the purchases will be based on economic dispatch of our resources rather than necessity to serve load.

Q. If NorthWestern does not respond to the changes in the market, how will that affect its ability to serve customers?

A. If we fail to adapt to the changes in the market, we will be putting reliability at risk. It is increasingly important for us to procure resources in advance rather than relying on short-term market purchases because we have no guarantee that the energy will be available in the market on the most challenging days.

Q. What is NorthWestern doing to address the changes in the market?

A. For the last several years, we have been working to address our capacity shortfall. We issued the long-term RFP and procured capacity through a short-term RFP and through bilateral negotiations. The status of NorthWestern's portfolio is discussed in more detail in the Pre-filed Direct Testimony of Bleau J. LaFave.

Q. What is the energy industry doing to address the changes in the market?

A. The region has recognized that the changes I described above demand closer cooperation among utilities in order to provide the appropriate level of reliability for customers at the lowest achievable cost. Some of the efforts that have been undertaken are the development of the Western Resource Adequacy Program ("WRAP") and the Western Energy Imbalance Market ("EIM"). In addition, both the California Independent System Operator and the Southwest Power Pool are working on the further development of organized markets in the West.

Q. Please explain why NorthWestern's participation in regional efforts, like the EIM and the WRAP, is crucial to NorthWestern's future.

A. With the retirement of coal-fired plants and increasing intermittent generation, it has become clear that utilities need to cooperate in order to serve customers in the most efficient way possible. The EIM and WRAP are two examples of this, and we expect that there will be further development in the coming years. All of these efforts require NorthWestern to own or control adequate capacity to participate, and we expect each of them to provide benefits to our customers.

Resource Adequacy

Q. Please describe the WRAP.

A. The WRAP is a regional resource adequacy program being developed by the Western Power Pool (formerly known as the Northwest Power Pool). The goal of the program is for its members to cooperate to provide resource adequacy at lower overall costs than they would be able to achieve absent the program.

Q. What is the status of the WRAP?

A. The program is currently in the implementation of its non-binding phase beginning with the winter of 2022-2023. The expectation is that WRAP will file the tariff required with the Federal Energy Regulatory Commission for a binding program in the mid-2022, with a target of full implementation in 2024.

Q. Please identify NorthWestern's efforts and contributions to the WRAP.

A. NorthWestern has been a member of the Steering Committee developing the WRAP since 2019. We have worked closely with other utilities in the West on the program requirements, governance, and other issues, and we are participating in the non-binding phase of the program.

Q. When it becomes available, will NorthWestern join the binding phase of the WRAP? Please explain.

A. We see value for our customers in the WRAP. We believe that the program will help us ensure reliability for our customers while carrying less capacity than we would need for the same level of reliability outside the program. However, we will only be able to join the binding phase of the program, which includes requirements to demonstrate that we own or control the appropriate amount of capacity, if we are confident in our ability to acquire that capacity in advance. For example, we will need the capacity provided

by the Yellowstone County Generating Station as part of our portfolio to meet the program requirements.

Western Energy Imbalance Market

Q. Please describe how the EIM operates.

A. The EIM balances fluctuations in supply and demand across a broad footprint using resources offered into the market by the participants. The market platform dispatches the lowest cost resources available to meet load, subject to transmission constraints. The EIM does not provide capacity – each entity must enter each hour with expected load balanced with expected generation, and with enough extra or uncommitted capacity to meet potential fluctuations in that hour. It does, however, take advantage of the diversity of load and generation across the footprint, and the ability to transfer energy among the participants in five-minute intervals.

Q. When did NorthWestern join the EIM?

A. We signed an implementation agreement in late 2018 and began operations in EIM in June of 2021.

Q. How has NorthWestern's entrance into the EIM helped to address the changing market conditions?

A. EIM is another way that utilities in the West have recognized that we can provide benefits to our customers by cooperating with each other. EIM

allows us to take advantage of the diversity of loads, variable resource output, and dispatchable generation within the hour to balance our systems more efficiently than any of us could without EIM. However, in order to participate in the EIM, we have to be capacity sufficient in each hour. If we do not have sufficient flexible capacity on our own ahead of each hour, we cannot participate in the market.

Q. Does this conclude your testimony?

A. Yes, it does.

VERIFICATION

This Pre-filed Direct Testimony of Joseph M. Stimatz is true and accurate to the best of my knowledge, information, and belief.

/s/ Joseph M. Stimatz
Joseph M. Stimatz