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*Attorney for Petitioner FLS Energy and Cypress Creek Renewables*

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

IN THE MATTER of Application for Approval of Avoided Cost Tariff Schedule QF-1	UTILITY DIVISION  DOCKET NO. D2016.5.39
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**FLS ENERGY AND CYPRESS CREEK'S RESPONSE TO DATA REQUESTS PSC-036 THROUGH PSC-041 OF THE MONTANA PUBLIC SERVICE COMMISSION**

PSC-036

Regarding: Electronic Files  
Witness: Schiffman

Please provide Excel files to support your alternative forecast of \$48.32/MWh.

**Response: The \$48.32 avoided cost estimate, based on NPCC final forecast, was derived based on the Commission's Order in Greycliff. See below for derivation:**

Page 7 of Order, Paragraph 29: \$53.39/MWh estimated energy avoided cost based on NPCC Draft Forecast.

Page 7 of Order, Paragraph 30: \$48.32/MWh estimated energy avoided cost based on NPCC Final Forecast being 9.5% lower than draft.  $\$48.32 = \$53.39 * (1 - .095)$ .

For independent derivation of the \$48.32/MWh avoided cost value, see attached spreadsheet named NorthWestern QF-1 Avoided Cost Using NPCC Forecast.xlsx.

Regarding: Valuing QF-1 Power under Long Conditions

Witness: Schiffman

- a. Please confirm, or deny with explanation that pricing QF power at zero during forecasted Long-2 conditions is logically equivalent to curtailing without compensation under Long-2 conditions.

**Response: It is not clear what is meant by “logically equivalent” in this context. However, these two approaches are conceptually different. Curtailment would only occur, presumably, when a physical operational issue on the NorthWestern system, or in the SPP market, would be wholly or partially addressed through reducing generation from a given QF resource. We do not agree that uncompensated curtailment is appropriate, but any form of permissible curtailment would be in response to operational issues. On a forecast basis, for purposes of determining estimated avoided cost, expected curtailment would be zero, and there will be no impact upon the avoided cost calculation. In the case of actual curtailment, NorthWestern customers would not receive energy from the QF resource during the curtailment period.**

**In contrast, the approach that NorthWestern is proposing would forecast the frequency of Long-2 conditions, and assign zero value to the energy received during those periods. NorthWestern’s approach would reduce the energy payment to QF-1 resources for every MWh of energy delivered. On an operational basis, during Long-2 conditions, NorthWestern would still take energy from QF-1 resources. The net effect of NorthWestern’s approach would be to subsidize NorthWestern’s shareholders and customers, at the expense of the QF-1 resources.**

- b. Please confirm, or deny with explanation that NorthWestern is obliged to preserve consumer indifference with respect to the procurement of QF power, or power from any other source, including its owned or proposed resources.

**Response: We don’t agree with the premise of this question. Under PURPA, NorthWestern is obliged to do a number of things, including purchasing QF energy at a non-discriminatory avoided cost. NorthWestern is obligated to purchase energy from QF-resources, at avoided cost, and avoided cost is to be determined as the costs NorthWestern can avoid because of its receipt of QF energy. The determination of avoided cost should take into account alternative power sources, including owned or proposed resources, and associated costs, as well as the operational costs and operating features of NorthWestern’s overall power system. It should also take into account wholesale market purchase and sale opportunities and impacts. With all of those factors properly included, customers would be indifferent between power purchased from a QF-1 resource, and alternative resources available to NorthWestern.**

- c. Please confirm, or deny with explanation, that NorthWestern customers are indifferent between these choices: 1) Purchasing QF power at market price for immediate sale at market price (assuming zero transaction costs); or 2) No purchase of QF power.

**Response: We don’t agree with the premise of this question. Under PURPA, NorthWestern is obliged to do a number of things, including purchasing QF energy at a non-discriminatory avoided cost. The avoided cost approach must be reflective of the way NorthWestern will actually operate its system, and must**

**treat QF resources on a nondiscriminatory basis, similar to the treatment of NorthWestern's owned resources.**

- d. Please confirm, or deny with explanation, that NorthWestern customers are not indifferent between these choices: 1) Purchasing QF power at market price for immediate sale at market price (assuming non-zero transaction costs); or 2) No purchase of QF power.

