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October 31, 2017

**VIA ELECTRONIC AND U.S. MAIL**

PUC Filing Center  
Public Utility Commission of Oregon  
PO Box 1088  
Salem, OR 97308-1088

**Re: UE 333 - In the Matter of IDAHO POWER COMPANY'S 2018 Annual Power Cost Update**

Attention Filing Center:

Enclosed for filing in the above-referenced matter are an original and five copies of Idaho Power Company's (Redacted) Direct Testimony and Exhibits of Nicole A. Blackwell (Idaho Power/100-109). Confidential copies will be sent under seal to the filing center. Please direct all communications in this matter to:

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An electronic copy of this filing has been served on all parties to the 2017 APCU (UE 314).

Very truly yours,

Alisha Till  
Administrative Assistant

Enclosures  
cc: UE 314 Service List

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**CERTIFICATE OF SERVICE**

I hereby certify that I served a true and correct copy of the foregoing document in Docket UE 333 on the following named person(s) on the date indicated below by email addressed to said person(s) at his or her last-known address(es) indicated below.

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DATED: October 31, 2017



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Alisha Till  
Administrative Assistant

BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON

UE 333

IN THE MATTER OF IDAHO POWER )  
COMPANY'S 2018 ANNUAL POWER )  
COST UPDATE )  
OCTOBER UPDATE )  
\_\_\_\_\_ )

**IDAHO POWER COMPANY**  
**DIRECT TESTIMONY**  
**OF**  
**NICOLE A. BLACKWELL**

**October 31, 2017**

1 **Q. Please state your name, business address, and present occupation.**

2 A. My name is Nicole A. Blackwell. I am employed by Idaho Power Company ("Idaho  
3 Power" or "Company") as a Regulatory Analyst in the Regulatory Affairs Department.  
4 My business address is 1221 West Idaho Street, Boise, Idaho 83702.

5 **Q. Please describe your educational background.**

6 A. In May 2010, I received Bachelor of Science degrees in Finance and Economics from  
7 the University of Idaho. I have also attended "The Basics: Practical Regulatory  
8 Training for the Electric Industry," an electric utility ratemaking course offered through  
9 New Mexico State University's Center for Public Utilities, "Electric Utility Fundamentals  
10 & Insights," an electric utility course offered through the Western Energy Institute, and  
11 "Electric Utility System Operations," an electric utility course offered through  
12 Professional Training Systems, Inc.

13 **Q. Please describe your business experience with Idaho Power.**

14 A. In January 2016, I accepted my current position at Idaho Power as a Regulatory  
15 Analyst in the Regulatory Affairs Department. As a Regulatory Analyst, I am  
16 responsible for running the AURORA model ("AURORA") to calculate net power  
17 supply expenses ("NPSE") for ratemaking purposes, as well as the determination of  
18 the marginal cost of energy used in the Company's marginal cost analyses. My duties  
19 also include providing analytical support for other regulatory activities within the  
20 Regulatory Affairs Department.

21 **Q. What is the purpose of your testimony in this proceeding?**

22 A. The purpose of my testimony is to present the determination of the Company's 2018  
23 October Update, the first portion of the Company's Annual Power Cost Update  
24 ("APCU"). If approved, the 2018 October Update will result in a revenue increase of  
25 approximately \$0.36 million, or 0.65 percent, to become effective June 1, 2018.

26 **Q. How is your testimony organized?**

1 A. My testimony begins with a brief history of the APCU and the filing requirements  
2 associated with it. Next, my testimony describes the required updates to AURORA  
3 and the resulting modeling outputs. I then present and discuss the total NPSE for the  
4 2018 October Update, including the impacts of the Company's participation in the  
5 western Energy Imbalance Market ("Western EIM"), and how it compares to last year's  
6 2017 October Update. My testimony concludes with the quantification of the projected  
7 revenue requirement and the proposed rate implementation to recover the revenue  
8 requirement.

9 **Q. Have you prepared exhibits for this proceeding?**

10 A. Yes. I am sponsoring the following exhibits:

- 11 1. Exhibit 101, AURORA modeled determination of normalized power supply  
12 expenses for April 1, 2018 – March 31, 2019
- 13 2. Exhibits 102 – 104, Mid-Columbia Forward Price Curves Discounted for  
14 Inflation, Producer Price Index for Electric Power, and Forward Prices used for  
15 re-pricing purchased power and surplus sales
- 16 3. Exhibit 105, Total Normalized Base Power Supply Expenses for the 2018  
17 October Update
- 18 4. Exhibit 106, Energy Imbalance Market Costs & Benefits
- 19 5. Exhibit 107, Year-Over-Year Differences in Modeled NPSE
- 20 6. Exhibit 108, Revenue Spread
- 21 7. Exhibit 109, Calculation of Revenue Impact

22 **APCU Overview**

23 **Q. What is the APCU?**

24 A. The APCU is a rate mechanism that is comprised of two components, an October  
25 Update and a March Forecast. The October Update establishes the prospective  
26 "base" or "normal" power supply expenses for an April through March test period. The

1 March Forecast is a forecast of expected power supply expenses over the same test  
2 period as the October Update. "Base" or "normal" power supply expenses are  
3 calculated by modeling the test period under multiple historical water conditions; in this  
4 case, the Company modeled 89 historical water conditions (1928-2016). Expected  
5 power supply expenses are calculated by modeling the same test period as the  
6 October Update, except the power supply expenses are calculated by modeling a  
7 single forecast water condition from the Northwest River Forecast Center. The results  
8 of the October Update are reflected as an update to base rates and the results of the  
9 March Forecast are reflected in the March Forecast Rate Adjustment listed in  
10 Schedule 55, with both of the rate adjustments going into effect on June 1<sup>st</sup> of each  
11 year.

12 **Q. What is the definition of the term "net power supply expense" as the Company**  
13 **and the Commission have used the term historically?**

14 A. The Company and the Public Utility Commission of Oregon ("Commission") have used  
15 the term "net power supply expense" to refer to the sum of the following Federal  
16 Energy Regulatory Commission ("FERC") accounts: fuel expense (FERC Accounts  
17 501 and 547), purchased power expenses (FERC Account 555) and wheeling  
18 expenses (FERC Account 565), minus surplus sales revenues (FERC Account 447).

19 **Q. What regulatory actions led to the implementation of the APCU?**

20 A. In its Order issued in Idaho Power's rate case, Docket No. UE 167, the Commission  
21 specifically recognized the Company's unique reliance on hydro generation and its  
22 extended amortization of deferred costs, and therefore, directed the parties to work  
23 together to "consider whether there is a more effective regulatory mechanism for Idaho  
24 Power to recover its allowable power costs." (Order No. 05-871, p. 7). Following that  
25 Order, the Company filed its request for a power cost adjustment mechanism  
26 ("PCAM") and the result of that filing was a settlement stipulation approved by the

1 Commission in Order No. 08-238, Docket No. UE 195, that approved the APCU and  
2 implementation of the PCAM, or the annual power supply expense true-up.

3 **Q. What is the purpose of the APCU?**

4 **A.** The APCU was implemented to adjust rates on an annual basis to capture variability  
5 in power supply expenses that occur with a predominantly hydro-based generation  
6 fleet. The APCU mechanism closely aligns the power supply expenses included in  
7 customer rates with the power supply expenses actually incurred by the Company.  
8 Prior to the APCU, the Company would defer excess power supply expenses and then  
9 amortize them at a later time for collection, which led to multiple deferrals and long  
10 amortization periods.

11 **Q. What are the requirements of Order No. 08-238?**

12 **A.** Order No. 08-238 directed the Company to model its power supply expenses using  
13 the AURORA model and identified a number of variables that were to be updated  
14 annually in AURORA. The specific variables are discussed in the following section.

15 **Q. What is the AURORA model?**

16 **A.** The AURORA model is a comprehensive electric resource dispatch model that  
17 simulates the economic dispatch of the Company's resources to determine NPSE for  
18 the APCU. The Commission has also accepted the use of AURORA to determine  
19 NPSE for general rate cases, marginal cost analyses, and resource modeling for the  
20 Company's Integrated Resource Plan.

21 **AURORA Model Inputs and Modeling Results**

22 **Q. What are the specific variables that are to be updated during each APCU filing?**

23 **A.** Commission Order No. 08-238 identified the following power supply expense variables  
24 to be updated annually:

- 25 a. Fuel prices and transportation costs
- 26 b. Wheeling expenses

- 1 c. Planned outages and forced outage rates
- 2 d. Heat rates
- 3 e. Forecast of normalized load and normalized sales
- 4 f. Contracts for wholesale power and power purchases and sales
- 5 g. Forward price curve
- 6 h. Public Utility Regulatory Policies Act of 1978 ("PURPA") contract expenses
- 7 i. The Oregon state allocation factor

8 The Company reviewed all the inputs and updated those that have changed since last  
9 year's October Update, as described in more detail in the following section.

10 Coal Fuel Expense

11 **Q. Have any changes in coal fuel expense occurred since last year's October**  
12 **Update filing?**

13 A. Yes. Total coal fuel expense included in the 2018 October Update is \$77.6 million,  
14 compared to \$85.4 million in the 2017 October Update, a decrease of 9 percent. Coal-  
15 fired generation also decreased from last year's October Update, from 2.5 million  
16 megawatt-hours ("MWh") to 2.1 million MWh, or approximately 18 percent.

17 **Q. How did the decrease in coal fuel expense and coal-fired generation impact the**  
18 **cost of coal production on a per-unit basis?**

19 A. Because coal generation decreased to a higher degree than coal fuel expense, the  
20 average cost of coal production on a per-unit basis increased for the 2018 October  
21 Update. At the plant level, the per-unit cost of production increased at the Jim Bridger  
22 plant ("Bridger"), decreased at the Valmy plant ("Valmy"), and was relatively stable at  
23 the Boardman plant ("Boardman").

24 **Q. What is driving the increase in the per-unit cost of production for Bridger?**

25 A. The increased per-unit cost of production at Bridger is largely attributable to increased  
26 coal mining costs at Bridger Coal Company ("BCC"), as well as expected increases in



1 third-party coal costs. The fuel cost inputs for Bridger used in the 2018 October  
2 Update have been updated to align with the known operating conditions and  
3 associated costs reflected in the current BCC mine plan. The increase in the per-unit  
4 cost of production is also driven by an expected increase in third-party coal costs.  
5 Idaho Power's existing third-party coal contract with the Black Butte mine expires at  
6 the end of 2017. Idaho Power and PacifiCorp, the Company's ownership partner in  
7 Bridger and the BCC mine, are in the process of negotiating new contract terms with  
8 the Black Butte mine and Union Pacific Railroad to continue providing coal for Bridger  
9 for the next three years. Although the contract has not been finalized, the Black Butte  
10 coal price included in the 2018 October Update is approximately [BEGIN  
11 CONFIDENTIAL INFORMATION] [REDACTED] [END CONFIDENTIAL INFORMATION]  
12 percent higher than the price included in the 2017 October Update. Executing new  
13 contracts with the Black Butte mine and Union Pacific Railroad is necessary to address  
14 the near-term fuel supply needs for Bridger and to provide flexibility as Idaho Power  
15 and PacifiCorp continue to assess long-term fueling supply needs for Bridger.

16 **Q. What is driving the decrease in the per-unit cost of production at Valmy?**

17 A. The per-unit cost of production at Valmy decreased primarily due to a decrease in coal  
18 costs. The cost of coal, on a dollar per MMBtu basis, decreased approximately 5  
19 percent at Valmy largely due to increased thermal content of coal deliveries. The  
20 increase in the thermal content yields an increase in the amount of generation  
21 produced per pound of coal, which ultimately leads to less coal consumption per MWh  
22 and a subsequent reduction in coal costs.

23 **Q. Did Idaho Power model Oil, Handling, Administrative & General ("OHAG")**  
24 **expenses as agreed upon in the settlement stipulations approved in the 2016**  
25 **and 2017 APCU dockets?**

26

1 A. Yes. Per the settlement stipulation approved by Order No. 16-206 in the Company's  
2 2016 APCU, Docket No. UE 301, the per-MWh OHAG expense included in the  
3 AURORA model has been updated to reflect the amount of OHAG expense driven by  
4 Idaho Power's dispatch of each plant. The Company has separately accounted for its  
5 proportional share of the total OHAG expense incurred at each of the plants. Per the  
6 settlement stipulation approved by Order No. 17-165 in the Company's 2017 APCU,  
7 Docket No. UE 314, ("Stipulation"), Idaho Power's proportional share of total OHAG  
8 expense incurred at each of the coal-fired plants is forecast using a three-year  
9 historical average of actual OHAG costs, with a growth (reduction) rate equal to the  
10 five-year historical average growth (reduction) rate.

11 **Q. Have you prepared an exhibit that illustrates the calculation of OHAG expenses**  
12 **for the 2018 APCU?**

13 A. Yes. Exhibit 101 reflects the AURORA-modeled OHAG expense resulting from Idaho  
14 Power's dispatch, as well as Idaho Power's fixed ownership share of total OHAG  
15 expense at each plant. This methodology effectively includes in the AURORA dispatch  
16 price the true variable component of OHAG driven by the Company's dispatch of each  
17 plant. After the AURORA-modeled dispatch has occurred, the resulting costs are  
18 adjusted to align with costs actually incurred by the Company at each of its coal-fired  
19 facilities.

20 For example, on Exhibit 101, Line 4 illustrates the AURORA-modeled OHAG  
21 expense resulting from Idaho Power's dispatch of Bridger. Line 5 is the difference  
22 between the total AURORA-modeled expenses, Line 3, and the AURORA-modeled  
23 OHAG expense, Line 4, at Bridger ( $\$46,231.4 - \$208.1 = \$46,023.3$ ). Line 6  
24 represents the Company's proportional share of total OHAG expenses at Bridger using  
25 the stipulated methodology discussed above. Line 7 is the sum of the AURORA-  
26 modeled expenses (less the AURORA-modeled OHAG at Bridger), Line 5, and the

1 Company's proportional share of total OHAG, Line 6, ( $\$46,023.3 + \$2,799.1 =$   
2  $\$48,822.4$ ). This line reflects the NPSE for Bridger for the 2018 October Update. This  
3 method is replicated for Boardman as shown on Lines 9-13 and for Valmy as shown  
4 on Lines 15-20.

5 **Q. Does Idaho Power's 2018 APCU account for revenues received from or**  
6 **expenses paid to NV Energy (its ownership partner in the Valmy plant) for usage**  
7 **of the Company's unused capacity or the Company's usage of NV Energy's**  
8 **unused capacity?**

9 A. Yes. Per the Stipulation, Idaho Power agreed to include the three-year historical  
10 average of actual net balances associated with ownership partner use of unused  
11 capacity at Valmy as an offset or expense to total NPSE. For the 2018 October  
12 Update, the 2014-2016 historical average net revenue paid to Idaho Power is \$23,870  
13 on a system basis, associated with NV Energy's dispatch of Idaho Power's unused  
14 capacity at Valmy. As shown on line 19 of Exhibit 101, this amount has been reflected  
15 as an offset to NPSE for Valmy for the 2018 October Update. The Company will  
16 update the three-year historical average as part of the 2018 March Forecast.

17 Natural Gas Fuel Expense

18 **Q. How does the natural gas price forecast for the 2018 October Update compare**  
19 **to last year's October Update?**

20 A. The Company updated its natural gas price forecast for the 2018 October Update. The  
21 Henry Hub price used for the 2017 October Update was \$3.05 per MMBtu, while the  
22 Henry Hub price used in the 2018 October Update is \$3.18 per MMBtu, an increase of  
23 \$0.13 per MMBtu, or approximately 4 percent. The increase in the Henry Hub price is  
24 due to increased domestic demand and decreased natural gas storage levels. Since  
25  
26

1 last year's October Update, U.S. natural gas consumption has increased  
2 approximately 5 percent, while inventories have decreased approximately 4 percent.<sup>1</sup>

3 PURPA Expense

4 **Q. Please describe any changes to PURPA generation since last year's October**  
5 **Update.**

6 A. Last year's October Update included 352 average megawatts ("aMW") of PURPA  
7 generation, whereas PURPA generation included in the 2018 October Update is 332  
8 aMW, a decrease of 20 aMW since last year's October Update.

9 **Q. What is driving the changes in PURPA generation since last year's October**  
10 **Update?**

11 A. The decrease in PURPA generation is primarily due to the expiration of an Energy  
12 Sales Agreement between Idaho Power and Magic Valley, a 10-megawatt  
13 cogeneration project. The decrease in PURPA generation is also driven by a reduction  
14 in forecast generation for two solar projects, the ID Solar 1 project and the Grand View  
15 PV Solar Two project, as well as decreased forecast generation for the Prospector  
16 Windfarm wind project and the Simplot-Pocatello cogeneration project, which together  
17 represent a decrease of 7.3 aMW

18 **Q. How has the annual PURPA expense changed from last year's October Update?**

19 A. The annual PURPA expense decreased from \$218.1 million to \$217.2 million, a  
20 decrease of \$0.9 million. Although PURPA generation decreased 5.6 percent from  
21 last year's October Update, PURPA expense declined to a lesser extent due to  
22 updated PURPA contract values.

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26 <sup>1</sup> "Natural Gas Weekly Update." *Natural Gas*. U.S. Energy Information Administration, 5 Oct.  
2017. Web. 5 Oct. 2017.

1 Normalized Load

2 **Q. Please describe the changes in the Company's system loads since last year's**  
3 **October Update.**

4 A. The Company's normalized system load used in last year's October Update was 1,817  
5 aMW. The Company's normalized system load used in this year's October Update is  
6 1,854 aMW, representing an increase in load of 37 aMW, or 2 percent, between the  
7 two test periods.

8 Other

9 **Q. What other AURORA inputs were modified from last year's October Update?**

10 A. The Company updated the maintenance rates, forced outage rates, and heat rates for  
11 its thermal plants, which is a consistent practice for every APCU filing, as well as  
12 wheeling expenses.

13 Modeling Results

14 **Q. Have you prepared an exhibit that summarizes the results of the AURORA model**  
15 **with all of the updated inputs described above?**

16 A. Yes. Exhibit 101 shows the results of the AURORA modeling determination of  
17 normalized NPSE for the April 2018 through March 2019 test year. Exhibit 101  
18 presents the summary of results containing average variable power supply generation  
19 output and expenses based on 89 historical water conditions.

20 **Q. Please summarize the sources and disposition of energy shown on Exhibit 101.**

21 A. As can be seen on Exhibit 101, hydro generation supplies 8.6 million MWh,  
22 approximately 49 percent (8.6 million MWh / 17.6 million MWh = 49 percent) of the  
23 generation mix. Thermal generation supplies 5.1 million MWh (Bridger 1.3, Boardman  
24 0.3, Valmy 0.5, Langley Gulch 2.3, Danskin 0.4, Bennett Mountain 0.3), approximately  
25 29 percent (5.1 million MWh / 17.6 million MWh = 29 percent) of the generation mix.  
26 Purchases of power are made up of short-term and longer-term market purchases,

1 purchased power agreements (“PPA”), and PURPA. PURPA purchases reflect  
2 normalized and annualized generation levels and account for nearly 2.9 million MWh.  
3 The generation amounts and costs associated with PURPA purchases are not shown  
4 on Exhibit 101; however, when combined with market purchases of 0.5 million MWh  
5 and PPAs of 0.5 million MWh, total purchases amount to 3.9 million MWh (2.9 million  
6 MWh + 0.5 million MWh + 0.5 million MWh = 3.9 million MWh) or approximately 22  
7 percent of the generation mix. Of the 17.6 million MWh generated by the system, 16.2  
8 million MWh are utilized for system loads while 1.4 million MWh are sold as surplus  
9 sales.

10 **2018 Base Net Power Supply Expenses**

11 **Q. How are the Base Net Power Supply Expenses to be calculated for the October**  
12 **Update portion of the APCU according to the settlement stipulation approved in**  
13 **Order No. 08-238?**

14 A. Per the settlement stipulation approved in Order No. 08-238, the output of the  
15 AURORA model will be used to determine net power supply average dispatch cost for  
16 normal loads and average stream flow conditions, and the wholesale electric prices  
17 for purchased power and surplus sales determined by the Company’s power supply  
18 model will be replaced with an average forward electric price curve (Docket No. UE  
19 195, Stipulation, p. 3).

20 **Q. Please describe the re-pricing methodology mentioned above.**

21 A. The Company is required to re-price the AURORA-generated volumes of purchased  
22 power and surplus sales with a forward-based price curve using the Mid-Columbia  
23 (“Mid-C”) hub. This methodology prescribes the use of a one-year average of the daily  
24 Mid-C forward price curves calculated from the previous 12 months of daily Mid-C  
25 heavy load (“Mid-C HL”) and light load (“Mid-C LL”) forward price curves for the period  
26 starting in the April immediately following the current April through March test period.

1 Forward prices are then adjusted for inflation back one year using the most recent  
2 Producer Price Index for Electric Power.

3 The re-pricing of market prices in the 2018 October Update is based upon the  
4 forward price curves from April 2019 through March 2020 as shown in Exhibit 102,  
5 which were then discounted for inflation back to April 2018 through March 2019  
6 according to the quarterly inflation indices provided in Exhibit 103.

7 **Q. What is the monthly average forward price that is used for the re-pricing of**  
8 **purchased power and surplus sales volumes?**

9 A. Exhibit 104 shows the monthly prices that are used for the re-pricing of purchased  
10 power and surplus sales volumes for the 2018 October Update. The prices range from  
11 a low of \$8.02 to a high of \$32.04.

12 **Q. How does the re-pricing of purchased power and surplus sales, using a normal**  
13 **forward price curve, change purchased power expenses and surplus sales**  
14 **revenues as modeled by AURORA?**

15 A. Lines 33 and 41 of Exhibit 101 show the purchased power expenses and surplus sales  
16 revenues, respectively, before re-pricing as determined by the AURORA modeling  
17 process. Lines 20 and 28 of Exhibit 105 show the same normalized generation  
18 dispatch with purchased power and surplus sales re-priced using the normalized  
19 forward price curve shown in Exhibit 104. A comparison of Exhibit 101 and Exhibit  
20 105 demonstrates the changes due to re-pricing. Purchased power expenses  
21 decreased by \$3.6 million, moving from \$15.7 million to \$12.1 million. Surplus sales  
22 revenues decreased by \$4.9 million, moving from \$31.3 million to \$26.4 million. In this  
23 case, the NPSE resulting from the re-pricing methodology shown on Exhibit 105 is an  
24 increase in NPSE of \$1.3 million or approximately \$0.09 per MWh as compared to the  
25 AURORA generated expectation shown on Exhibit 101. The difference for the re-  
26

1 pricing of purchased power of \$3.6 million and surplus sales of \$4.9 million are shown  
2 on Exhibit 107, Column J.

3 EIM Benefits and Costs

4 **Q. When will Idaho Power begin participating in the Western EIM?**

5 A. Idaho Power's participation in the Western EIM is set to commence on April 1, 2018,  
6 and is expected to result in real, sustainable cost savings that will benefit customers  
7 over the long term. The Western EIM is a voluntary EIM service that was implemented  
8 by the California Independent System Operator and PacifiCorp on November 1, 2014.  
9 Since then, NV Energy, Puget Sound Energy, Arizona Public Service Company, and  
10 Portland General Electric Company have entered the market.

11 **Q. Please describe an EIM.**

12 A. An EIM is a real-time market to dispatch economic bids voluntarily offered by  
13 participating resources to efficiently balance supply, transfers between balancing  
14 authority areas, and load. An EIM solves sub-hourly imbalances through an  
15 automated five-minute energy dispatch service across a broader footprint with more  
16 deployable resources available, providing a more efficient method for maintaining  
17 balance.

18 In an EIM, all balancing authority areas begin the hour with matched generation  
19 and forecasted load. As imbalances occur within the hour, resources within the EIM  
20 can voluntarily provide bids to dispatch their facilities to manage these imbalances.  
21 The market operator of the EIM will automatically look across the expanded EIM region  
22 to determine the least-cost dispatch order and issue an operating target for each  
23 participating resource, resulting in the most economical bids available to meet these  
24 imbalances. The real-time optimization process determines the least-cost mix of  
25 resources and dispatches them to resolve these imbalances while also respecting  
26 limits on the transmission system to alleviate overloads or congestion.



1 **Q. How does participation in the Western EIM benefit Idaho Power's customers?**

2 A. Participation in the Western EIM real-time market is expected to result in efficiencies  
3 that translate into NPSE savings for the Company's customers. Moving from the  
4 current hourly market structure to a sub-hourly, five-minute imbalance market is  
5 expected to lead to increased surplus sales opportunities, as well as net cost savings  
6 from increased access to others' lower-cost generation, translating into reduced  
7 NPSE.

8 **Q. Has the Company adjusted the NPSE amounts included in the 2018 October  
9 Update to reflect Idaho Power's planned participation in the Western EIM?**

10 A. Yes. The NPSE requested for approval for the 2018 October Update include both the  
11 incremental benefits and costs associated with Idaho Power's planned participation in  
12 the Western EIM. Because the cost savings benefits associated with EIM participation  
13 will be reflected as decreased NPSE, the Company believes it is appropriate to include  
14 an estimate of both the incremental benefits and the incremental costs required for  
15 participation as part of this APCU. However, due to the uncertainty surrounding the  
16 level of benefits that will be achieved during the first year of participation, the Company  
17 has set EIM benefits equal to the corresponding incremental EIM costs, on an Oregon-  
18 allocated basis, for the 2018 October Update. Setting the benefits equal to the costs  
19 results in a net zero impact to NPSE and customer rates as part of this year's APCU.

20 **Q. Has the Commission approved similar ratemaking treatment related to EIM cost  
21 recovery in any other proceeding?**

22 A. Yes. The Commission accepted similar regulatory treatment for PacifiCorp in its 2015  
23 Transmission Adjustment Mechanism, Docket UE 287, in Order No. 14-331, as well  
24 as for Portland General Electric in its 2017 Annual Power Cost Update, UE 308, in  
25 Order No. 16-419.

26

1 **Q. Please describe the incremental costs Idaho Power estimates it will incur for**  
2 **participation in the Western EIM.**

3 A. As stated previously, by participating in the Western EIM, the Company anticipates  
4 achieving NPSE savings, which will benefit customers. However, to achieve such  
5 benefits, Idaho Power has incurred, and will continue to incur, incremental costs to  
6 prepare for and participate in the Western EIM, including software and metering  
7 investments and annual, ongoing operations and maintenance ("O&M") expenses.

8 In March 2017, Idaho Power provided an estimate of the costs associated with  
9 participation in the Western EIM in Docket No. UM 1821. In that docket, Idaho Power  
10 expected to incur upfront costs of \$11.09 million on a total system basis, which  
11 included start-up expenses of approximately \$1.73 million, software integration costs  
12 of \$7.88 million, and metering investments of \$1.48 million. In addition to the upfront  
13 costs, Idaho Power estimated incremental annual ongoing labor expenses of  
14 approximately \$836,000 and ongoing market and hosted software fees of  
15 approximately \$786,000 annually.

16 Idaho Power refined the EIM cost estimate based on actual spend and intends  
17 to refine the estimate again when the Company files the March Forecast. At this time,  
18 the Company estimates EIM start-up costs of approximately \$9.11 million on a total  
19 system basis, which includes start-up expenses of \$1.76 million, software integration  
20 costs of \$5.34 million, and metering investments of \$2.01 million. The Company  
21 estimates incremental annual ongoing labor expenses of \$513,909 and market and  
22 hosted software fees of approximately \$525,000. The changes in estimated costs is  
23 due primarily to reduced capitalized software costs and ongoing O&M costs, partially  
24 offset by increased capitalized metering costs.

25 **Q. Has Idaho Power quantified the annual revenue requirement associated with the**  
26 **EIM-related costs that is included in the 2018 October Update?**

1 A. Yes. The EIM-related costs included in the 2018 October Update consist of the annual  
2 return on net rate base from the capital investment required to participate in the  
3 Western EIM, depreciation expense, and ongoing O&M expenses. On an Oregon  
4 allocated basis, the revenue requirement associated with the EIM costs included in  
5 the 2018 October Update is \$81,520. As mentioned previously, the Company  
6 proposes to set EIM benefits equal to EIM costs, resulting in a net zero impact to NPSE  
7 and customer rates. Exhibit No. 106 provides the 2018 calendar year revenue  
8 requirement computation, as well as the benefits included in the 2018 October Update.

9 **Q. Why does the Company believe the APCU is the appropriate mechanism to**  
10 **recover EIM-related costs?**

11 A. Once participation in the Western EIM begins in April 2018, benefits will exist in the  
12 form of reduced NPSE. Over the long term, the Company envisions that both the  
13 benefits and costs associated with EIM participation would be reflected in base rates  
14 as addressed in a general rate case. However, because the timing of the Company's  
15 next general rate case is not known, it is necessary to utilize an interim rate mechanism  
16 for cost recovery to provide for proper matching of costs and benefits in customer  
17 rates.

18 The 2018 APCU utilizes an April 2018 through March 2019 test year, which  
19 aligns with the commencement of Idaho Power's participation in the Western EIM.  
20 Additionally, as benefits of EIM participation are in the form of reduced NPSE, it is  
21 appropriate to recover the costs of EIM participation under the mechanism in which  
22 NPSE is recovered. Including the EIM-related costs in the 2018 APCU is necessary  
23 to ensure that customer rates reflect a proper matching of EIM benefits and costs and  
24 to prevent intergenerational inequities. Absent the ability to recover incremental costs  
25 associated with EIM participation, Idaho Power would suffer negative financial  
26

1 impacts. The costs and benefits of EIM participation should continue to be reflected  
2 in the APCU until they are included in base rates in a future general rate case.

3 Per-Unit Cost Calculation and NPSE Discussion

4 **Q. What is the NPSE per-unit cost when you combine all of the quantifications**  
5 **described earlier?**

6 A. Exhibit 105 shows total system NPSE of \$397.2 million and normalized annual sales  
7 at the customer level for the April 2018 through March 2019 test year of 14,962,866  
8 MWh, resulting in a cost per unit for the 2018 October Update to become effective on  
9 June 1, 2018, of \$26.54 per MWh ( $\$397.2 \text{ million} / 14.962 \text{ million MWh} = \$26.54 \text{ per}$   
10 MWh).

11 **Q. How does this \$26.54 per MWh October Update compare to the October Update**  
12 **that resulted from last year's computation?**

13 A. The October Update unit cost which became effective June 1, 2017, was \$26.06 per  
14 MWh based upon a determination of total NPSE of \$382.1 million compared to this  
15 year's October Update unit cost of \$26.54 per MWh and total NPSE of \$397.2 million.

16 **Q. What can be concluded from the information included on Exhibit 107?**

17 A. Exhibit 107 compares the AURORA-developed results, the re-pricing of purchased  
18 power and surplus sales, and the differences between the 2017 October Update and  
19 the 2018 October Update. A high-level analysis based on the information shown in  
20 Exhibit 107 suggests that low-cost natural gas generation has displaced coal  
21 generation. At the same time, low market prices have reduced the Company's ability  
22 to make economic off-system sales.

23 **Q. What are some of the differences in the way resources are dispatched as shown**  
24 **on Exhibit 107?**

25 A. Column H of Exhibit 107 shows the following: a decrease in coal expenses of \$7.8  
26 million associated with a 0.45 million MWh reduction in generation; an increase in

1 natural gas expenses of \$9.6 million associated with an increase of 0.46 million MWh  
2 in generation; a decrease in purchased power expenses of \$1.6 million associated  
3 with an decrease of 0.08 million MWh; a decrease in PURPA expenses of \$0.87 million  
4 associated with a decrease of 0.17 million MWh; and finally, a decrease in surplus  
5 sales revenue of \$15.8 million associated with a decrease of 0.59 million MWh.

6 **Q. Can you elaborate more on the changes in generation from the 2017 October**  
7 **Update to the 2018 October Update?**

8 A. To illustrate the changes in generation, Columns D (2017) and F (2018) of Exhibit 107  
9 calculate the percentage of generation compared to total system load. For example,  
10 Column D, line 1, shows that hydro provided 54 percent of the generation to meet the  
11 total system load of 15,916,727 MWh ( $8,650,907 / 15,916,727 = 54$  percent). Based  
12 on the 2018 October Update results, hydro generation decreased slightly to 53  
13 percent; coal generation decreased from 16 percent to 13 percent; natural gas  
14 generation increased from 16 percent to 18 percent; purchased power and PPA  
15 decreased from 7 percent to 6 percent; PURPA generation decreased from 19 percent  
16 to 18 percent; and lastly, surplus sales decreased from 12 percent to 9 percent. This  
17 comparison between resource type and total system load shows that natural gas  
18 resources are dispatched more frequently than coal resources.

19 **Q. Are the relative changes in expenses between resource types consistent with**  
20 **the changes in output?**

21 A. Yes. The changes in expenses shown in Columns D (2017) and F (2018) of Exhibit  
22 107 are as follows: coal decreased from 22 percent to 20 percent of the total; natural  
23 gas increased from 17 percent to 18 percent; purchased power and PPA decreased  
24 from 15 percent to 14 percent; PURPA decreased from 57 percent to 55 percent; and  
25 surplus sales revenue decreased from negative 11 percent to negative 7 percent.

1 Exhibit 107 demonstrates that the majority of movement in expenses is related to coal,  
2 natural gas, and surplus sales, which is consistent with the changes in generation.

3 **Q. What factors are driving the increase in NPSE as compared to last year's**  
4 **October Update?**

5 A. Although higher cost coal generation is being displaced with lower cost natural gas  
6 generation, decreased surplus sales is causing an increase in NPSE as compared to  
7 last year's October Update. Due to low market prices, the Company's ability to make  
8 economic off-system sales has decreased. The average market sales price for this  
9 year's October Update is \$18.96 per MWh, compared to \$21.29 per MWh for last  
10 year's October Update. As a result, surplus sales have decreased 587,795 MWh, or  
11 30 percent, from last year and surplus sales revenue decreased \$15.8 million, or 37  
12 percent, as presented in column H of Exhibit 107. The overall effect of reduced coal  
13 generation, increased natural gas generation, and decreased surplus sales revenues  
14 is a \$15.1 million increase in system NPSE between the 2017 October Update and  
15 2018 October Update.

16 **Q. Did the Company comply with the methodology in Order No. 08-238 when it**  
17 **performed its analysis to determine the NPSE for the 2017 October Update?**

18 A. Yes. The Company has complied with the methodology detailed in Order No. 08-238  
19 for calculating this year's October Update.

20 *Jurisdictional Allocation of NPSE*

21 **Q. How did the Company calculate the Oregon jurisdictional share of NPSE?**

22 A. Per the Stipulation, the Oregon jurisdictional share of NPSE is calculated by  
23 multiplying the system NPSE total per-unit cost of \$26.54 per MWh by the forecasted  
24 Oregon jurisdictional loss-adjusted normalized sales for the April 2018 through March  
25 2019 test period of 699,655.310 MWh, resulting in an Oregon jurisdictional share of  
26

1 NPSE of \$18,568,852 ( $\$26.54 \times 699,533.310 \text{ MWh} = \$18,568,852$ ), as shown on Line  
2 1 of Exhibit 108.

3 Quantification and Discussion of the APCU Revenue Requirement

4 **Q. Based on the determination of the Oregon jurisdictional share of NPSE, what is**  
5 **the APCU revenue requirement for the 2018 October Update?**

6 A. As shown on Line 6 of Exhibit 108, the APCU revenue requirement is \$0.36 million.  
7 The APCU revenue requirement is calculated by comparing the 2018 October Update  
8 Oregon jurisdictional share of NPSE, Line 1, to the NPSE recovery that would occur  
9 under current October Update rates, Line 2. The result of this calculation, Line 3, is  
10 added to the Oregon allocated EIM costs and benefits, Lines 4 and 5, respectively.  
11 The summation of these components indicates a need for an additional \$0.36 million  
12 annually from Oregon customers.

13 Rate Implementation

14 **Q. What method of allocation are you proposing to spread the APCU revenue**  
15 **requirement associated with the October Update to the various customer**  
16 **classes?**

17 A. I am proposing to allocate the \$0.36 million APCU revenue requirement associated  
18 with the 2018 October Update according to the revenue spread methodology approved  
19 by the Stipulation. The Stipulation established a revenue spread methodology  
20 whereby the revenue requirement is allocated to individual customer classes on the  
21 basis of normalized jurisdictional forecasted sales at the generation level for the test  
22 period. The proposed revenue spread resulting from the application of the stipulated  
23 methodology is shown on Exhibit 108.

24 **Q. What is the overall revenue impact in percentage terms of this year's October**  
25 **Update compared to current revenue using the rate spread methodology**  
26 **described above?**

1 A. The overall revenue impact of the October Update compared to current revenue is a  
2 0.65 percent increase.

3 **Q. Have you prepared an exhibit showing the summary of the revenue impact**  
4 **resulting from the October Update proposed by the Company?**

5 A. Yes. Exhibit 109 provides a summary of the revenue change resulting from this year's  
6 October Update as compared to current revenue.

7 **Q. Does the Company intend to provide supporting workpapers for the 2018**  
8 **October Update to Staff and the Oregon Citizens' Utility Board ("CUB")?**

9 A. Yes. As agreed upon in the Stipulation, Idaho Power will provide its supporting  
10 workpapers to Commission Staff and CUB as part of the 2018 APCU filing. The  
11 Company intends to provide these workpapers within five business days of filing the  
12 2018 APCU.