**Response: We don't agree with the premise of this question. Under PURPA, NorthWestern is obliged to do a number of things, including purchasing QF energy at a non-discriminatory avoided cost. The avoided cost approach must be reflective of the way NorthWestern will actually operate its system, and must treat QF resources on a nondiscriminatory basis, similar to the treatment of NorthWestern's owned resources.**

Regarding: Valuing QF-1 Power under Long Conditions  
Witness: Schiffman

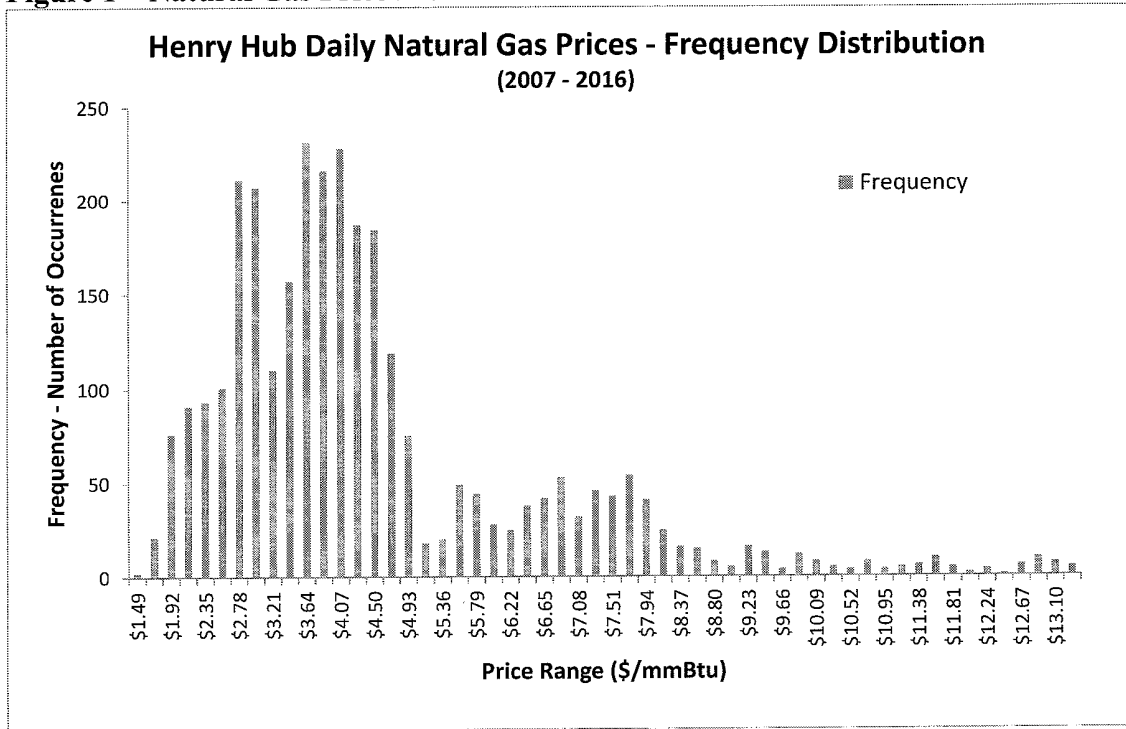
- a. Please confirm, or deny with explanation that NorthWestern customers incur brokering costs and market price risk associated with buying and selling QF power under long conditions.

**Response: We do not have information about brokering costs incurred by NorthWestern in engaging in wholesale market purchases and sales. If NorthWestern does incur such brokering costs, it would similarly avoid brokering costs when purchasing QF power under short conditions. It is our understanding that the reported Mid-C market prices being used by NorthWestern in its analysis are based on transaction settlements, so brokering costs, if any, would presumably be implicitly reflected in those settlement prices.**