13 **Q. Does this conclude your testimony?**

14 A. Yes, it does.

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Idaho Power/101  
Witness: Nicole A. Blackwell

BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Nicole A. Blackwell

Idaho Power Company's AURORA Modeled Power Supply Expenses for  
April 1, 2018 – March 31, 2019  
Normalized Loads Over 89 Water Year Conditions

October 31, 2017

**IPCO POWER SUPPLY EXPENSES FOR APRIL 1, 2018 – MARCH 31, 2019 (Multiple Gas Prices/89 Hydro Year Conditions)**  
**AURORA Developed Results - 2018 October Update**  
**Variable Coal Handling Costs Modeled Using UE 301 & UE 314 Settlement Methodologies**  
**AVERAGE**

	April	May	June	July	August	September	October	November	December	January	February	March	Annual
1 Hydroelectric Generation (MWh)	865,182.1	952,651.2	917,349.3	699,905.3	480,006.8	561,102.5	543,922.8	458,232.2	676,610.9	758,719.4	838,774.5	857,895.4	8,630,352.4
<b>Bridger</b>													
2 Energy (MWh)	12,053.1	8,007.8	58,468.1	226,618.4	275,862.2	97,600.0	72,872.7	104,608.2	156,285.1	133,551.2	87,253.5	67,353.4	1,300,533.7
3 AURORA Modeled Expense (\$ x 1000)	\$ 452.0	\$ 305.3	\$ 2,117.8	\$ 8,022.7	\$ 9,729.9	\$ 3,488.2	\$ 2,865.7	\$ 3,791.2	\$ 5,623.0	\$ 4,626.5	\$ 3,040.4	\$ 2,368.6	\$ 46,231.4
4 AURORA Modeled Handling Expense (\$ x 1000)	\$ 1.9	\$ 1.3	\$ 9.4	\$ 36.3	\$ 44.1	\$ 15.6	\$ 11.7	\$ 16.7	\$ 25.0	\$ 21.4	\$ 14.0	\$ 10.8	\$ 208.1
5 AURORA Expense less Modeled Handling Expense (\$ x 1000)	\$ 450.0	\$ 304.1	\$ 2,108.4	\$ 7,986.4	\$ 9,685.8	\$ 3,472.6	\$ 2,854.1	\$ 3,774.5	\$ 5,598.0	\$ 4,605.1	\$ 3,026.4	\$ 2,357.9	\$ 46,023.3
6 IPC Share of OHAG Expense (\$ x 1000)	\$ 233.3	\$ 233.3	\$ 233.3	\$ 233.3	\$ 233.3	\$ 233.3	\$ 233.3	\$ 233.3	\$ 233.3	\$ 233.3	\$ 233.3	\$ 233.3	\$ 2,799.1
7 Total Expense (\$ x 1000)	\$ 683.3	\$ 537.3	\$ 2,341.7	\$ 8,219.7	\$ 9,919.0	\$ 3,705.9	\$ 2,887.3	\$ 4,007.7	\$ 5,831.3	\$ 4,838.4	\$ 3,259.7	\$ 2,591.1	\$ 48,822.4
<b>Boardman</b>													
8 Energy (MWh)	7,362.4	6,723.3	14,975.3	33,087.6	38,238.4	25,855.3	21,148.3	26,635.3	28,786.9	22,763.7	13,510.9	12,211.5	251,299.0
9 AURORA Modeled Expense (\$ x 1000)	\$ 218.9	\$ 201.9	\$ 433.8	\$ 942.5	\$ 1,087.8	\$ 741.1	\$ 610.9	\$ 762.4	\$ 823.1	\$ 694.7	\$ 418.0	\$ 380.3	\$ 7,315.5
10 AURORA Modeled Handling Expense (\$ x 1000)	\$ 0.4	\$ 0.3	\$ 0.7	\$ 1.7	\$ 1.9	\$ 1.3	\$ 1.1	\$ 1.3	\$ 1.4	\$ 1.1	\$ 0.7	\$ 0.6	\$ 12.6
11 AURORA Expense less Modeled Handling Expense (\$ x 1000)	\$ 218.6	\$ 201.6	\$ 433.1	\$ 940.8	\$ 1,085.9	\$ 739.9	\$ 609.9	\$ 761.0	\$ 821.6	\$ 693.6	\$ 417.3	\$ 379.7	\$ 7,302.9
12 IPC Share of OHAG Expense (\$ x 1000)	\$ 16.4	\$ 16.4	\$ 16.4	\$ 16.4	\$ 16.4	\$ 16.4	\$ 16.4	\$ 16.4	\$ 16.4	\$ 16.4	\$ 16.4	\$ 16.4	\$ 196.5
13 Total Expense (\$ x 1000)	\$ 235.0	\$ 218.0	\$ 449.4	\$ 957.2	\$ 1,102.2	\$ 756.2	\$ 626.2	\$ 777.4	\$ 838.0	\$ 710.0	\$ 433.7	\$ 396.1	\$ 7,499.4
<b>Valmy</b>													
14 Energy (MWh)	9,263.2	7,727.8	26,565.7	83,948.0	112,300.7	46,892.0	34,255.6	49,123.1	59,293.1	47,908.1	27,832.6	24,799.5	529,909.3
15 AURORA Modeled Expense (\$ x 1000)	\$ 320.9	\$ 267.6	\$ 886.1	\$ 2,721.9	\$ 3,628.2	\$ 1,547.9	\$ 1,145.8	\$ 1,619.3	\$ 1,944.3	\$ 1,572.2	\$ 922.7	\$ 833.6	\$ 17,410.5
16 AURORA Modeled Handling Expense (\$ x 1000)	\$ 8.5	\$ 7.1	\$ 24.4	\$ 77.2	\$ 103.3	\$ 43.1	\$ 31.5	\$ 45.2	\$ 54.5	\$ 44.1	\$ 25.6	\$ 22.8	\$ 487.5
17 AURORA Expense less Modeled Handling Expense (\$ x 1000)	\$ 312.4	\$ 260.5	\$ 861.7	\$ 2,644.6	\$ 3,524.9	\$ 1,504.8	\$ 1,114.3	\$ 1,574.1	\$ 1,889.7	\$ 1,528.2	\$ 897.1	\$ 810.8	\$ 16,923.0
18 IPC Share of OHAG Expense (\$ x 1000)	\$ 366.6	\$ 366.6	\$ 366.6	\$ 366.6	\$ 366.6	\$ 366.6	\$ 366.6	\$ 366.6	\$ 366.6	\$ 366.6	\$ 366.6	\$ 366.6	\$ 4,398.6
19 Usage Charges Paid to IPC (\$ x 1000)													\$ 23.9
20 Total Expense (\$ x 1000)	\$ 678.9	\$ 627.0	\$ 1,228.2	\$ 3,011.2	\$ 3,891.4	\$ 1,871.3	\$ 1,480.9	\$ 1,940.6	\$ 2,256.3	\$ 1,894.7	\$ 1,263.6	\$ 1,177.4	\$ 21,297.8
<b>Langley Gulch</b>													
21 Energy (MWh)	178,162.3	186,452.0	185,677.3	198,549.6	199,045.6	194,474.6	197,157.3	193,209.2	198,311.3	198,599.1	168,657.1	177,491.9	2,275,787.3
22 Expense (\$ x 1000)	\$ 2,866.7	\$ 2,933.5	\$ 2,940.6	\$ 3,628.9	\$ 3,635.1	\$ 3,492.9	\$ 3,515.3	\$ 4,165.7	\$ 4,867.8	\$ 4,703.6	\$ 3,661.3	\$ 3,701.7	\$ 44,113.1
<b>Danskin</b>													
23 Energy (MWh)	7,591.1	10,381.6	53,286.2	94,524.7	118,678.9	68,562.9	50,471.0	23,086.6	8,791.9	4,425.6	5,886.5	2,251.0	447,938.1
24 Expense (\$ x 1000)	\$ 191.1	\$ 270.7	\$ 1,453.9	\$ 2,825.4	\$ 3,533.5	\$ 1,932.7	\$ 1,390.7	\$ 675.0	\$ 295.9	\$ 165.0	\$ 213.2	\$ 78.8	\$ 13,025.9
<b>Bennett Mountain</b>													
25 Energy (MWh)	2,840.9	3,050.1	31,950.7	61,247.8	79,512.5	42,357.0	29,833.2	10,180.9	4,577.0	1,530.8	3,362.1	773.0	271,316.1
26 Expense (\$ x 1000)	\$ 72.6	\$ 79.5	\$ 881.1	\$ 1,804.0	\$ 2,308.5	\$ 1,186.3	\$ 815.1	\$ 288.7	\$ 158.0	\$ 61.7	\$ 127.5	\$ 27.3	\$ 7,810.3
27 Fixed Capacity Charge - Gas Transportation (\$ x 1000)	\$ 695.1	\$ 717.9	\$ 716.1	\$ 739.6	\$ 739.6	\$ 716.1	\$ 713.4	\$ 690.8	\$ 713.4	\$ 712.0	\$ 644.1	\$ 712.0	\$ 8,509.8
<b>Purchased Power (Excluding PURPA)</b>													
28 Market Energy (MWh)	9,041.2	9,683.3	57,344.2	60,814.4	72,455.9	28,774.1	17,519.2	73,868.3	45,079.3	76,370.9	11,516.0	12,935.2	475,402.0
29 Elkhorn Wind Energy (MWh)	26,520.8	25,525.8	24,790.8	26,601.0	23,943.0	21,200.4	22,027.8	30,132.4	29,442.4	24,406.6	24,037.6	26,788.0	305,416.3
30 Neal Hot Springs Energy (MWh)	14,315.7	11,493.2	10,545.1	8,775.0	9,512.8	11,769.1	12,824.2	16,268.0	18,722.7	17,961.6	16,403.0	16,710.6	165,300.9
31 Raft River Geothermal Energy (MWh)	6,436.3	5,156.4	5,315.6	5,768.1	5,254.4	5,967.1	6,353.2	6,873.5	7,236.1	7,122.3	6,204.8	6,671.6	74,459.3
32 Total Energy Excl. PURPA (MWh)	56,313.9	51,858.7	97,995.6	101,958.4	111,166.1	67,710.7	58,724.4	127,142.1	100,480.4	125,861.4	58,261.4	63,105.4	1,020,578.5
33 Market Expense (\$ x 1000)	\$ 262.6	\$ 280.8	\$ 1,797.1	\$ 2,052.2	\$ 2,760.8	\$ 929.3	\$ 554.4	\$ 2,450.0	\$ 1,498.9	\$ 2,401.6	\$ 361.0	\$ 404.6	\$ 15,753.4
34 Elkhorn Wind Expense (\$ x 1000)	\$ 1,217.0	\$ 1,171.4	\$ 1,547.7	\$ 1,992.7	\$ 1,793.6	\$ 1,323.5	\$ 1,375.2	\$ 2,257.2	\$ 2,205.5	\$ 1,569.3	\$ 1,545.6	\$ 1,266.0	\$ 19,264.8
35 Neal Hot Springs Expense (\$ x 1000)	\$ 1,201.4	\$ 964.5	\$ 1,207.3	\$ 1,205.5	\$ 1,306.9	\$ 1,347.4	\$ 1,468.2	\$ 2,234.9	\$ 2,572.1	\$ 2,091.6	\$ 1,910.1	\$ 1,426.4	\$ 18,936.4
36 Raft River Geothermal Expense (\$ x 1000)	\$ 312.2	\$ 250.1	\$ 350.8	\$ 456.8	\$ 416.1	\$ 393.8	\$ 419.2	\$ 544.3	\$ 573.0	\$ 479.9	\$ 424.8	\$ 330.4	\$ 4,951.3
37 Total Expense Excl. PURPA (\$ x 1000)	\$ 2,993.2	\$ 2,666.7	\$ 4,902.9	\$ 5,707.2	\$ 6,277.4	\$ 3,994.1	\$ 3,817.1	\$ 7,486.4	\$ 6,849.6	\$ 6,542.5	\$ 4,241.6	\$ 3,427.3	\$ 58,906.0
<b>Surplus Sales</b>													
38 Energy (MWh)	315,245.4	247,863.7	103,441.7	23,787.7	13,429.6	56,525.8	79,933.8	8,054.7	50,036.9	54,847.1	196,075.1	242,923.9	1,392,165.4
39 Revenue Including Transmission Expenses (\$ x 1000)	\$ 6,380.8	\$ 4,749.0	\$ 1,989.2	\$ 710.1	\$ 539.3	\$ 1,689.6	\$ 2,169.4	\$ 194.3	\$ 1,596.2	\$ 1,462.2	\$ 5,327.6	\$ 5,914.5	\$ 32,722.1
40 Transmission Expenses (\$ x 1000)	\$ 315.2	\$ 247.9	\$ 103.4	\$ 23.8	\$ 13.4	\$ 56.5	\$ 79.9	\$ 8.1	\$ 50.0	\$ 54.8	\$ 196.1	\$ 242.9	\$ 1,392.2
41 Revenue Excluding Transmission Expenses (\$ x 1000)	\$ 6,065.6	\$ 4,501.1	\$ 1,885.7	\$ 686.3	\$ 525.8	\$ 1,633.1	\$ 2,089.5	\$ 186.3	\$ 1,546.1	\$ 1,407.3	\$ 5,131.5	\$ 5,671.5	\$ 31,329.9
42 Net Power Supply Expenses (\$ x 1000)	\$ 1,745.0	\$ 2,942.1	\$ 12,446.5	\$ 25,705.7	\$ 30,414.1	\$ 15,466.3	\$ 12,584.6	\$ 19,293.2	\$ 19,728.9	\$ 17,671.0	\$ 8,137.2	\$ 5,858.2	\$ 178,654.9

Idaho Power/102  
Witness: Nicole A. Blackwell

BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Nicole A. Blackwell

Mid-Columbia Heavy and Light Load  
Forward Price Curves

October 31, 2017

**Mid-Columbia Heavy Load and Light Load Daily Forward Curves  
April 2016 - March 2017**

Idaho Power/102  
Blackwell/1

<b>Mid-C HL</b>	<b>Apr-19</b>	<b>May-19</b>	<b>Jun-19</b>	<b>Jul-19</b>	<b>Aug-19</b>	<b>Sep-19</b>	<b>Oct-19</b>	<b>Nov-19</b>	<b>Dec-19</b>	<b>Jan-20</b>	<b>Feb-20</b>	<b>Mar-20</b>
9/29/2016	22.5500	21.7000	21.7000	30.0500	34.0500	30.4500	26.4000	29.4000	33.0000	32.0500	30.0000	27.0000
9/30/2016	22.5000	21.6500	21.6500	30.0000	34.0000	30.4000	26.3500	29.3500	32.9500	32.0000	29.9500	26.9500
10/3/2016	22.5000	21.6500	21.6500	30.0000	34.0000	30.4000	26.3500	29.3500	32.9500	32.0000	29.9500	26.9500
10/4/2016	22.3500	21.5000	21.5000	29.8000	33.7500	30.1500	26.1500	29.1500	32.7000	31.7500	29.7500	26.7500
10/5/2016	22.3500	21.5000	21.5000	29.8000	33.7500	30.1500	26.1500	29.1500	32.7000	31.7500	29.7500	26.7500
10/6/2016	22.6000	21.7500	21.7500	30.1500	34.1500	30.5000	26.4500	29.5000	33.1000	32.1000	30.1000	27.0500
10/7/2016	22.4500	21.6500	21.6500	30.0000	33.9500	30.3500	26.3000	29.3500	32.9000	31.8000	29.8000	26.8000
10/10/2016	22.4000	21.6000	21.6000	29.9500	33.9000	30.3000	26.2500	29.3000	32.8500	31.7500	29.7500	26.7500
10/11/2016	22.3000	21.5000	21.5000	29.8500	33.7500	30.2000	26.1500	29.2000	32.7000	31.6500	29.6500	26.6500
10/12/2016	22.2500	21.4500	21.4500	29.8000	33.7000	30.1500	26.1000	29.1500	32.6500	31.6000	29.6000	26.6000
10/13/2016	22.2500	21.4500	21.4500	29.8000	33.7000	30.1500	26.1000	29.1500	32.6500	31.6000	29.6000	26.6000
10/14/2016	22.2500	21.4500	21.4500	29.8000	33.7000	30.1500	26.1000	29.1500	32.6500	31.6000	29.6000	26.6000
10/17/2016	22.4000	21.5500	21.5500	29.9500	33.9000	30.3000	26.2500	29.3000	32.8500	31.9500	29.9000	26.9000
10/18/2016	22.2500	21.4000	21.4000	29.7500	33.6500	30.1000	26.0500	29.1000	32.6000	31.7500	29.7000	26.7000
10/19/2016	22.4000	21.5500	21.5500	30.0000	33.9000	30.3500	26.2500	29.3500	32.8500	32.0000	29.9000	26.9000
10/20/2016	22.7000	21.8500	21.8500	30.4500	34.4000	30.8000	26.6500	29.7500	33.3000	32.4500	30.3000	27.2500
10/21/2016	22.7000	21.8500	21.8500	30.4500	34.4000	30.8000	26.6500	29.7500	33.3000	32.4500	30.3000	27.2500
10/24/2016	22.7000	21.8500	21.8500	30.4500	34.4000	30.8000	26.6500	29.7500	33.3000	32.4500	30.3000	27.2500
10/25/2016	22.8500	22.0000	22.0000	30.6500	34.6500	31.0000	26.8500	29.9500	33.5500	32.6500	30.5000	27.4500
10/26/2016	22.4000	21.6000	21.6000	30.0500	34.0000	30.4000	26.3500	29.4000	32.9000	32.0500	29.9500	26.9500
10/27/2016	22.8500	22.0000	22.0000	30.6500	34.6500	31.0000	26.8500	29.9500	33.5500	32.6500	30.5000	27.4500
10/28/2016	23.3500	22.5000	22.5000	31.3500	35.4500	31.7000	27.4500	30.6500	34.3000	33.3500	31.1500	28.0500
10/31/2016	23.2000	22.4000	22.4000	31.2000	35.2500	31.5500	27.3000	30.5000	34.1000	33.2000	31.0000	27.9000
11/1/2016	23.3500	22.5500	22.5500	31.4000	35.5000	31.7500	27.5000	30.7000	34.3500	33.4000	31.2000	28.1000
11/2/2016	23.7000	22.9000	22.9000	31.8500	36.0000	32.2000	27.9000	31.1500	34.8500	33.8500	31.6500	28.5000
11/3/2016	25.0000	24.1500	24.1500	33.6000	38.0000	34.0000	29.4500	32.8500	36.7500	35.1000	32.8500	29.5500
11/4/2016	25.3500	24.5000	24.5000	34.1000	38.5500	34.5000	29.9000	33.3500	37.3000	35.6000	33.3000	29.9500
11/7/2016	25.3500	24.5000	24.5000	34.1000	38.5500	34.5000	29.9000	33.3500	37.3000	35.6000	33.3000	29.9500
11/8/2016	24.7000	23.8500	23.8500	33.2000	37.5500	33.6000	29.1500	32.5000	36.3500	35.2500	32.9500	29.6500
11/9/2016	23.0500	22.2500	22.2500	31.0000	35.0500	31.3500	27.2000	30.3500	33.9500	34.1000	31.8500	28.6500
11/10/2016	23.0000	22.2000	22.2000	30.9500	35.0000	31.3000	27.1500	30.3000	33.9000	34.0500	31.8000	28.6000
11/11/2016	22.5500	21.7500	21.7500	30.3000	34.3000	30.6500	26.6000	29.7000	33.2000	33.4000	31.2000	28.0500
11/14/2016	22.7500	21.9500	21.9500	30.5500	34.6000	30.9000	26.8500	29.9500	33.5000	33.6500	31.4500	28.3000
11/15/2016	22.6500	21.8500	21.8500	30.4500	34.5000	30.8000	26.7500	29.8500	33.4000	33.5500	31.3500	28.2000
11/16/2016	22.5000	21.7000	21.7000	30.2500	34.3000	30.6000	26.6000	29.6500	33.2000	33.3500	31.1500	28.0500
11/17/2016	22.5000	21.7000	21.7000	30.2500	34.3000	30.6000	26.6000	29.6500	33.2000	33.3500	31.1500	28.0500
11/18/2016	22.6000	21.8000	21.8000	30.4000	34.4500	30.7500	26.7500	29.8000	33.3500	33.5000	31.3000	28.2000
11/21/2016	22.6500	21.8500	21.8500	30.4500	34.5500	30.8000	26.8000	29.8500	33.4500	33.5500	31.3500	28.2500
11/22/2016	22.9500	22.1000	22.1000	30.8500	35.0000	31.2000	27.1500	30.2000	33.8500	33.9500	31.7000	28.6000
11/23/2016	23.0000	22.1500	22.1500	30.9000	35.0500	31.2500	27.2000	30.2500	33.9000	34.0000	31.7500	28.6500
11/25/2016	23.0000	22.1500	22.1500	30.9000	35.0500	31.2500	27.2000	30.2500	33.9000	34.0000	31.7500	28.6500
11/28/2016	22.2500	21.4000	21.4000	29.9000	33.9000	30.2000	26.3000	29.2500	32.8000	32.9500	30.8000	27.8000
11/29/2016	22.1500	21.3000	21.3000	29.7500	33.7500	30.0500	26.2000	29.1000	32.6500	32.8000	30.6500	27.7000
11/30/2016	22.1500	21.3000	21.3000	29.7500	33.7500	30.0500	26.2000	29.1000	32.6500	32.8000	30.6500	27.7000
12/1/2016	21.9500	21.1000	21.1000	29.5000	33.4500	29.8000	25.9500	28.8500	32.3500	32.5500	30.4000	27.4500
12/2/2016	21.6000	20.7500	20.7500	29.0000	32.9000	29.3000	25.5000	28.3500	31.8000	32.0500	29.9000	27.0000
12/5/2016	21.9500	21.1000	21.1000	29.5000	33.4500	29.8000	25.9500	28.8500	32.3500	32.5500	30.3500	27.4500
12/6/2016	21.8000	20.9500	20.9500	29.3000	33.2500	29.6000	25.8000	28.6500	32.1500	32.3500	30.1500	27.3000
12/7/2016	21.7500	20.9000	20.9000	29.2500	33.1500	29.5500	25.7500	28.6000	32.0500	32.3000	30.1000	27.2500
12/8/2016	21.7500	20.9000	20.9000	29.2500	33.1500	29.5500	25.7500	28.6000	32.0500	32.3000	30.1000	27.2500
12/9/2016	21.9500	21.1000	21.1000	29.5000	33.4500	29.8000	25.9500	28.8500	32.3500	32.5500	30.3500	27.4500

Mid-Columbia Heavy Load and Light Load Daily Forward Curves  
 April 2016 - March 2017

Idaho Power/102  
 Blackwell/2

Mid-C HL	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20
12/12/2016	21.9500	21.1000	21.1000	29.5000	33.4500	29.8000	25.9500	28.8500	32.3500	32.5500	30.3500	27.4500
12/13/2016	21.9500	21.1000	21.1000	29.5000	33.4500	29.8000	25.9500	28.8500	32.3500	32.5500	30.3500	27.4500
12/14/2016	21.9500	21.1000	21.1000	29.5000	33.4500	29.8000	25.9500	28.8500	32.3500	32.5500	30.3500	27.4500
12/15/2016	21.9500	21.1000	21.1000	29.5000	33.4500	29.8000	25.9500	28.8500	32.3500	32.5500	30.3500	27.4500
12/16/2016	21.9500	21.1000	21.1000	29.5000	33.4500	29.8000	25.9500	28.8500	32.3500	32.5500	30.3500	27.4500
12/19/2016	21.9500	21.1000	21.1000	29.5000	33.4500	29.8000	25.9500	28.8500	32.3500	32.5500	30.3500	27.4500
12/20/2016	21.6500	20.8000	20.8000	29.1000	33.0000	29.4000	25.6000	28.4500	31.9000	32.1500	29.9500	27.1000
12/21/2016	21.8000	20.9500	20.9500	29.3000	33.2500	29.6000	25.8000	28.6500	32.1500	32.3500	30.1500	27.3000
12/22/2016	21.9000	21.0500	21.0500	29.4000	33.4000	29.7000	25.9000	28.7500	32.3000	32.4500	30.2500	27.4000
12/23/2016	22.0000	21.1500	21.1500	29.5500	33.5500	29.8500	26.0500	28.9000	32.4500	32.6000	30.4000	27.5500
12/27/2016	22.4500	21.6000	21.6000	30.2000	34.2500	30.5000	26.6000	29.5000	33.1500	33.2500	31.0000	28.1000
12/28/2016	21.9500	21.1500	21.1500	29.5500	33.5000	29.8500	26.0500	28.8500	32.4500	33.2500	31.0000	28.1000
12/29/2016	22.4500	21.6500	21.6500	30.2500	34.3000	30.5500	26.6500	29.5500	33.2000	33.9000	31.6000	28.6500
12/30/2016	22.4500	21.6500	21.6500	30.2500	34.3000	30.5500	26.6500	29.5500	33.2000	33.9000	31.6000	28.6500
1/3/2017	21.9000	21.1000	21.1000	29.5000	33.4500	29.8000	26.0000	28.8500	32.4000	33.1500	30.9000	28.0000
1/4/2017	21.4000	20.6500	20.6500	28.8500	32.7000	29.1500	25.4500	28.2000	31.7000	32.5000	30.3000	27.4500
1/5/2017	21.3500	20.6000	20.6000	28.8000	32.6500	29.1000	25.4000	28.1500	31.6500	32.4500	30.2500	27.4000
1/6/2017	21.2500	20.5000	20.5000	28.7000	32.5500	29.0000	25.3000	28.0500	31.5500	32.3500	30.1500	27.3000
1/9/2017	21.0000	20.2500	20.2500	28.3500	32.2000	28.6500	25.0000	27.7500	31.2000	32.0000	29.8500	27.0000
1/10/2017	21.1000	20.3500	20.3500	28.5000	32.3500	28.8000	25.1000	27.9000	31.3500	32.1500	30.0000	27.1000
1/11/2017	21.3000	20.5500	20.5500	28.7500	32.6500	29.0500	25.3500	28.1500	31.6500	32.4500	30.2500	27.3500
1/12/2017	21.3000	20.5500	20.5500	28.7500	32.6500	29.0500	25.3500	28.1500	31.6500	32.4500	30.2500	27.3500
1/13/2017	21.0500	20.3000	20.3000	28.4000	32.3000	28.7000	25.0500	27.8500	31.3000	31.7000	29.5500	26.7000
1/17/2017	20.9500	20.2000	20.2000	28.2500	32.1500	28.5500	24.9500	27.7000	31.1500	31.5500	29.4000	26.6000
1/18/2017	21.0500	20.3000	20.3000	28.3500	32.3000	28.6500	25.0500	27.8000	31.2500	31.6500	29.5000	26.7000
1/19/2017	21.1000	20.3500	20.3500	28.4000	32.4000	28.7000	25.1000	27.8500	31.3000	31.7000	29.5500	26.7500
1/20/2017	21.0000	20.2500	20.2500	28.3000	32.3000	28.6000	25.0000	27.7500	31.2000	31.6000	29.4500	26.6500
1/23/2017	21.0000	20.2500	20.2500	28.3000	32.3500	28.6000	25.0000	27.7500	31.2000	31.6000	29.4500	26.6500
1/24/2017	20.8500	20.1000	20.1000	28.1000	32.1500	28.4000	24.8500	27.5500	31.0000	31.4000	29.2500	26.5000
1/25/2017	20.8500	20.1000	20.1000	28.1000	32.1500	28.4000	24.8500	27.5500	31.0000	31.4000	29.2500	26.5000
1/26/2017	20.0000	19.2500	19.2500	28.4000	32.5000	28.7000	25.1000	27.8500	31.3500	31.2000	29.0500	26.3000
1/27/2017	20.0500	19.3000	19.3000	28.4500	32.5500	28.7500	25.1500	27.9000	31.4000	31.2500	29.1000	26.3500
1/30/2017	19.9500	19.2000	19.2000	28.3000	32.4000	28.6000	25.0500	27.8000	31.2500	31.1000	29.0000	26.2500
1/31/2017	19.9500	19.2000	19.2000	28.3000	32.4000	28.6000	25.0500	27.8000	31.2500	31.1000	29.0000	26.2500
2/1/2017	19.9500	19.2000	19.2000	28.3000	32.4000	28.6000	25.0500	27.8000	31.2500	31.1000	29.0000	26.2500
2/2/2017	19.9500	19.2000	19.2000	28.3000	32.4000	28.6000	25.0500	27.8000	31.2500	31.1000	29.0000	26.2500
2/3/2017	19.7000	18.9500	18.9500	27.9000	31.9500	28.2000	24.7000	27.4500	30.8500	30.7000	28.6500	25.9000
2/6/2017	19.5000	18.7500	18.7500	28.1000	32.1500	28.4000	24.8500	27.6500	31.0500	30.7500	28.7000	25.9500
2/7/2017	19.5000	18.7500	18.7500	28.1000	32.1500	28.4000	24.8500	27.6500	31.0500	30.7500	28.7000	25.9500
2/8/2017	19.4500	18.7000	18.7000	28.0500	32.1000	28.3500	24.8000	27.6000	31.0000	30.7000	28.6500	25.9000
2/9/2017	19.3500	18.6500	18.6500	27.9500	32.0000	28.2500	24.7000	27.5000	30.9000	30.6000	28.5500	25.8000
2/10/2017	19.2500	18.5500	18.5500	27.8000	31.8000	28.1000	24.5500	27.3500	30.7000	30.4500	28.4000	25.6500
2/13/2017	19.1500	18.4500	18.4500	27.7000	31.6500	28.0000	24.4500	27.2500	30.5500	30.3500	28.3000	25.5500
2/14/2017	19.2000	18.5000	18.5000	27.7500	31.7000	28.0500	24.5000	27.3000	30.6000	30.4000	28.3500	25.6000
2/15/2017	19.1500	18.4500	18.4500	27.7000	31.6500	28.0000	24.4500	27.2500	30.5500	30.3500	28.3000	25.5500
2/16/2017	18.7000	18.0000	18.0000	27.5000	31.4500	27.8000	24.3000	27.0500	30.3500	30.3500	28.3000	25.5500
2/17/2017	18.7000	18.0000	18.0000	27.5000	31.4500	27.8000	24.3000	27.0500	30.3500	30.3500	28.3000	25.5500
2/21/2017	18.6000	17.9000	17.9000	27.3500	31.3000	27.6500	24.2000	26.9000	30.2000	30.2000	28.2000	25.4500
2/22/2017	18.4500	17.7500	17.7500	27.1500	31.0500	27.4500	24.0000	26.7000	29.9500	30.0000	28.0000	25.2500
2/23/2017	18.4500	17.7500	17.7500	27.1500	31.0500	27.4500	24.0000	26.7000	29.9500	30.0000	28.0000	25.2500
2/24/2017	18.1500	17.4500	17.4500	26.7000	30.5500	27.0000	23.6000	26.3000	29.5000	29.5500	27.6000	24.9000

Mid-Columbia Heavy Load and Light Load Daily Forward Curves  
 April 2016 - March 2017

Idaho Power/102  
 Blackwell/3

Mid-C HL	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20
2/27/2017	17.9000	17.2000	17.2000	26.3000	30.1000	26.6000	23.2500	25.9500	29.1000	29.1500	27.2500	24.6000
2/28/2017	17.9000	17.2000	17.2000	26.3500	30.1500	26.6500	23.3000	26.0000	29.1500	29.2000	27.3000	24.6000
3/1/2017	17.9000	17.2000	17.2000	26.3500	30.1500	26.6500	23.3000	26.0000	29.1500	29.2000	27.3000	24.6000
3/2/2017	18.0500	17.3500	17.3500	26.5500	30.4000	26.8500	23.5000	26.2000	29.4000	29.4500	27.5000	24.8000
3/3/2017	18.0500	17.3500	17.3500	26.5500	30.4000	26.8500	23.5000	26.2000	29.4000	29.4500	27.5000	24.8000
3/6/2017	18.0500	17.3500	17.3500	26.5000	30.3500	26.8000	23.4500	26.1500	29.3500	29.4000	27.4500	24.7500
3/7/2017	18.0500	17.3500	17.3500	26.4500	30.3000	26.7500	23.4000	26.1000	29.3000	29.3500	27.4000	24.7000
3/8/2017	19.5500	18.8000	18.8000	28.6500	32.8500	29.0000	25.3500	28.3000	31.7500	30.8000	28.7500	25.9000
3/9/2017	19.5500	18.8000	18.8000	28.6500	32.8500	29.0000	25.3500	28.3000	31.7500	30.8000	28.7500	25.9000
3/10/2017	19.4500	18.7000	18.7000	28.5500	32.7000	28.8500	25.2500	28.2000	31.6000	30.7000	28.6500	25.8000
3/13/2017	19.5000	18.7500	18.7500	28.6000	32.8000	28.9000	25.3000	28.2500	31.7000	30.7500	28.7000	25.8500
3/14/2017	19.4500	18.7000	18.7000	28.5500	32.7000	28.8500	25.2500	28.2000	31.6500	30.7000	28.6500	25.8000
3/15/2017	19.3500	18.6000	18.6000	28.4000	32.5000	28.7000	25.1000	28.0500	31.5000	30.5500	28.5000	25.6500
3/16/2017	19.3500	18.6000	18.6000	28.4500	32.5500	28.7500	25.1000	28.1000	31.5500	30.6000	28.5000	25.6500
3/17/2017	19.2000	18.4500	18.4500	28.2500	32.3500	28.5500	24.9500	27.9000	31.3500	30.4000	28.3000	25.5000
3/20/2017	19.3500	18.6000	18.6000	28.4500	32.6000	28.7500	25.1500	28.1000	31.5500	30.6000	28.5000	25.6500
3/21/2017	18.6500	17.9000	17.9000	27.4000	31.4000	27.7000	24.2500	27.1000	30.4000	29.4000	27.4000	24.6500
3/22/2017	18.6500	17.9000	17.9000	27.4000	31.4000	27.7000	24.2500	27.1000	30.4000	29.4000	27.4000	24.6500
3/23/2017	18.6500	17.9000	17.9000	27.3500	31.3500	27.6500	24.2500	27.1000	30.3500	29.3500	27.3500	24.6000
3/24/2017	18.6500	17.9000	17.9000	27.3500	31.3500	27.6500	24.2500	27.1000	30.3500	29.3500	27.3500	24.6000
3/27/2017	18.6500	17.9000	17.9000	27.3500	31.3500	27.6500	24.2500	27.1000	30.3500	29.3500	27.3500	24.6000
3/28/2017	18.6000	17.8500	17.8500	27.3000	31.3000	27.6000	24.2000	27.0500	30.3000	29.3000	27.3000	24.5500
3/29/2017	18.5500	17.8000	17.8000	27.2500	31.2500	27.5500	24.1500	27.0000	30.2500	29.2500	27.2500	24.5000
3/30/2017	18.3500	17.6000	17.6000	26.9500	30.9000	27.2500	23.9000	26.7000	29.9000	29.3000	27.3000	24.5500
3/31/2017	17.9000	17.1500	17.1500	26.3000	30.1500	26.6000	23.3000	26.0500	29.1500	28.6500	26.7000	24.0000
4/3/2017	17.8500	17.1000	17.1000	26.2500	30.1000	26.5500	23.2500	26.0000	29.1000	28.6000	26.6500	23.9500
4/4/2017	18.1000	17.3500	17.3500	26.6500	30.5500	26.9500	23.6000	26.4000	29.5000	29.0000	27.0000	24.2500
4/5/2017	18.2000	17.4500	17.4500	26.8500	30.7500	27.1500	23.7500	26.6000	29.7000	29.2000	27.2000	24.4000
4/6/2017	18.2000	17.4500	17.4500	26.8500	30.7500	27.1500	23.7500	26.6000	29.7000	29.2000	27.2000	24.4000
4/7/2017	18.3000	17.5500	17.5500	26.9500	30.9000	27.2500	23.8500	26.7000	29.8500	29.2500	27.2500	24.4500
4/10/2017	18.3000	17.5500	17.5500	26.9500	30.9000	27.2500	23.8500	26.7000	29.8500	29.2500	27.2500	24.4500
4/11/2017	18.3500	17.6000	17.6000	27.0500	31.0000	27.3500	23.9000	26.8000	29.9500	29.3500	27.3500	24.5000
4/12/2017	18.0000	17.3000	17.3000	26.5500	30.4500	26.8500	23.4500	26.3000	29.4000	28.8500	26.9000	24.1000
4/13/2017	18.2000	17.5000	17.5000	26.8000	30.7500	27.1000	23.7000	26.5500	29.7000	29.1000	27.1500	24.3500
4/17/2017	18.2000	17.5000	17.5000	26.8000	30.7500	27.1000	23.7000	26.5500	29.7000	29.1000	27.1500	24.3500
4/18/2017	18.1500	17.4500	17.4500	26.7500	30.6500	27.0000	23.6500	26.5000	29.6000	29.0000	27.1000	24.3000
4/19/2017	18.3000	17.6000	17.6000	27.0000	30.9000	27.2500	23.8500	26.7500	29.8500	29.2500	27.3000	24.5000
4/20/2017	18.2500	17.5500	17.5500	26.9500	30.8500	27.2000	23.8000	26.7000	29.8000	29.2000	27.2500	24.4500
4/21/2017	18.2500	17.5500	17.5500	26.9500	30.8500	27.2000	23.8000	26.7000	29.8000	29.2000	27.2500	24.4500
4/24/2017	18.2500	17.5500	17.5500	26.9500	30.8500	27.2000	23.8000	26.7000	29.8000	29.2000	27.2500	24.4500
4/25/2017	18.1500	17.4500	17.4500	26.8000	30.7000	27.0500	23.7000	26.5500	29.6500	29.0500	27.1500	24.3500
4/26/2017	18.3500	17.6500	17.6500	27.1000	31.0500	27.3500	23.9500	26.8500	30.0000	29.3500	27.4500	24.6000
4/27/2017	18.3500	17.6500	17.6500	27.0500	31.0000	27.3000	23.9000	26.8000	29.9500	29.3000	27.4000	24.5500
4/28/2017	18.3500	17.6500	17.6500	27.0500	31.0000	27.3000	23.9000	26.8000	29.9500	29.3000	27.4000	24.5500
5/1/2017	18.3000	17.6000	17.6000	27.0000	30.9000	27.2500	23.8500	26.7500	29.8500	29.2500	27.3500	24.5000
5/2/2017	18.1500	17.4500	17.4500	26.7500	30.6000	27.0000	23.6500	26.5000	29.6000	29.0000	27.1000	24.3000
5/3/2017	18.1000	17.4000	17.4000	26.7000	30.5500	26.9500	23.6000	26.4500	29.5500	28.9500	27.0500	24.2500
5/4/2017	18.1000	17.4000	17.4000	26.7000	30.5500	26.9500	23.6000	26.4500	29.5500	28.9500	27.0500	24.2500
5/5/2017	18.1500	17.4500	17.4500	26.8000	30.6500	27.0500	23.7000	26.5500	29.6500	29.0500	27.1500	24.3500
5/8/2017	18.1500	17.4500	17.4500	26.7500	30.6000	27.0000	23.6500	26.5000	29.6000	29.0000	27.1000	24.3500
5/9/2017	18.3000	17.5500	17.5500	26.9500	30.8000	27.2000	23.8000	26.7000	29.8000	29.2000	27.3000	24.5000

Mid-Columbia Heavy Load and Light Load Daily Forward Curves  
April 2016 - March 2017