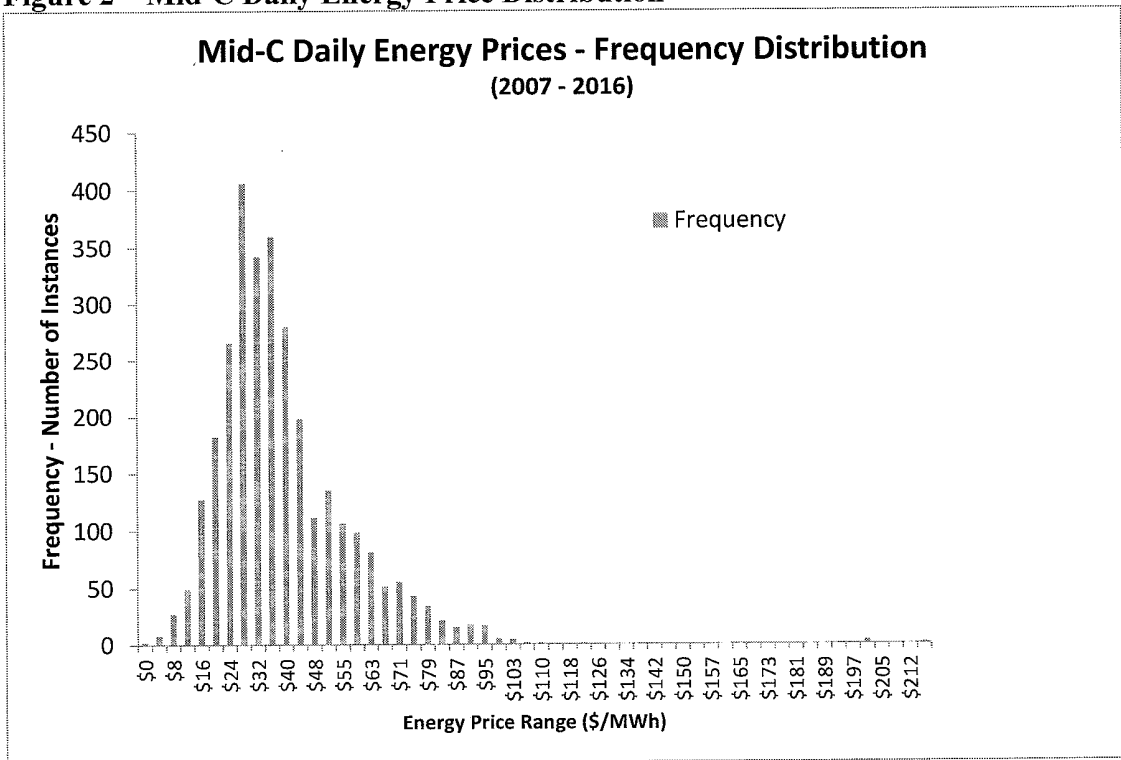
**In terms of market price risk, there is always the risk of a forecast being different from actual market. This represents both an upside opportunity, and a downside risk for NorthWestern customers. It is not only one-sided.**

**Historically, wholesale natural gas and electricity prices have both reflected asymmetric statistical price distributions, with the probability of high prices being greater than the probability of low prices. This is true for both natural gas prices and energy prices. For example, see Figures 1 through 3 below. These show statistical distributions of historical daily natural gas prices at Henry Hub, and energy prices at Mid-C. Figure 3 shows a statistical distribution of hourly energy prices in Northern California. As shown, historical natural gas and electricity price distributions are skewed to the right. That means that statistically, there is risk protection for NorthWestern customers, in procuring QF energy at a long-term fixed avoided cost. There is a higher probability of high fuel and power prices, than the probability of lower prices. The higher price risk affects market purchases, and generation costs from NorthWestern owned resources and from conventional thermal generation resources, particularly those resources burning natural gas. Because the QF energy is not subject to such price risk, there is a risk reduction benefit for NorthWestern customers, from such purchases.**

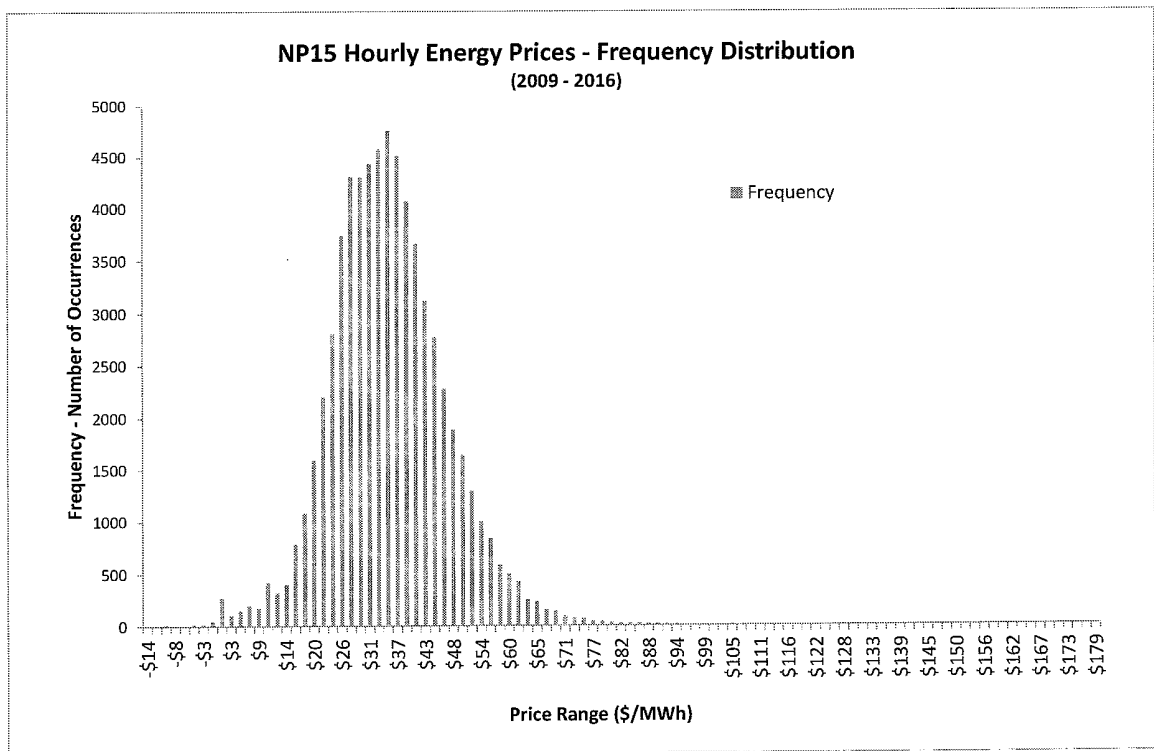
**Figure 1 – Natural Gas Price Distribution**