Idaho Power/102  
Blackwell/4

Mid-C HL	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20
5/10/2017	18.2000	17.4500	17.4500	26.8000	30.6000	27.0500	23.6500	26.5500	29.6000	29.2500	27.3500	24.5500
5/11/2017	18.2500	17.5000	17.5000	26.9000	30.7000	27.1500	23.7500	26.6500	29.7000	29.3500	27.4500	24.6500
5/12/2017	18.2500	17.5000	17.5000	26.9500	30.7500	27.2000	23.8000	26.7000	29.7500	29.4000	27.5000	24.7000
5/15/2017	18.2500	17.5000	17.5000	26.9500	30.7500	27.2000	23.8000	26.7000	29.7500	29.4000	27.5000	24.7000
5/16/2017	18.1500	17.4000	17.4000	26.8000	30.5500	27.0500	23.6500	26.5500	29.5500	29.2500	27.3500	24.5500
5/17/2017	18.1500	17.4000	17.4000	26.8000	30.6000	27.0500	23.6500	26.5500	29.6000	29.2500	27.3500	24.5500
5/18/2017	18.3000	17.5500	17.5500	27.0000	30.8500	27.2500	23.8500	26.7500	29.8500	29.3000	27.4000	24.6000
5/19/2017	18.3500	17.6000	17.6000	27.0500	30.9000	27.3000	23.9000	26.8000	29.9000	29.3500	27.4500	24.6500
5/22/2017	18.4500	17.7000	17.7000	27.2000	31.1000	27.4500	24.0500	26.9500	30.1000	29.5000	27.6000	24.8000
5/23/2017	18.4500	17.7000	17.7000	27.2000	31.1000	27.4500	24.0500	26.9500	30.1000	29.5000	27.6000	24.8000
5/24/2017	18.4000	17.6500	17.6500	27.1500	31.0500	27.4000	24.0000	26.9000	30.0500	29.4500	27.5500	24.7500
5/25/2017	18.4000	17.6500	17.6500	27.1500	31.0500	27.4000	24.0000	26.9000	30.0500	29.4500	27.5500	24.7500
5/26/2017	18.2500	17.5000	17.5000	26.9000	30.8000	27.1500	23.8000	26.7000	29.8000	29.3500	27.4500	24.6500
5/30/2017	18.7500	18.0000	18.0000	26.5500	30.4000	26.8000	23.5000	26.3500	29.4500	29.2000	27.3000	24.5500
5/31/2017	18.5000	17.7500	17.7500	26.2000	30.0000	26.4500	23.2000	26.0000	29.0500	28.8500	27.0000	24.2500
6/1/2017	18.5500	17.8000	17.8000	26.2500	30.1000	26.5000	23.2500	26.0500	29.1500	28.9000	27.0500	24.3000
6/2/2017	18.6500	17.9000	17.9000	25.8500	29.6500	26.1000	23.2500	26.0500	29.1500	28.7000	26.9000	24.1500
6/5/2017	18.6000	17.8500	17.8500	25.8000	29.6000	26.0500	23.2000	26.0000	29.1000	28.6500	26.8500	24.1000
6/6/2017	18.6500	17.9000	17.9000	25.9000	29.7000	26.1500	23.2500	26.1000	29.2000	28.7500	26.9500	24.1500
6/7/2017	18.7000	17.9500	17.9500	25.9500	29.7500	26.2000	23.3000	26.1500	29.2500	28.8000	27.0000	24.2000
6/8/2017	19.2000	18.4000	18.6000	26.2500	29.8000	26.6000	23.4000	25.6500	30.9500	32.0500	27.3000	22.3500
6/9/2017	19.0500	18.2500	18.4500	26.0500	29.6000	26.4000	23.2500	25.4500	30.7500	31.8500	27.1000	22.2000
6/12/2017	19.0500	18.2500	18.4500	26.0500	29.6000	26.4000	23.2500	25.4500	30.7500	31.8500	27.1000	22.2000
6/13/2017	19.3000	18.5000	18.7000	26.4500	30.0500	26.8000	23.5500	25.8000	31.1500	32.0000	27.2500	22.3000
6/14/2017	19.1500	18.4000	18.6000	26.3000	29.8500	26.6000	23.4000	25.6500	30.9500	31.8000	27.1000	22.1500
6/15/2017	19.2000	18.4500	18.6500	26.3500	29.9500	26.6500	23.4500	25.7000	31.0500	31.9000	27.1500	22.2000
6/16/2017	19.2000	18.4500	18.6500	26.3500	29.9500	26.6500	23.4500	25.7000	31.0500	31.9000	27.1500	22.2000
6/19/2017	19.1500	18.4000	18.6000	26.3000	29.8500	26.6000	23.4000	25.6500	30.9500	31.8000	27.1000	22.1500
6/20/2017	19.1000	18.3500	18.5500	26.2000	29.7500	26.5000	23.3000	25.5500	30.8500	31.7000	27.0000	22.1000
6/21/2017	19.1500	18.4000	18.6000	26.3000	29.8500	26.6000	23.3500	25.6500	30.9500	31.8000	27.1000	22.1500
6/22/2017	19.1500	18.4000	18.6000	26.3000	29.8500	26.6000	23.3500	25.6500	30.9500	31.8000	27.1000	22.1500
6/23/2017	19.2000	18.4500	18.6500	26.3500	29.9000	26.6500	23.4000	25.7000	31.0000	31.8500	27.1500	22.2000
6/26/2017	19.3500	18.6000	18.8000	26.5500	30.1500	26.8500	23.6000	25.9000	31.2500	32.1000	27.3500	22.3500
6/27/2017	19.3000	18.5500	18.7500	26.5000	30.0500	26.8000	23.5500	25.8500	31.1500	32.0000	27.3000	22.3000
6/28/2017	19.3000	18.5500	18.7500	26.5000	30.0500	26.8000	23.5500	25.8500	31.1500	32.0000	27.3000	22.3000
6/29/2017	19.3500	18.6000	18.8000	26.6000	30.1500	26.9000	23.6500	25.9500	31.2500	32.1000	27.4000	22.3500
6/30/2017	19.1500	18.4500	18.6000	26.3500	29.8500	26.6500	23.4500	25.7000	30.9500	31.8000	27.1500	22.1500
7/3/2017	19.1500	18.4500	18.6000	26.3500	29.8500	26.6500	23.4500	25.7000	30.9500	31.8000	27.1500	22.1500
7/5/2017	18.9500	18.2500	18.4000	26.1000	29.5500	26.4000	23.2000	25.4500	30.6500	31.5000	26.9000	21.9500
7/6/2017	18.9500	18.2500	18.4000	26.1500	29.6000	26.4500	23.2500	25.5000	30.7000	31.5500	26.9500	21.9500
7/7/2017	19.0000	18.3000	18.4500	26.2500	29.7000	26.5500	23.3500	25.6000	30.8000	31.6500	27.0500	22.0500
7/10/2017	18.8000	18.1000	18.2500	26.8000	30.3000	27.1000	23.4000	25.6500	30.8500	31.9000	27.3000	22.2500
7/11/2017	18.5500	17.9000	18.0000	26.5000	29.9500	26.8000	23.1500	25.3500	30.5000	31.5500	27.0000	22.0000
7/12/2017	18.4500	17.8000	17.9000	26.3500	29.8000	26.6500	23.0000	25.2000	30.3500	31.4000	26.8500	21.9000
7/13/2017	18.4000	17.7500	17.8500	26.3000	29.7500	26.6000	22.9500	25.1500	30.3000	31.3500	26.8000	21.8500
7/14/2017	18.3500	17.7000	17.8000	26.2500	29.7000	26.5500	22.9000	25.1000	30.2500	31.3500	26.8000	21.8500
7/17/2017	18.1500	17.5000	17.6000	26.7000	30.2000	27.0000	22.6000	24.8000	29.9000	31.2500	26.7000	21.7500
7/18/2017	18.3000	17.6500	17.7500	26.9500	30.4500	27.2500	22.8000	25.0000	30.1500	31.5000	26.9500	21.9500
7/19/2017	18.5000	17.8500	17.9500	27.2000	30.7500	27.5000	23.0500	25.2500	30.4500	31.8000	27.2000	22.1500
7/20/2017	18.6500	18.0000	18.1000	26.7000	30.1500	27.0000	23.2500	25.4500	30.7000	31.8000	27.2000	22.1500
7/21/2017	18.4000	17.7500	17.8500	26.3500	29.7500	26.6500	22.9500	25.1000	30.3000	31.4000	26.8500	21.9000

Mid-Columbia Heavy Load and Light Load Daily Forward Curves  
 April 2016 - March 2017

Idaho Power/102  
 Blackwell/5

Mid-C HL	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20
7/24/2017	18.6500	18.0000	18.1000	26.4500	29.8500	26.7500	22.3000	24.4000	29.4500	31.1000	26.6000	21.7000
7/25/2017	18.7500	18.1000	18.2000	26.6500	30.0500	26.9500	22.4500	24.5500	29.6500	31.3500	26.8500	21.9000
7/26/2017	18.6500	18.0000	18.1000	26.6000	30.0000	26.9000	22.3500	24.4000	29.5000	31.0500	26.6000	21.7000
7/27/2017	18.5000	17.8500	17.9500	26.8000	30.2000	27.1000	22.5000	24.5500	29.7000	31.1500	26.7000	21.8000
7/28/2017	18.5000	17.8500	17.9500	26.8000	30.2000	27.1000	22.5000	24.5500	29.7000	31.1500	26.7000	21.8000
7/31/2017	18.4500	17.8000	17.9000	26.7000	30.1000	27.0000	22.4000	24.4500	29.6000	31.0500	26.6000	21.7000
8/1/2017	18.4500	17.8000	17.9000	26.7000	30.1000	27.0000	22.4000	24.4500	29.5500	31.0500	26.6000	21.7000
8/2/2017	18.6000	17.9500	18.0500	26.9000	30.3500	27.2000	22.6000	24.6500	29.8000	31.3000	26.8000	21.8500
8/3/2017	18.6000	17.9500	18.0500	26.9000	30.3500	27.2000	22.6000	24.6500	29.8000	31.3000	26.8000	21.8500
8/4/2017	18.6500	18.0000	18.1000	26.9500	30.4000	27.2500	22.6500	24.7000	29.8500	31.3500	26.8500	21.9000
8/7/2017	18.5500	17.9000	18.0000	26.8000	30.2500	27.1000	22.5500	24.5500	29.7000	31.2000	26.7000	21.8000
8/8/2017	18.6000	17.9500	18.0500	26.9000	30.3500	27.2000	22.6500	24.6500	29.8000	31.3000	26.8000	21.9000
8/9/2017	18.7000	18.0500	18.1500	27.0000	30.5000	27.3000	22.7500	24.7500	29.9500	31.4500	26.9000	22.0000
8/10/2017	18.8000	18.1500	18.2500	27.1000	30.6500	27.4000	22.8500	24.8500	30.1000	31.6000	27.0000	22.1000
8/11/2017	18.9500	18.2500	18.4000	27.3000	30.8500	27.6000	23.0000	25.0000	30.3000	31.8000	27.2000	22.2500
8/14/2017	18.7500	18.0500	18.2000	27.2000	30.7500	27.5000	22.9000	24.9000	30.1500	31.6500	27.0500	22.1500
8/15/2017	18.7500	18.0500	18.2000	27.2500	30.8000	27.5500	22.9500	24.9500	30.2000	31.7000	27.1000	22.2000
8/16/2017	18.7500	18.0500	18.2000	27.2000	30.7500	27.5000	22.9500	24.9000	30.1500	31.6500	27.0500	22.2000
8/17/2017	18.7500	18.0500	18.2000	27.2000	30.8000	27.5000	22.9500	24.9000	30.2000	31.7000	27.0500	22.2000
8/18/2017	18.7000	18.0000	18.1500	27.5500	31.1500	27.8500	22.9000	24.8500	30.1000	31.7500	27.1000	22.2500
8/21/2017	18.8500	18.1500	18.3000	27.9000	31.5000	28.2000	23.1000	25.0500	30.3500	32.0500	27.3500	22.4500
8/22/2017	18.9500	18.2000	18.3500	27.9000	31.5000	28.2000	23.2000	25.1500	30.4500	32.1500	27.4000	22.5000
8/23/2017	18.8000	18.0500	18.2000	27.7000	31.2500	28.0000	23.0000	24.9500	30.2000	31.9000	27.2000	22.3500
8/24/2017	18.8000	18.0500	18.2000	27.6500	31.2000	27.9500	23.0000	24.9500	30.1500	31.8500	27.1500	22.3500
8/25/2017	18.8000	18.0500	18.2000	27.6000	31.1500	27.9000	23.0000	24.9500	30.1000	31.8000	27.1000	22.3500
8/28/2017	18.8000	18.0500	18.2000	27.6000	31.1500	27.9000	23.0000	24.9500	30.1000	31.8000	27.1000	22.3500
8/29/2017	18.9000	18.1500	18.3000	27.7500	31.3000	28.0500	23.1500	25.1000	30.2500	31.9500	27.2500	22.4500
8/30/2017	18.9000	18.1500	18.3000	27.7500	31.3000	28.0500	23.1500	25.1000	30.2500	31.9500	27.2500	22.4500
8/31/2017	19.0000	18.2500	18.4000	27.9000	31.4500	28.2000	23.2500	25.2500	30.4000	32.1000	27.4000	22.5500
9/1/2017	19.1500	18.4000	18.5500	28.1000	31.7000	28.4000	23.4500	25.4500	30.6500	32.3500	27.6000	22.7000
9/5/2017	19.0500	18.3000	18.4500	27.9500	31.5500	28.2500	23.3500	25.3500	30.5000	32.2000	27.5000	22.6000
9/6/2017	18.9500	18.2000	18.3500	27.8000	31.4000	28.1000	23.2500	25.2500	30.3500	32.0500	27.3500	22.5000
9/7/2017	18.8500	18.1000	18.2500	28.3500	32.0500	28.6500	23.1500	25.1500	30.2000	32.1500	27.4000	22.5500
9/8/2017	18.7500	18.0000	18.1500	28.2000	31.9000	28.5000	23.0500	25.0500	30.0500	32.0000	27.3000	22.4500
9/11/2017	18.8500	18.0500	18.2000	28.3000	32.0500	28.6000	23.1500	25.1500	30.1500	32.1000	27.4000	22.5500
9/12/2017	18.9500	18.1500	18.3000	28.4500	32.2500	28.7500	23.3000	25.3000	30.3000	32.2500	27.5500	22.6500
9/13/2017	18.9000	18.1000	18.2500	28.3500	32.1500	28.6500	23.2000	25.2000	30.2000	32.1500	27.4500	22.5500
9/14/2017	18.8500	18.0500	18.2000	28.4000	32.2000	28.7000	23.1500	25.1500	30.1500	32.1000	27.4000	22.5000
9/15/2017	18.8000	18.0000	18.1500	28.3000	32.1000	28.6000	23.0500	25.0500	30.0500	32.0000	27.3000	22.4500
9/18/2017	18.9000	18.1000	18.2500	28.4500	32.3000	28.8000	23.2000	25.2000	30.2500	32.2000	27.4500	22.6000
9/19/2017	18.9000	18.1000	18.2500	28.4500	32.3000	28.8000	23.2000	25.2000	30.2500	32.2000	27.4500	22.6000
9/20/2017	18.9000	18.1000	18.2500	28.4500	32.3000	28.8000	23.2000	25.2000	30.2500	32.2000	27.4500	22.6000
9/21/2017	18.7000	17.9000	18.0500	28.1000	31.9000	28.4500	22.9500	24.9000	29.9000	31.8500	27.1500	22.3500
9/22/2017	18.5000	17.7000	17.8500	28.1500	31.9500	28.5000	23.0000	24.9500	29.9500	31.8500	27.1500	22.3500
9/25/2017	18.4000	17.6000	17.7500	28.0500	31.8000	28.4000	22.9000	24.8500	29.8500	31.7500	27.0500	22.2500
9/26/2017	18.3500	17.5500	17.7000	27.9500	31.7000	28.3000	22.8000	24.7500	29.7500	31.6500	26.9500	22.1500
9/27/2017	18.4500	17.6500	17.8000	28.1000	31.9000	28.5000	22.9500	24.9000	29.9500	31.8500	27.1000	22.3000
9/28/2017	18.2000	17.4000	17.5500	27.7500	31.5000	28.1500	22.6500	24.6000	29.5500	31.4500	26.7500	22.0000
9/29/2017	18.1000	17.3000	17.4500	27.6000	31.3000	28.0000	22.5000	24.4500	29.4000	31.3500	26.6500	21.9000
<b>Average HL</b>	<b>19.86</b>	<b>19.10</b>	<b>19.15</b>	<b>28.05</b>	<b>31.90</b>	<b>28.36</b>	<b>24.47</b>	<b>27.11</b>	<b>31.05</b>	<b>31.28</b>	<b>28.41</b>	<b>24.89</b>



Mid-Columbia Heavy Load and Light Load Daily Forward Curves  
April 2016 - March 2017

Idaho Power/102  
Blackwell/6

Mid-C HL	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20
Max HL	25.35	24.50	24.50	34.10	38.55	34.50	29.90	33.35	37.30	35.60	33.30	29.95
Min HL	17.85	17.10	17.10	25.80	29.55	26.05	22.30	24.40	29.05	28.60	26.60	21.70
Spread	7.50	7.40	7.40	8.30	9.00	8.45	7.60	8.95	8.25	7.00	6.70	8.25

Mid-Columbia Heavy Load and Light Load Daily Forward Curves  
April 2016 - March 2017

Idaho Power/102  
Blackwell/1

Mid-C LL	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20
9/29/2016	18.2500	13.6000	11.3000	15.4000	22.2500	21.6500	24.7500	27.5500	30.3000	30.0500	28.4500	25.5500
9/30/2016	18.2000	13.5500	11.2500	15.3500	22.2000	21.6000	24.7000	27.5000	30.2500	30.0000	28.4000	25.5000
10/3/2016	18.2000	13.5500	11.2500	15.3500	22.2000	21.6000	24.7000	27.5000	30.2500	30.0000	28.4000	25.5000
10/4/2016	18.0500	13.4000	11.1000	15.1500	21.9500	21.3500	24.5000	27.3000	30.0000	29.7500	28.2000	25.3000
10/5/2016	18.0500	13.4000	11.1000	15.1500	21.9500	21.3500	24.5000	27.3000	30.0000	29.7500	28.2000	25.3000
10/6/2016	18.2500	13.6000	11.3000	15.4500	22.2500	21.6500	24.7500	27.5500	30.3000	30.1000	28.5500	25.6000
10/7/2016	18.1000	13.5000	11.2000	15.3000	22.0500	21.5000	24.6000	27.4000	30.1000	29.8000	28.2500	25.3500
10/10/2016	18.0500	13.4500	11.1500	15.2500	22.0000	21.4500	24.5500	27.3500	30.0500	29.7500	28.2000	25.3000
10/11/2016	17.9500	13.3500	11.0500	15.1500	21.8500	21.3500	24.4500	27.2500	29.9000	29.6500	28.1000	25.2000
10/12/2016	17.9000	13.3000	11.0000	15.1000	21.8000	21.3000	24.4000	27.2000	29.8500	29.6000	28.0500	25.1500
10/13/2016	17.9000	13.3000	11.0000	15.1000	21.8000	21.3000	24.4000	27.2000	29.8500	29.6000	28.0500	25.1500
10/14/2016	17.9000	13.3000	11.0000	15.1000	21.8000	21.3000	24.4000	27.2000	29.8500	29.6000	28.0500	25.1500
10/17/2016	18.0500	13.4000	11.1000	15.2500	22.0000	21.4500	24.5500	27.3500	30.0500	29.9500	28.3500	25.4500
10/18/2016	17.9000	13.2500	10.9500	15.0500	21.7500	21.2500	24.3500	27.1500	29.8000	29.7500	28.1500	25.2500
10/19/2016	18.0500	13.4000	11.1000	15.3000	22.0000	21.5000	24.5500	27.4000	30.0500	30.0000	28.3500	25.4500
10/20/2016	18.3500	13.7000	11.4000	15.7500	22.5000	21.9500	24.9500	27.8000	30.5000	30.4500	28.7500	25.8000
10/21/2016	18.3500	13.7000	11.4000	15.7500	22.5000	21.9500	24.9500	27.8000	30.5000	30.4500	28.7500	25.8000
10/24/2016	18.3500	13.7000	11.4000	15.7500	22.5000	21.9500	24.9500	27.8000	30.5000	30.4500	28.7500	25.8000
10/25/2016	18.5000	13.8500	11.5500	15.9500	22.7500	22.1500	25.1500	28.0000	30.7500	30.6500	28.9500	26.0000
10/26/2016	18.0500	13.4500	11.1500	15.3500	22.1000	21.5500	24.6500	27.4500	30.1000	30.0500	28.4000	25.5000
10/27/2016	18.5000	13.8500	11.5500	15.9500	22.7500	22.1500	25.1500	28.0000	30.7500	30.6500	28.9500	26.0000
10/28/2016	19.0000	14.3500	12.0500	16.6500	23.5500	22.8500	25.7500	28.7000	31.5000	31.3500	29.6000	26.6000
10/31/2016	18.8500	14.2500	11.9500	16.5000	23.3500	22.7000	25.6000	28.5500	31.3000	31.2000	29.4500	26.4500
11/1/2016	18.4500	13.9500	11.7500	16.2000	22.9000	22.2500	25.0000	27.9000	30.6000	31.4000	29.6500	26.6500
11/2/2016	18.6000	14.1000	11.9500	16.4500	23.1500	22.4500	25.1000	28.0500	30.7500	31.8500	30.1000	27.0500
11/3/2016	19.2000	14.8500	12.7500	17.6000	24.2500	23.4000	25.7000	28.7500	31.5500	33.1000	31.3000	28.1000
11/4/2016	19.2500	14.9500	12.9000	17.8000	24.4500	23.5500	25.7500	28.8000	31.6000	33.6000	31.7500	28.5000
11/7/2016	19.2500	14.9500	12.9000	17.8000	24.4500	23.5500	25.7500	28.8000	31.6000	33.6000	31.7500	28.5000
11/8/2016	19.2500	14.8500	12.7000	17.5000	24.3000	23.4500	25.8500	28.9500	31.7500	33.2500	31.4000	28.2000
11/9/2016	17.6000	13.2500	11.1000	15.3000	21.8000	21.2000	23.9000	26.8000	29.3500	32.1000	30.3000	27.2000
11/10/2016	17.5500	13.2000	11.0500	15.2500	21.7500	21.1500	23.8500	26.7500	29.3000	32.0500	30.2500	27.1500
11/11/2016	17.1000	12.7500	10.6000	14.6000	21.0500	20.5000	23.3000	26.1500	28.6000	31.4000	29.6500	26.6000
11/14/2016	17.3000	12.9500	10.8000	14.8500	21.3500	20.7500	23.5500	26.4000	28.9000	31.6500	29.9000	26.8500
11/15/2016	17.2000	12.8500	10.7000	14.7500	21.2500	20.6500	23.4500	26.3000	28.8000	31.5500	29.8000	26.7500
11/16/2016	17.0500	12.7000	10.5500	14.5500	21.0500	20.4500	23.3000	26.1000	28.6000	31.3500	29.6000	26.6000
11/17/2016	17.0500	12.7000	10.5500	14.5500	21.0500	20.4500	23.3000	26.1000	28.6000	31.3500	29.6000	26.6000
11/18/2016	17.1500	12.8000	10.6500	14.7000	21.2000	20.6000	23.4500	26.2500	28.7500	31.5000	29.7500	26.7500
11/21/2016	17.2000	12.8500	10.7000	14.7500	21.3000	20.6500	23.5000	26.3000	28.8500	31.5500	29.8000	26.8000
11/22/2016	17.5000	13.1000	10.9500	15.1500	21.7500	21.0500	23.8500	26.6500	29.2500	31.9500	30.1500	27.1500
11/23/2016	17.5500	13.1500	11.0000	15.2000	21.8000	21.1000	23.9000	26.7000	29.3000	32.0000	30.2000	27.2000
11/25/2016	17.5500	13.1500	11.0000	15.2000	21.8000	21.1000	23.9000	26.7000	29.3000	32.0000	30.2000	27.2000
11/28/2016	16.8000	12.4000	10.2500	14.2000	20.6500	20.0500	23.0000	25.7000	28.2000	30.9500	29.2500	26.3500
11/29/2016	16.7000	12.3000	10.1500	14.0500	20.5000	19.9000	22.9000	25.5500	28.0500	30.8000	29.1000	26.2500
11/30/2016	16.7000	12.3000	10.1500	14.0500	20.5000	19.9000	22.9000	25.5500	28.0500	30.8000	29.1000	26.2500
12/1/2016	16.9000	12.4000	10.2000	14.1000	20.7000	20.1000	23.2000	25.9000	28.4500	30.5500	28.8500	26.0000
12/2/2016	16.9500	12.3500	10.1000	13.9500	20.6500	20.1000	23.3500	26.0500	28.6000	30.6000	28.9000	26.0500
12/5/2016	17.3000	12.7000	10.4500	14.4500	21.2000	20.6000	23.8000	26.5500	29.1500	31.1000	29.3500	26.5000
12/6/2016	17.1500	12.5500	10.3000	14.2500	21.0000	20.4000	23.6500	26.3500	28.9500	30.4000	28.7000	25.9000
12/7/2016	17.1000	12.5000	10.2500	14.2000	20.9000	20.3500	23.6000	26.3000	28.8500	30.3500	28.6500	25.8500
12/8/2016	17.1000	12.5000	10.2500	14.2000	20.9000	20.3500	23.6000	26.3000	28.8500	30.3500	28.6500	25.8500
12/9/2016	17.3000	12.7000	10.4500	14.4500	21.2000	20.6000	23.8000	26.5500	29.1500	30.6000	28.9000	26.0500

Mid-Columbia Heavy Load and Light Load Daily Forward Curves  
 April 2016 - March 2017

Idaho Power/102  
 Blackwell/2

Mid-C LL	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20
12/12/2016	17.3000	12.7000	10.4500	14.4500	21.2000	20.6000	23.8000	26.5500	29.1500	30.6000	28.9000	26.0500
12/13/2016	17.3000	12.7000	10.4500	14.4500	21.2000	20.6000	23.8000	26.5500	29.1500	30.6000	28.9000	26.0500
12/14/2016	17.3000	12.7000	10.4500	14.4500	21.2000	20.6000	23.8000	26.5500	29.1500	30.1500	28.5000	25.7000
12/15/2016	17.3000	12.7000	10.4500	14.4500	21.2000	20.6000	23.8000	26.5500	29.1500	30.1500	28.5000	25.7000
12/16/2016	17.3000	12.7000	10.4500	14.4500	21.2000	20.6000	23.8000	26.5500	29.1500	30.1500	28.5000	25.7000
12/19/2016	17.3000	12.7000	10.4500	14.4500	21.2000	20.6000	23.8000	26.5500	29.1500	30.1500	28.5000	25.7000
12/20/2016	17.0000	12.4000	10.1500	14.0500	20.7500	20.2000	23.4500	26.1500	28.7000	29.7500	28.1000	25.3500
12/21/2016	17.1500	12.5500	10.3000	14.2500	21.0000	20.4000	23.6500	26.3500	28.9500	29.9500	28.3000	25.5500
12/22/2016	17.2500	12.6500	10.4000	14.3500	21.1500	20.5000	23.7500	26.4500	29.1000	30.0500	28.4000	25.6500
12/23/2016	17.4500	12.8000	10.5500	14.5500	21.4000	20.7500	24.0000	26.7000	29.4000	30.2000	28.5500	25.8000
12/27/2016	17.9000	13.2500	11.0000	15.2000	22.1000	21.4000	24.5500	27.3000	30.1000	30.8500	29.1500	26.3500
12/28/2016	17.4500	12.8000	10.5500	14.6000	21.4000	20.8000	24.0000	26.7000	29.4500	30.8500	29.1500	26.3500
12/29/2016	17.5000	12.9500	10.7500	14.9000	21.6500	20.9500	24.0000	26.7000	29.4500	31.5000	29.7500	26.9000
12/30/2016	17.5000	12.9500	10.7500	14.9000	21.6500	20.9500	24.0000	26.7000	29.4500	31.5000	29.7500	26.9000
1/3/2017	16.9500	12.4000	10.2000	14.1500	20.8000	20.2000	23.3500	26.0000	28.6500	30.7500	29.0500	26.2500
1/4/2017	16.4500	11.9500	9.7500	13.5000	20.0500	19.5500	22.8000	25.3500	27.9500	30.1000	28.4500	25.7000
1/5/2017	16.4000	11.9000	9.7000	13.4500	20.0000	19.5000	22.7500	25.3000	27.9000	30.0500	28.4000	25.6500
1/6/2017	16.3000	11.8000	9.6000	13.3500	19.9000	19.4000	22.6500	25.2000	27.8000	29.9500	28.3000	25.5500
1/9/2017	16.0500	11.5500	9.3500	13.0000	19.5500	19.0500	22.3500	24.9000	27.4500	29.6000	28.0000	25.2500
1/10/2017	16.1500	11.6500	9.4500	13.1500	19.7000	19.2000	22.4500	25.0500	27.6000	29.7500	28.1500	25.3500
1/11/2017	16.3500	11.8500	9.6500	13.4000	20.0000	19.4500	22.7000	25.3000	27.9000	30.0500	28.4000	25.6000
1/12/2017	16.3500	11.8500	9.6500	13.4000	20.0000	19.4500	22.7000	25.3000	27.9000	30.0500	28.4000	25.6000
1/13/2017	16.1000	11.6000	9.4000	13.0500	19.6500	19.1000	22.4000	25.0000	27.5500	29.3000	27.7000	24.9500
1/17/2017	16.0000	11.5000	9.3000	12.9000	19.5000	18.9500	22.3000	24.8500	27.4000	29.1500	27.5500	24.8500
1/18/2017	16.1000	11.6000	9.4000	13.0000	19.6500	19.0500	22.4000	24.9500	27.5000	29.2500	27.6500	24.9500
1/19/2017	16.1500	11.6500	9.4500	13.0500	19.7500	19.1000	22.4500	25.0000	27.5500	29.3000	27.7000	25.0000
1/20/2017	16.0500	11.5500	9.3500	12.9500	19.6500	19.0000	22.3500	24.9000	27.4500	29.2000	27.6000	24.9000
1/23/2017	16.0500	11.5500	9.3500	12.9500	19.7000	19.0000	22.3500	24.9000	27.4500	29.2000	27.6000	24.9000
1/24/2017	15.9000	11.4000	9.2000	12.7500	19.5000	18.8000	22.2000	24.7000	27.2500	29.0000	27.4000	24.7500
1/25/2017	15.9000	11.4000	9.2000	12.7500	19.5000	18.8000	22.2000	24.7000	27.2500	29.0000	27.4000	24.7500
1/26/2017	15.7500	11.0500	8.7500	13.6500	20.8000	20.0000	23.5000	26.1500	28.5500	28.8000	27.2000	24.5500
1/27/2017	15.6500	11.0000	8.7500	13.6000	20.7000	19.9000	23.4000	26.0000	28.4000	28.8500	27.2500	24.6000
1/30/2017	15.5500	10.9000	8.6500	13.4500	20.5500	19.7500	23.3000	25.8500	28.2500	28.7000	27.1500	24.5000
1/31/2017	15.5500	10.9000	8.6500	13.4500	20.5500	19.7500	23.3000	25.8500	28.2500	28.7000	27.1500	24.5000
2/1/2017	15.5500	10.9000	8.6500	13.4500	20.5500	19.7500	23.3000	25.8500	28.2500	28.7000	27.1500	24.5000
2/2/2017	15.5500	10.9000	8.6500	13.4500	20.5500	19.7500	23.3000	25.8500	28.2500	28.7000	27.1500	24.5000
2/3/2017	15.3000	10.6500	8.4000	13.0500	20.1000	19.3500	22.9500	25.5000	27.8500	28.3000	26.8000	24.1500
2/6/2017	15.1000	10.4500	8.2000	13.2500	20.3000	19.5500	23.1000	25.7000	28.0500	28.3500	26.8500	24.2000
2/7/2017	15.1000	10.4500	8.2000	13.2500	20.3000	19.5500	23.1000	25.7000	28.0500	28.3500	26.8500	24.2000
2/8/2017	15.0500	10.4000	8.1500	13.2000	20.2500	19.5000	23.0500	25.6500	28.0000	28.3000	26.8000	24.1500
2/9/2017	14.9500	10.3500	8.1000	13.1000	20.1500	19.4000	22.9500	25.5500	27.9000	28.2000	26.7000	24.0500
2/10/2017	14.8500	10.2500	8.0000	12.9500	19.9500	19.2500	22.8000	25.4000	27.7000	28.0500	26.5500	23.9000
2/13/2017	14.7500	10.1500	7.9000	12.8500	19.8000	19.1500	22.7000	25.3000	27.5500	27.9500	26.4500	23.8000
2/14/2017	14.8000	10.2000	7.9500	12.9000	19.8500	19.2000	22.7500	25.3500	27.6000	28.0000	26.5000	23.8500
2/15/2017	14.7500	10.1500	7.9000	12.8500	19.8000	19.1500	22.7000	25.3000	27.5500	27.9500	26.4500	23.8000
2/16/2017	14.3000	9.7000	7.4500	12.6500	19.6000	18.9500	22.5500	25.1000	27.3500	27.9500	26.4500	23.8000
2/17/2017	14.3000	9.7000	7.4500	12.6500	19.6000	18.9500	22.5500	25.1000	27.3500	27.9500	26.4500	23.8000
2/21/2017	14.2000	9.6000	7.3500	12.5000	19.4500	18.8000	22.4500	24.9500	27.2000	27.8000	26.3500	23.7000
2/22/2017	14.0500	9.4500	7.2000	12.3000	19.2000	18.6000	22.2500	24.7500	26.9500	27.6000	26.1500	23.5000
2/23/2017	14.0500	9.4500	7.2000	12.3000	19.2000	18.6000	22.2500	24.7500	26.9500	27.6000	26.1500	23.5000
2/24/2017	13.7500	9.1500	6.9000	11.8500	18.7000	18.1500	21.8500	24.3500	26.5000	27.1500	25.7500	23.1500

Mid-Columbia Heavy Load and Light Load Daily Forward Curves  
 April 2016 - March 2017

Idaho Power/102  
 Blackwell/3

Mid-C LL	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20
2/27/2017	13.5000	8.9000	6.6500	11.4500	18.2500	17.7500	21.5000	24.0000	26.1000	26.7500	25.4000	22.8500
2/28/2017	13.5000	8.9000	6.6500	11.5000	18.3000	17.8000	21.5500	24.0500	26.1500	26.8000	25.4500	22.8500
3/1/2017	13.5000	8.9000	6.6500	11.5000	18.3000	17.8000	21.5500	24.0500	26.1500	26.8000	25.4500	22.8500
3/2/2017	13.6500	9.0500	6.8000	11.7000	18.5500	18.0000	21.7500	24.2500	26.4000	27.0500	25.6500	23.0500
3/3/2017	13.6500	9.0500	6.8000	11.7000	18.5500	18.0000	21.7500	24.2500	26.4000	27.0500	25.6500	23.0500
3/6/2017	13.6500	9.0500	6.8000	11.6500	18.5000	17.9500	21.7000	24.2000	26.3500	27.0000	25.6000	23.0000
3/7/2017	13.6500	9.0500	6.8000	11.6000	18.4500	17.9000	21.6500	24.1500	26.3000	26.9500	25.5500	22.9500
3/8/2017	15.3500	10.6500	8.3500	14.0000	21.2500	20.4000	23.9000	26.6500	29.1000	29.1500	27.6000	24.8000
3/9/2017	15.3500	10.6500	8.3500	14.0000	21.2500	20.4000	23.9000	26.6500	29.1000	29.1500	27.6000	24.8000
3/10/2017	15.2500	10.5500	8.2500	13.9000	21.1000	20.2500	23.8000	26.5500	28.9500	29.0500	27.5000	24.7000
3/13/2017	15.3000	10.6000	8.3000	13.9500	21.2000	20.3000	23.8500	26.6000	29.0500	29.1000	27.5500	24.7500
3/14/2017	15.2500	10.5500	8.2500	13.9000	21.1000	20.2500	23.8000	26.5500	29.0000	29.0500	27.5000	24.7000
3/15/2017	14.4500	10.0000	7.8000	13.1500	20.0000	19.2000	22.6000	25.2000	27.5500	28.9000	27.3500	24.5500
3/16/2017	14.4500	10.0000	7.8000	13.2000	20.0500	19.2500	22.6000	25.2500	27.6000	28.9500	27.3500	24.5500
3/17/2017	14.3000	9.8500	7.6500	13.0000	19.8500	19.0500	22.4500	25.0500	27.4000	28.7500	27.1500	24.4000
3/20/2017	14.4500	10.0000	7.8000	13.2000	20.1000	19.2500	22.6500	25.2500	27.6000	28.9500	27.3500	24.5500
3/21/2017	14.2500	9.7000	7.4000	12.6500	19.6500	18.9000	22.5500	25.1500	27.4500	28.9500	27.3500	24.5500
3/22/2017	14.2500	9.7000	7.4000	12.6500	19.6500	18.9000	22.5500	25.1500	27.4500	28.7500	27.1500	24.4000
3/23/2017	14.2500	9.7000	7.4000	12.6000	19.6000	18.8500	22.5500	25.1500	27.4000	28.7000	27.1000	24.3500
3/24/2017	14.2500	9.7000	7.4000	12.6000	19.6000	18.8500	22.5500	25.1500	27.4000	28.4000	26.8500	24.1000
3/27/2017	14.2500	9.7000	7.4000	12.6000	19.6000	18.8500	22.5500	25.1500	27.4000	28.4000	26.8500	24.1000
3/28/2017	14.1500	9.6000	7.3500	12.5000	19.4500	18.7000	22.4000	24.9500	27.2000	28.3500	26.8000	24.0500
3/29/2017	14.1000	9.5500	7.3000	12.4500	19.4000	18.6500	22.3500	24.9000	27.1500	28.3000	26.7500	24.0000
3/30/2017	13.9000	9.3500	7.1000	12.1500	19.0500	18.3500	22.1000	24.6000	26.8000	28.3500	26.8000	24.0500
3/31/2017	13.4500	8.9000	6.6500	11.5000	18.3000	17.7000	21.5000	23.9500	26.0500	27.7000	26.2000	23.5000
4/3/2017	13.4000	8.8500	6.6000	11.4500	18.2500	17.6500	21.4500	23.9000	26.0000	27.6500	26.1500	23.4500
4/4/2017	13.6500	9.1000	6.8500	11.8500	18.7000	18.0500	21.8000	24.3000	26.4000	28.0500	26.5000	23.7500
4/5/2017	13.7500	9.2000	6.9500	12.0500	18.9000	18.2500	21.9500	24.5000	26.6000	28.2500	26.7000	23.9000
4/6/2017	13.7500	9.2000	6.9500	12.0500	18.9000	18.2500	21.9500	24.5000	26.6000	28.2500	26.7000	23.9000
4/7/2017	13.8500	9.3000	7.0500	12.1500	19.0500	18.3500	22.0500	24.6000	26.7500	28.3000	26.7500	23.9500
4/10/2017	13.8500	9.3000	7.0500	12.1500	19.0500	18.3500	22.0500	24.6000	26.7500	28.3000	26.7500	23.9500
4/11/2017	13.9000	9.3500	7.1000	12.2500	19.1500	18.4500	22.1000	24.7000	26.8500	28.4000	26.8500	24.0000
4/12/2017	13.6000	9.0500	6.8000	11.7500	18.6000	17.9500	21.7000	24.2500	26.3000	27.9000	26.4000	23.6000
4/13/2017	13.8000	9.2500	7.0000	12.0000	18.9000	18.2000	21.9500	24.5000	26.6000	28.1500	26.6500	23.8500
4/17/2017	13.8000	9.2500	7.0000	12.0000	18.9000	18.2000	21.9500	24.5000	26.6000	28.1500	26.6500	23.8500
4/18/2017	13.7500	9.2000	6.9500	11.9500	18.8000	18.1000	21.9000	24.4500	26.5000	28.0500	26.6000	23.8000
4/19/2017	13.9000	9.3500	7.1000	12.2000	19.0500	18.3500	22.1000	24.7000	26.7500	28.3000	26.8000	24.0000
4/20/2017	13.8500	9.3000	7.0500	12.1500	19.0000	18.3000	22.0500	24.6500	26.7000	28.2500	26.7500	23.9500
4/21/2017	13.8500	9.3000	7.0500	12.1500	19.0000	18.3000	22.0500	24.6500	26.7000	28.2500	26.7500	23.9500
4/24/2017	13.8500	9.3000	7.0500	12.1500	19.0000	18.3000	22.0500	24.6500	26.7000	28.2500	26.7500	23.9500
4/25/2017	13.7500	9.2000	6.9500	12.0000	18.8500	18.1500	21.9500	24.5000	26.5500	28.1000	26.6500	23.8500
4/26/2017	13.9500	9.4000	7.1500	12.3000	19.2000	18.4500	22.2000	24.8000	26.9000	28.4000	26.9500	24.1000
4/27/2017	13.9500	9.4000	7.1500	12.2500	19.1500	18.4500	22.2000	24.8000	26.9000	27.9000	26.5000	23.7000
4/28/2017	13.9500	9.4000	7.1500	12.2500	19.1500	18.4500	22.2000	24.8000	26.9000	27.9000	26.5000	23.7000
5/1/2017	13.9000	9.3500	7.1000	12.2000	19.0500	18.4000	22.1500	24.7500	26.8000	27.8500	26.4500	23.6500
5/2/2017	13.7500	9.2000	6.9500	11.9500	18.7500	18.1500	21.9500	24.5000	26.5500	27.6000	26.2000	23.4500
5/3/2017	13.7000	9.1500	6.9000	11.9000	18.7000	18.1000	21.9000	24.4500	26.5000	27.5500	26.1500	23.4000
5/4/2017	13.7000	9.1500	6.9000	11.9000	18.7000	18.1000	21.9000	24.4500	26.5000	27.5500	26.1500	23.4000
5/5/2017	13.7500	9.2000	6.9500	12.0000	18.8000	18.2000	22.0000	24.5500	26.6000	27.6500	26.2500	23.5000
5/8/2017	13.7500	9.2000	6.9500	11.9500	18.7500	18.1500	21.9500	24.5000	26.5500	27.6000	26.2000	23.5000
5/9/2017	13.9000	9.3000	7.0500	12.1500	18.9500	18.3500	22.1000	24.7000	26.7500	27.8000	26.4000	23.6500