**Figure 2 – Mid-C Daily Energy Price Distribution**



**Figure 3 – NP15 Hourly Energy Price Distribution**



- b. Please confirm, or deny with explanation that FLS/Cypress Creek would support the pricing of QF-1 power under long conditions at projected market prices, less a deduction representing the fair value of, at least, NorthWestern's power brokering services and market price risk.

**Response:** Please refer to earlier response. It is our belief that the market price quotes being used as the initial basis for NorthWestern's avoided cost determination, already implicitly reflect brokering costs. It is also our belief that given the historical statistical distribution of wholesale electricity prices, there is a risk reduction benefit for NorthWestern's customers, in purchasing energy from QF resources. This is particularly true given that NorthWestern does not use a fundamental based model in determining avoided cost, so does not reflect increasing market heat rates expected to occur in the industry. So any accurate reflection of market price risk would compensate QFs for the risk reduction. In addition, any potential adjustment for brokering costs and/or market price risk would also need to be applied during times when NorthWestern is in a short position, as additional avoidable costs. Making an adjustment for these costs in some scenarios but not others would be discriminatory against QF resources.

- c. If confirmed at (b), please provide and support an estimate of a reasonable deduction to market to compensate NorthWestern customers for expected cost and risk.

**Response:** We do not agree that such an adjustment is appropriate. If such an adjustment were properly derived, and applied during both long and short market positions, we believe it would modestly increase estimated avoided cost.

PSC-039

Regarding: Mid-C Energy Price Forecast  
Witness: Schiffman

At p.17 you state that NorthWestern's forecast in 2016 is 12% lower than actuals so far.  
Please provide Excel support for this claim.

**Response: See attached spreadsheet labeled Mid-C Price Comparison.xlsx.**

PSC-040

Regarding: Annual Changes to QF-1 Rates

Witness: Schiffman

Please describe the FLS/Cypress Creek position on annual updates to QF-1 Tariff rates based upon changes in price indices and other factors in the approved avoided cost calculation.

**Response: We do not believe this approach would be appropriate because it would jeopardize the ability to obtain financing for QF-1 resources. Moreover, the approach would be discriminatory against QF resources, when compared to NorthWestern's treatment of non-QF market purchases, and when compared to the regulatory cost recovery treatment of NorthWestern owned resources.**



PSC-041

Regarding: Levelized Costs  
Witness: Schiffman

Please describe the FLS/Cypress Creek position on the use of levelized costs to set standard rates in the QF-1 Tariff.

**Response: We are supportive of the use of levelized costs to set standard rates in the QF-1 tariff, as long as those levelized costs are reflective of NorthWestern's full avoided cost.**

## CERTIFICATE OF SERVICE

I hereby certify that on the 18<sup>th</sup> day of November, 2016, I served the foregoing by first-class mail, postage prepaid mail on the following:

Kate Whitney, Administrator PSC 1701 Prospect Avenue Helena, Mt 59601	John Alke NorthWestern Energy 208 N Montana Ave Suite 205 Helena, Mt 59601
Al Brogan Northwestern Energy 208 N. Montana Ave Suite 205 Helena, Mt 59601	Tracy Killoy NorthWestern Energy 208 N. Montana Ave Suite 205 Helena, Mt 59601
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Eric Christensen Caimcross Hempelmann 524 Second Avenue Suite 500 Seattle, WA 98104	Jeffrey Wagner Volkswind USA, Inc 205 SE Spokane Street Suite 306 Portland, OR 97202

By: 

Jacqueline Haskins-Legal Assistant