Mid-Columbia Heavy Load and Light Load Daily Forward Curves  
 April 2016 - March 2017

Idaho Power/102  
 Blackwell/4

Mid-C LL	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20
5/10/2017	13.8000	9.2000	6.9500	12.0000	18.7500	18.2000	21.9500	24.5500	26.5500	27.8500	26.4500	23.7000
5/11/2017	13.8500	9.2500	7.0000	12.1000	18.8500	18.3000	22.0500	24.6500	26.6500	27.9500	26.5500	23.8000
5/12/2017	13.8500	9.2500	7.0000	12.1500	18.9000	18.3500	22.1000	24.7000	26.7000	28.0000	26.6000	23.8500
5/15/2017	13.8500	9.2500	7.0000	12.1500	18.9000	18.3500	22.1000	24.7000	26.7000	28.0000	26.6000	23.8500
5/16/2017	13.7500	9.1500	6.9000	12.0000	18.7000	18.2000	21.9500	24.5500	26.5000	27.8500	26.4500	23.7000
5/17/2017	13.7500	9.1500	6.9000	12.0000	18.7500	18.2000	21.9500	24.5500	26.5500	27.8500	26.4500	23.7000
5/18/2017	13.9000	9.3000	7.0500	12.2000	19.0000	18.4000	22.1500	24.7500	26.8000	27.9000	26.5000	23.7500
5/19/2017	13.9500	9.3500	7.1000	12.2500	19.0500	18.4500	22.2000	24.8000	26.8500	27.9500	26.5500	23.8000
5/22/2017	14.0500	9.4500	7.2000	12.4000	19.2500	18.6000	22.3500	24.9500	27.0500	28.1000	26.7000	23.9500
5/23/2017	14.0500	9.4500	7.2000	12.4000	19.2500	18.6000	22.3500	24.9500	27.0500	27.8000	26.4000	23.7000
5/24/2017	14.0000	9.4000	7.1500	12.3500	19.2000	18.5500	22.3000	24.9000	27.0000	27.7500	26.3500	23.6500
5/25/2017	14.0000	9.4000	7.1500	12.3500	19.2000	18.5500	22.3000	24.9000	27.0000	27.7500	26.3500	23.6500
5/26/2017	13.8500	9.2500	7.0000	12.1000	18.9500	18.3000	22.1000	24.7000	26.7500	27.6500	26.2500	23.5500
5/30/2017	14.3500	9.7500	7.5000	11.7500	18.5500	17.9500	21.8000	24.3500	26.4000	27.5000	26.1000	23.4500
5/31/2017	14.1000	9.5000	7.2500	11.4000	18.1500	17.6000	21.5000	24.0000	26.0000	27.1500	25.8000	23.1500
6/1/2017	14.1500	9.5500	7.3000	11.4500	18.2500	17.6500	21.5500	24.0500	26.1000	27.2000	25.8500	23.2000
6/2/2017	14.2500	9.6500	7.4000	11.0500	17.8000	17.2500	21.5500	24.0500	26.1000	27.0000	25.7000	23.0500
6/5/2017	14.2000	9.6000	7.3500	11.0000	17.7500	17.2000	21.5000	24.0000	26.0500	26.9500	25.6500	23.0000
6/6/2017	14.2500	9.6500	7.4000	11.1000	17.8500	17.3000	21.5500	24.1000	26.1500	27.0500	25.7500	23.0500
6/7/2017	14.3000	9.7000	7.4500	11.1500	17.9000	17.3500	21.6000	24.1500	26.2000	27.1000	25.8000	23.1000
6/8/2017	13.5500	10.6000	9.1500	16.0500	20.3000	20.3000	19.6000	22.0000	25.0500	25.9000	23.7000	19.5000
6/9/2017	13.3500	10.4000	8.9500	15.8500	20.1000	20.1000	19.4500	21.8000	24.8500	25.7000	23.5000	19.3500
6/12/2017	13.3500	10.4000	8.9500	15.8500	20.1000	20.1000	19.4500	21.8000	24.8500	25.7000	23.5000	19.3500
6/13/2017	13.5000	10.5500	9.1000	16.1000	20.3500	20.3000	19.6000	21.9500	25.0500	25.7000	23.5000	19.3500
6/14/2017	13.3500	10.4500	9.0000	15.9500	20.1500	20.1000	19.4500	21.8000	24.8500	25.5000	23.3500	19.2000
6/15/2017	13.4000	10.5000	9.0500	16.0000	20.2500	20.1500	19.5000	21.8500	24.9500	25.6000	23.4000	19.2500
6/16/2017	13.4000	10.5000	9.0500	16.0000	20.2500	20.1500	19.5000	21.8500	24.9500	25.6000	23.4000	19.2500
6/19/2017	13.3500	10.4500	9.0000	15.9500	20.1500	20.1000	19.4500	21.8000	24.8500	25.5000	23.3500	19.2000
6/20/2017	13.3000	10.4000	8.9500	15.8500	20.0500	20.0000	19.3500	21.7000	24.7500	25.4000	23.2500	19.1500
6/21/2017	13.3500	10.4500	9.0000	15.9500	20.1500	20.1000	19.4000	21.8000	24.8500	25.5000	23.3500	19.2000
6/22/2017	13.3500	10.4500	9.0000	15.9500	20.1500	20.1000	19.4000	21.8000	24.8500	25.5000	23.3500	19.2000
6/23/2017	13.4000	10.5000	9.0500	16.0000	20.2000	20.1500	19.4500	21.8500	24.9000	25.5500	23.4000	19.2500
6/26/2017	13.5500	10.6500	9.2000	16.2000	20.4500	20.3500	19.6500	22.0500	25.1500	25.8000	23.6000	19.4000
6/27/2017	13.5000	10.6000	9.1500	16.1500	20.3500	20.3000	19.6000	22.0000	25.0500	25.7000	23.5500	19.3500
6/28/2017	13.5000	10.6000	9.1500	16.1500	20.3500	20.3000	19.6000	22.0000	25.0500	25.7000	23.5500	19.3500
6/29/2017	13.5500	10.6500	9.2000	16.2500	20.4500	20.4000	19.7000	22.1000	25.1500	25.8000	23.6500	19.4000
6/30/2017	13.3500	10.5000	9.0000	16.0000	20.1500	20.1500	19.5000	21.8500	24.8500	25.5000	23.4000	19.2000
7/3/2017	13.3500	10.5000	9.0000	16.0000	20.1500	20.1500	19.5000	21.8500	24.8500	25.5000	23.4000	19.2000
7/5/2017	13.1500	10.3000	8.8000	15.7500	19.8500	19.9000	19.2500	21.6000	24.5500	25.2000	23.1500	19.0000
7/6/2017	13.1500	10.3000	8.8000	16.0500	20.2000	20.2500	19.3000	21.6500	24.6000	25.2500	23.2000	19.0000
7/7/2017	13.2000	10.3500	8.8500	16.1500	20.3000	20.3500	19.4000	21.7500	24.7000	25.3500	23.3000	19.1000
7/10/2017	13.0000	10.1500	8.6500	16.7000	20.9000	20.9000	19.4500	21.8000	24.7500	25.6000	23.5500	19.3000
7/11/2017	12.7500	9.9500	8.4000	16.4000	20.5500	20.6000	19.2000	21.5000	24.4000	25.2500	23.2500	19.0500
7/12/2017	13.3000	10.3500	8.7500	16.2500	20.4000	20.4500	19.0500	21.3500	24.2500	25.1000	23.1000	18.9500
7/13/2017	13.2500	10.3000	8.7000	16.2000	20.3500	20.4000	19.0000	21.3000	24.2000	25.0500	23.0500	18.9000
7/14/2017	13.2000	10.2500	8.6500	16.1500	20.3000	20.3500	18.9500	21.2500	24.1500	25.0500	23.0500	18.9000
7/17/2017	13.0000	10.0500	8.4500	16.6000	20.8000	20.8000	18.6500	20.9500	23.8000	24.9500	22.9500	18.8000
7/18/2017	13.1500	10.2000	8.6000	16.8500	21.0500	21.0500	18.8500	21.1500	24.0500	25.2000	23.2000	19.0000
7/19/2017	13.3500	10.4000	8.8000	17.1000	21.3500	21.3000	19.1000	21.4000	24.3500	25.5000	23.4500	19.2000
7/20/2017	13.5000	10.5500	8.9500	16.6000	20.7500	20.8000	19.3000	21.6000	24.6000	25.5000	23.4500	19.2000
7/21/2017	13.2500	10.3000	8.7000	16.2500	20.3500	20.4500	19.0000	21.2500	24.2000	25.1000	23.1000	18.9500

Mid-Columbia Heavy Load and Light Load Daily Forward Curves  
 April 2016 - March 2017

Idaho Power/102  
 Blackwell/5

Mid-C LL	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20
7/24/2017	12.9500	10.1000	8.6000	16.5500	20.7000	20.8000	18.6000	20.8000	23.6500	24.8000	22.8500	18.7500
7/25/2017	13.0500	10.2000	8.7000	16.7500	20.9000	21.0000	18.7500	20.9500	23.8500	25.0500	23.1000	18.9500
7/26/2017	13.1000	10.2000	8.7000	16.9000	21.0500	21.2000	18.8000	21.0500	23.9500	24.7500	22.8500	18.7500
7/27/2017	12.9500	10.0500	8.5500	17.1000	21.2500	21.4000	18.9500	21.2000	24.1500	24.8500	22.9500	18.8500
7/28/2017	12.9500	10.0500	8.5500	17.1000	21.2500	21.4000	18.9500	21.2000	24.1500	24.8500	22.9500	18.8500
7/31/2017	12.9000	10.0000	8.5000	17.0000	21.1500	21.3000	18.8500	21.1000	24.0500	24.7500	22.8500	18.7500
8/1/2017	12.9000	10.0000	8.5000	17.0000	21.1500	21.3000	18.8500	21.1000	24.0000	24.7500	22.8500	18.7500
8/2/2017	13.0500	10.1500	8.6500	17.2000	21.4000	21.5000	19.0500	21.3000	24.2500	25.0000	23.0500	18.9000
8/3/2017	13.0500	10.1500	8.6500	17.2000	21.4000	21.5000	19.0500	21.3000	24.2500	25.0000	23.0500	18.9000
8/4/2017	13.1000	10.2000	8.7000	17.2500	21.4500	21.5500	19.1000	21.3500	24.3000	25.0500	23.1000	18.9500
8/7/2017	12.9000	10.0500	8.5500	17.0000	21.1500	21.2500	18.8500	21.1000	24.0000	25.7000	23.7000	19.4500
8/8/2017	12.9500	10.1000	8.6000	17.1000	21.2500	21.3500	18.9500	21.2000	24.1000	25.8000	23.8000	19.5500
8/9/2017	13.0500	10.2000	8.7000	17.2000	21.4000	21.4500	19.0500	21.3000	24.2500	25.9500	23.9000	19.6500
8/10/2017	13.1500	10.3000	8.8000	17.5000	21.7500	21.8000	19.1500	21.4000	24.4000	26.1000	24.0000	19.7500
8/11/2017	13.3000	10.4000	8.9500	17.7000	21.9500	22.0000	19.3000	21.5500	24.6000	26.3000	24.2000	19.9000
8/14/2017	13.1000	10.2000	8.7500	17.6000	21.8500	21.9000	19.2000	21.4500	24.4500	26.1500	24.0500	19.8000
8/15/2017	13.1000	10.2000	8.7500	17.6500	21.9000	21.9500	19.2500	21.5000	24.5000	26.2000	24.1000	19.8500
8/16/2017	13.1000	10.2000	8.7500	17.6000	21.8500	21.9000	19.2500	21.4500	24.4500	26.1500	24.0500	19.8500
8/17/2017	13.1000	10.2000	8.7500	17.6000	21.9000	21.9000	19.2500	21.4500	24.5000	26.2000	24.0500	19.8500
8/18/2017	13.0500	10.1500	8.7000	17.9500	22.2500	22.2500	19.2000	21.4000	24.4000	26.2500	24.1000	19.9000
8/21/2017	13.2000	10.3000	8.8500	18.3000	22.6500	22.6000	19.4000	21.6000	24.6500	26.5500	24.3500	20.1000
8/22/2017	13.3000	10.3500	8.9500	18.3000	22.6500	22.6000	19.5000	21.7000	24.7500	26.6500	24.4000	20.1500
8/23/2017	12.9500	10.0500	8.6500	17.8000	22.0500	22.0500	19.0000	21.1500	24.1000	26.4000	24.2000	20.0000
8/24/2017	12.9000	10.0000	8.6000	17.7500	22.0000	22.0000	19.0000	21.1500	24.0500	26.3500	24.1500	20.0000
8/25/2017	12.9000	10.0000	8.6000	17.7000	21.9500	21.9500	19.0000	21.1500	24.0000	26.3000	24.1000	20.0000
8/28/2017	12.9000	10.0000	8.6000	17.7000	21.9500	21.9500	19.0000	21.1500	24.0000	26.3000	24.1000	20.0000
8/29/2017	13.0000	10.1000	8.7000	17.8500	22.1000	22.1000	19.1500	21.3000	24.1500	26.4500	24.2500	20.1000
8/30/2017	13.0000	10.1000	8.7000	17.8500	22.1000	22.1000	19.1500	21.3000	24.1500	26.4500	24.2500	20.1000
8/31/2017	13.1000	10.2000	8.8000	18.0000	22.2500	22.2500	19.2500	21.4500	24.3000	26.6000	24.4000	20.2000
9/1/2017	13.2500	10.3500	8.9500	18.2000	22.5000	22.4500	19.4500	21.6500	24.5500	26.8500	24.6000	20.3500
9/5/2017	13.1500	10.2500	8.8500	18.0500	22.3500	22.3000	19.3500	21.5500	24.4000	26.7000	24.5000	20.2500
9/6/2017	13.0500	10.1500	8.7500	17.9000	22.2000	22.1500	19.2500	21.4500	24.2500	26.5500	24.3500	20.1500
9/7/2017	12.9500	10.0500	8.6500	18.4500	22.8500	22.7000	19.1500	21.3500	24.1000	26.6500	24.4000	20.2000
9/8/2017	12.8500	9.9500	8.5500	18.3000	22.7000	22.5500	19.0500	21.2500	23.9500	26.5000	24.3000	20.1000
9/11/2017	12.9500	10.0000	8.6000	18.4000	22.8500	22.6500	19.1500	21.3500	24.0500	26.6000	24.4000	20.2000
9/12/2017	13.0500	10.1000	8.7000	18.5500	23.0500	22.8000	19.3000	21.5000	24.2000	26.7500	24.5500	20.3000
9/13/2017	13.0000	10.0500	8.6500	18.4500	22.9500	22.7000	19.2000	21.4000	24.1000	26.6500	24.4500	20.2000
9/14/2017	12.9500	10.0000	8.6000	18.5000	23.0000	22.7500	19.1500	21.3500	24.0500	26.6000	24.4000	20.1500
9/15/2017	12.9000	9.9500	8.5500	18.4000	22.9000	22.6500	19.0500	21.2500	23.9500	26.5000	24.3000	20.1000
9/18/2017	13.0000	10.0500	8.6500	18.5500	23.1000	22.8500	19.2000	21.4000	24.1500	26.7000	24.4500	20.2500
9/19/2017	13.0000	10.0500	8.6500	18.5500	23.1000	22.8500	19.2000	21.4000	24.1500	26.7000	24.4500	20.2500
9/20/2017	13.0000	10.0500	8.6500	18.5500	23.1000	22.8500	19.2000	21.4000	24.1500	26.7000	24.4500	20.2500
9/21/2017	12.8500	9.9000	8.5000	18.3500	22.9000	22.7000	19.0500	21.2500	23.9500	26.5000	24.2500	20.1000
9/22/2017	12.6500	9.7000	8.3000	18.4000	22.9500	22.7500	19.1000	21.3000	24.0000	26.5000	24.2500	20.1000
9/25/2017	12.5500	9.6000	8.2000	18.3000	22.8000	22.6500	19.0000	21.2000	23.9000	26.4000	24.1500	20.0000
9/26/2017	12.5000	9.5500	8.1500	18.2000	22.7000	22.5500	18.9000	21.1000	23.8000	26.3000	24.0500	19.9000
9/27/2017	12.6000	9.6500	8.2500	18.3500	22.9000	22.7500	19.0500	21.2500	24.0000	26.5000	24.2000	20.0500
9/28/2017	12.3500	9.4000	8.0000	18.0000	22.5000	22.4000	18.7500	20.9500	23.6000	26.1000	23.8500	19.7500
9/29/2017	12.2500	9.3000	7.9000	17.8500	22.3000	22.2500	18.6000	20.8000	23.4500	26.0000	23.7500	19.6500
<b>Average LL</b>	14.89	10.86	8.86	14.65	20.65	20.20	21.82	24.36	26.91	28.15	26.41	23.17

Mid-Columbia Heavy Load and Light Load Daily Forward Curves  
April 2016 - March 2017

Idaho Power/102  
Blackwell/6

<b>Mid-C LL</b>	<b>Apr-19</b>	<b>May-19</b>	<b>Jun-19</b>	<b>Jul-19</b>	<b>Aug-19</b>	<b>Sep-19</b>	<b>Oct-19</b>	<b>Nov-19</b>	<b>Dec-19</b>	<b>Jan-20</b>	<b>Feb-20</b>	<b>Mar-20</b>
<b>Max LL</b>	19.25	14.95	12.90	18.55	24.45	23.55	25.85	28.95	31.75	33.60	31.75	28.50
<b>Min LL</b>	12.25	8.85	6.60	11.00	17.75	17.20	18.60	20.80	23.45	24.75	22.85	18.75
<b>Spread</b>	7.00	6.10	6.30	7.55	6.70	6.35	7.25	8.15	8.30	8.85	8.90	9.75

Idaho Power/103  
Witness: Nicole A. Blackwell

BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Nicole A. Blackwell

Producer Price Index for Electric Power

October 31, 2017



**Mnemonic:** FXPPIFU4.US  
**Description:** PPI: Electric Power - Total, (Index 1982=100, NSA) for United States  
**Source:** U.S. Bureau of Labor Statistics (BLS); Moody's Analytics (ECCA) Forecast  
**Native Frequency:** QUARTERLY  
**Geography:** United States

2011Q1	184.0333
2011Q2	188.1667
2011Q3	195.4000
2011Q4	187.9333
2012Q1	185.8333
2012Q2	188.8333
2012Q3	196.8667
2012Q4	190.4000
2013Q1	189.1667
2013Q2	193.1667
2013Q3	199.3000
2013Q4	191.7667
2014Q1	195.7333
2014Q2	200.8333
2014Q3	208.3000
2014Q4	199.0000
2015Q1	200.8333
2015Q2	203.5667
2015Q3	212.0333
2015Q4	199.3000
2016Q1	196.3667
2016Q2	199.7667
2016Q3	209.5667
2016Q4	200.0333
2017Q1	205.5667
2017Q2	211.4000
2017Q3	220.0819
2017Q4	211.0717
2018Q1	212.0997
2018Q2	217.5345
2018Q3	226.0587
2018Q4	216.8345
2019Q1	218.1927
2019Q2	224.3998
2019Q3	233.7977
2019Q4	224.6098
2020Q1	226.0679
2020Q2	232.2291
2020Q3	241.4282
2020Q4	231.4004
2021Q1	232.4440
2021Q2	238.5523
2021Q3	248.0314
2021Q4	237.9294

Idaho Power/104  
Witness: Nicole A. Blackwell

BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Nicole A. Blackwell

Idaho Power Company's Forward Price Curves Discounted for Inflation  
Used to Re-Price Purchased Power  
and Surplus Sales for the October Update

October 31, 2017

**IDAHO POWER COMPANY**  
**Mid-C Forward Price Curves Discounted for Inflation**  
**Used to Re-Price Purchased Power and Surplus Sales for the October Update (UE 195 Settlement Methodology)**

<u>Line No.</u>		<b>Apr-19</b>	<b>May-19</b>	<b>Jun-19</b>	<b>Jul-19</b>	<b>Aug-19</b>	<b>Sep-19</b>	<b>Oct-19</b>	<b>Nov-19</b>	<b>Dec-19</b>	<b>Jan-20</b>	<b>Feb-20</b>	<b>Mar-20</b>
1	<b>Forward Curve Prices</b>												
2	Relevant Quarter	2019 Q2	2019 Q2	2019 Q2	2019 Q3	2019 Q3	2019 Q3	2019 Q4	2019 Q4	2019 Q4	2020 Q1	2020 Q1	2020 Q1
3	Deflator	2.2440	2.2440	2.2440	2.3380	2.3380	2.3380	2.2461	2.2461	2.2461	2.2607	2.2607	2.2607
4	<b>Water Year</b>	<b>Apr-18</b>	<b>May-18</b>	<b>Jun-18</b>	<b>Jul-18</b>	<b>Aug-18</b>	<b>Sep-18</b>	<b>Oct-18</b>	<b>Nov-18</b>	<b>Dec-18</b>	<b>Jan-19</b>	<b>Feb-19</b>	<b>Mar-19</b>
5	Relevant Quarter	2018 Q2	2018 Q2	2018 Q2	2018 Q3	2018 Q3	2018 Q3	2018 Q4	2018 Q4	2018 Q4	2019 Q1	2019 Q1	2019 Q1
6	Inflator	2.1753	2.1753	2.1753	2.2606	2.2606	2.2606	2.1683	2.1683	2.1683	2.1819	2.1819	2.1819
7	<b>Average Prices</b>	<b>Apr-19</b>	<b>May-19</b>	<b>Jun-19</b>	<b>Jul-19</b>	<b>Aug-19</b>	<b>Sep-19</b>	<b>Oct-19</b>	<b>Nov-19</b>	<b>Dec-19</b>	<b>Jan-20</b>	<b>Feb-20</b>	<b>Mar-20</b>
8	Mid-C HL	19.86	19.10	19.15	28.05	31.90	28.36	24.47	27.11	31.05	31.28	28.41	24.89
9	Mid-C LL	14.89	10.86	8.86	14.65	20.65	20.20	21.82	24.36	26.91	28.15	26.41	23.17
10	<b>Inflation Adjusted</b>	<b>Apr-18</b>	<b>May-18</b>	<b>Jun-18</b>	<b>Jul-18</b>	<b>Aug-18</b>	<b>Sep-18</b>	<b>Oct-18</b>	<b>Nov-18</b>	<b>Dec-18</b>	<b>Jan-19</b>	<b>Feb-19</b>	<b>Mar-19</b>
11	Mid-C HL	19.25	18.52	18.56	27.13	30.84	27.42	23.62	26.17	29.98	30.19	27.42	24.02
12	Mid-C LL	14.44	10.52	8.59	14.17	19.97	19.54	21.07	23.51	25.98	27.17	25.49	22.37
13	<b>Difference</b>	<b>Apr-19</b>	<b>May-19</b>	<b>Jun-19</b>	<b>Jul-19</b>	<b>Aug-19</b>	<b>Sep-19</b>	<b>Oct-19</b>	<b>Nov-19</b>	<b>Dec-19</b>	<b>Jan-20</b>	<b>Feb-20</b>	<b>Mar-20</b>
14	Mid-C HL	0.61	0.58	0.59	0.93	1.06	0.94	0.85	0.94	1.07	1.09	0.99	0.87
15	Mid-C LL	0.46	0.33	0.27	0.48	0.68	0.67	0.76	0.84	0.93	0.98	0.92	0.81
16	<b>Reallocated Prices</b>	<b>Apr-18</b>	<b>May-18</b>	<b>Jun-18</b>	<b>Jul-18</b>	<b>Aug-18</b>	<b>Sep-18</b>	<b>Oct-18</b>	<b>Nov-18</b>	<b>Dec-18</b>	<b>Jan-19</b>	<b>Feb-19</b>	<b>Mar-19</b>
17	<b>HL Purchased Power</b>												
18	103.9%	20.00	19.24	19.28	28.18	32.04	28.49	24.54	27.19	31.15	31.37	28.49	24.96
19	<b>LL Purchased Power</b>												
20	107.1%	15.46	11.27	9.20	15.17	21.39	20.92	22.56	25.18	27.82	29.10	27.30	23.95
21	<b>HL Surplus Sales</b>												
22	96.4%	18.56	17.85	17.89	26.15	29.73	26.43	22.77	25.23	28.90	29.11	26.43	23.16
23	<b>LL Surplus Sales</b>												
24	93.4%	13.49	9.83	8.02	13.23	18.65	18.25	19.68	21.96	24.26	25.38	23.81	20.89

Idaho Power/105  
Witness: Nicole A. Blackwell

BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Nicole A. Blackwell

Idaho Power Company's Power Supply Expenses for April 1, 2018 – March 31, 2019  
(Multiple Gas Prices – 89 Water Year Conditions)

October 31, 2017

**IPCO POWER SUPPLY EXPENSES FOR APRIL 1, 2018 – MARCH 31, 2019 (Multiple Gas Prices/89 Hydro Year Conditions)**  
**Re-priced Using UE 195 Settlement Methodology - 2018 October Update**  
**AVERAGE**

<u>Line No.</u>		<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>	<u>January</u>	<u>February</u>	<u>March</u>	<u>Annual</u>
1	Hydroelectric Generation (MWh)	885,182.1	952,651.2	917,349.3	699,905.3	480,006.8	561,102.5	543,922.8	458,232.2	676,610.9	758,719.4	838,774.5	857,895.4	8,630,352.4
	Bridger													
2	Energy (MWh)	12,053.1	8,007.8	58,468.1	226,618.4	275,862.2	97,600.0	72,872.7	104,608.2	156,285.1	133,551.2	87,253.5	67,353.4	1,300,533.7
3	Expense (\$ x 1000)	\$ 683.3	\$ 537.3	\$ 2,341.7	\$ 8,219.7	\$ 9,919.0	\$ 3,705.9	\$ 2,887.3	\$ 4,007.7	\$ 5,831.3	\$ 4,838.4	\$ 3,259.7	\$ 2,591.1	\$ 48,822.4
	Boardman													
4	Energy (MWh)	7,362.4	6,723.3	14,975.3	33,087.6	38,238.4	25,855.3	21,148.3	26,635.3	28,786.9	22,763.7	13,510.9	12,211.5	251,299.0
5	Expense (\$ x 1000)	\$ 235.0	\$ 218.0	\$ 449.4	\$ 957.2	\$ 1,102.2	\$ 756.2	\$ 626.2	\$ 777.4	\$ 838.0	\$ 710.0	\$ 433.7	\$ 396.1	\$ 7,499.4
	Valmy													
6	Energy (MWh)	9,263.2	7,727.8	26,565.7	83,948.0	112,300.7	46,892.0	34,255.6	49,123.1	59,293.1	47,908.1	27,832.6	24,799.5	529,909.3
7	Expense (\$ x 1000)	\$ 678.9	\$ 627.0	\$ 1,228.2	\$ 3,011.2	\$ 3,891.4	\$ 1,871.3	\$ 1,480.9	\$ 1,940.6	\$ 2,256.3	\$ 1,894.7	\$ 1,263.6	\$ 1,153.5	\$ 21,297.8
	Langley Gulch													
8	Energy (MWh)	178,162.3	186,452.0	185,677.3	198,549.6	199,045.6	194,474.6	197,157.3	193,209.2	198,311.3	198,599.1	168,657.1	177,491.9	2,275,787.3
9	Expense (\$ x 1000)	\$ 2,866.7	\$ 2,933.5	\$ 2,940.6	\$ 3,628.9	\$ 3,635.1	\$ 3,492.9	\$ 3,515.3	\$ 4,165.7	\$ 4,867.8	\$ 4,703.6	\$ 3,661.3	\$ 3,701.7	\$ 44,113.1
	Danskin													
10	Energy (MWh)	7,591.1	10,381.6	53,286.2	94,524.7	118,678.9	68,562.9	50,471.0	23,086.6	8,791.9	4,425.6	5,886.5	2,251.0	447,938.1
11	Expense (\$ x 1000)	\$ 191.1	\$ 270.7	\$ 1,453.9	\$ 2,825.4	\$ 3,533.5	\$ 1,932.7	\$ 1,390.7	\$ 675.0	\$ 295.9	\$ 165.0	\$ 213.2	\$ 78.8	\$ 13,025.9
	Bennett Mountain													
12	Energy (MWh)	2,840.9	3,050.1	31,950.7	61,247.8	79,612.5	42,357.0	29,833.2	10,180.9	4,577.0	1,530.8	3,362.1	773.0	271,316.1
13	Expense (\$ x 1000)	\$ 72.6	\$ 79.5	\$ 881.1	\$ 1,804.0	\$ 2,308.5	\$ 1,186.3	\$ 815.1	\$ 288.7	\$ 158.0	\$ 61.7	\$ 127.5	\$ 27.3	\$ 7,810.3
14	Fixed Capacity Charge - Gas Transportation (\$ x 1000)	\$ 695.1	\$ 717.9	\$ 716.1	\$ 739.6	\$ 739.6	\$ 716.1	\$ 713.4	\$ 690.8	\$ 713.4	\$ 712.0	\$ 644.1	\$ 712.0	\$ 8,509.8
	Purchased Power (Excluding CSPP)													
15	Market Energy (MWh)	9,041.2	9,683.3	57,344.2	60,814.4	72,455.9	28,774.1	17,519.2	73,868.3	45,079.3	76,370.9	11,516.0	12,935.2	475,402.0
16	Elkhorn Wind Energy (MWh)	26,520.8	25,525.8	24,790.8	26,601.0	23,943.0	21,200.4	22,027.8	30,132.4	29,442.4	24,406.6	24,037.6	26,788.0	305,416.3
17	Neal Hot Springs Energy (MWh)	14,315.7	11,493.2	10,545.1	8,775.0	9,512.8	11,769.1	12,824.2	16,268.0	18,722.7	17,961.6	16,403.0	16,710.6	165,309.9
18	Raft River Geothermal Energy (MWh)	6,436.3	5,156.4	5,315.6	5,768.1	5,254.4	5,967.1	6,353.2	6,873.5	7,236.1	7,122.3	6,304.8	6,671.6	74,459.3
19	Total Energy Excl. CSPP (MWh)	56,313.9	51,857.7	97,995.6	101,958.4	111,166.1	67,710.7	58,724.4	127,142.1	100,480.4	125,861.4	58,261.4	63,105.4	1,020,578.5
20	Market Expense (\$ x 1000)	\$ 166.2	\$ 158.7	\$ 899.1	\$ 1,431.1	\$ 2,045.6	\$ 742.0	\$ 417.6	\$ 1,955.6	\$ 1,350.5	\$ 2,333.9	\$ 323.2	\$ 318.2	\$ 12,141.6
21	Elkhorn Wind Expense (\$ x 1000)	\$ 1,217.0	\$ 1,171.4	\$ 1,547.7	\$ 1,992.7	\$ 1,793.6	\$ 1,323.5	\$ 1,375.2	\$ 2,257.2	\$ 2,205.5	\$ 1,569.3	\$ 1,545.6	\$ 1,266.0	\$ 19,264.8
22	Neal Hot Springs Expense (\$ x 1000)	\$ 1,201.4	\$ 964.5	\$ 1,207.3	\$ 1,205.5	\$ 1,306.9	\$ 1,347.4	\$ 1,468.2	\$ 2,234.9	\$ 2,572.1	\$ 2,091.6	\$ 1,910.1	\$ 1,426.4	\$ 18,936.4
23	Raft River Geothermal Expense (\$ x 1000)	\$ 312.2	\$ 250.1	\$ 350.8	\$ 456.8	\$ 416.1	\$ 393.8	\$ 419.2	\$ 544.3	\$ 573.0	\$ 479.9	\$ 424.8	\$ 330.4	\$ 4,951.3
24	Total Expense Excl. CSPP (\$ x 1000)	\$ 2,896.7	\$ 2,544.7	\$ 4,004.9	\$ 5,086.0	\$ 5,562.2	\$ 3,806.7	\$ 3,680.2	\$ 6,992.0	\$ 6,701.2	\$ 6,474.7	\$ 4,203.7	\$ 3,341.0	\$ 55,294.2
	Surplus Sales													
25	Energy (MWh)	315,245.4	247,863.7	103,441.7	23,787.7	13,429.6	56,525.8	79,933.8	8,054.7	50,036.9	54,847.1	196,075.1	242,923.9	1,392,165.4
26	Revenue Including Transmission Costs (\$ x 1000)	\$ 5,253.5	\$ 3,682.7	\$ 1,470.0	\$ 507.4	\$ 343.8	\$ 1,321.6	\$ 1,727.9	\$ 193.4	\$ 1,359.5	\$ 1,520.1	\$ 4,990.4	\$ 5,420.2	\$ 27,790.5
27	Transmission Costs (\$ x 1000)	\$ 315.2	\$ 247.9	\$ 103.4	\$ 23.8	\$ 13.4	\$ 56.5	\$ 79.9	\$ 8.1	\$ 50.0	\$ 54.8	\$ 196.1	\$ 242.9	\$ 1,392.2
28	Revenue Excluding Transmission Costs (\$ x 1000)	\$ 4,938.3	\$ 3,434.8	\$ 1,366.6	\$ 483.6	\$ 330.3	\$ 1,265.1	\$ 1,647.9	\$ 185.3	\$ 1,309.5	\$ 1,465.3	\$ 4,794.3	\$ 5,177.3	\$ 26,398.3
29	Net Power Supply Expenses (\$ x 1000)	\$ 3,381.2	\$ 4,493.8	\$ 12,649.3	\$ 25,788.3	\$ 30,361.2	\$ 16,203.1	\$ 13,461.3	\$ 19,352.6	\$ 20,352.3	\$ 18,094.9	\$ 9,012.5	\$ 6,824.2	\$ <b>179,974.7</b>
30	PURPA (\$ x 1000)	\$ 25,654.1	\$ 23,655.6	\$ 18,171.9	\$ 15,587.7	\$ 17,898.9	\$ 17,887.8	\$ 11,853.5	\$ 14,314.1	\$ 13,255.9	\$ 17,582.1	\$ 19,584.5	\$ 21,761.0	\$ 217,207.2
31	Total Net Power Supply Expenses (\$ x 1000)	\$ 29,035.3	\$ 28,149.4	\$ 30,821.3	\$ 41,376.0	\$ 48,260.1	\$ 34,090.8	\$ 25,314.8	\$ 33,666.8	\$ 33,608.2	\$ 35,677.0	\$ 28,597.0	\$ 28,585.2	\$ <b>397,181.9</b>
32	Sales at Customer Level (In 000s MWh)	1,046.856	1,088.531	1,253.529	1,518.425	1,587.884	1,443.479	1,134.623	1,056.620	1,182.173	1,295.156	1,231.836	1,123.754	14,962.866
33	Hours in Month	720	744	720	744	744	720	744	721	744	744	672	743	8760
34	Unit Cost / MWh (for PCAM)	\$27.74	\$25.86	\$24.59	\$27.25	\$30.39	\$23.62	\$22.31	\$31.86	\$28.43	\$27.55	\$23.21	\$25.44	\$ <b>26.54</b>
	<b>Prices Used in Purchased Power &amp; Surplus Sales Above:</b>													
	<b>Heavy Load</b>													
35	Portion of Purchased Power considered HL Purchases	<b>64.25%</b>	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%
36	Purchased Power HL Price	<b>\$20.00</b>	\$19.24	\$19.28	\$28.18	\$32.04	\$28.49	\$24.54	\$27.19	\$31.15	\$31.37	\$28.49	\$24.96	
37	Portion of Surplus Sales considered HL Surplus Sales	<b>62.70%</b>	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%
38	Surplus Sales HL Price	<b>\$18.56</b>	\$17.85	\$17.89	\$26.15	\$29.73	\$26.43	\$22.77	\$25.23	\$28.90	\$29.11	\$26.43	\$23.16	
	<b>Light Load</b>													
39	Portion of Purchased Power considered LL Purchases	<b>35.75%</b>	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%
40	Purchased Power LL Price	<b>\$15.46</b>	\$11.27	\$9.20	\$15.17	\$21.39	\$20.92	\$22.56	\$25.18	\$27.82	\$29.10	\$27.30	\$23.95	
41	Portion of Surplus Sales considered LL Surplus Sales	<b>37.30%</b>	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%
42	Surplus Sales LL Price	<b>\$13.49</b>	\$9.83	\$8.02	\$13.23	\$18.65	\$18.25	\$19.68	\$21.96	\$24.26	\$25.38	\$23.81	\$20.89	

Idaho Power/106  
Witness: Nicole A. Blackwell

BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Nicole A. Blackwell  
Idaho Power Company's Energy Imbalance Market Costs and Benefits

October 31, 2017

**Idaho Power Company  
2018 October Update  
EIM Costs & Benefits**

**2018 Calendar Year Revenue Requirement**

Capital Investment	\$219,921
ADIT	(\$33,245)
Accumulated Depreciation	(\$1,729)
Amortization of Other Plant	(\$23,176)
Net Rate Base	\$161,771
<b>Return on Rate Base</b>	<b>\$12,549</b>
O&M (On-going)	\$45,111
Depreciation	\$24,905
Taxes	(\$32,918)
<b>Total Operating Expenses</b>	<b>\$37,098</b>
Net-to-Gross Tax Multiplier	1.642
<b>Total Revenue Requirement</b>	<b>\$81,520</b>

**EIM Benefits**

<b>Oregon Allocated EIM Benefits</b>	<b>(\$81,520)</b>
<b>Impact to NPSE</b>	<b>\$0</b>

Idaho Power/107  
Witness: Nicole A. Blackwell

BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Nicole A. Blackwell  
Year-Over-Year Differences in Modeled Power Supply Expenses

October 31, 2017



**IDAHO POWER COMPANY  
YEAR OVER YEAR DIFFERENCES IN AURORA DEVELOPED NPSE  
2018 OCTOBER UPDATE**

<b>AURORA DEVELOPED NPSE RESULTS BEFORE MARKET ENERGY RE-PRICING</b>			<b>REPRICED USING FORWARD MARKET PRICES</b>					<b>DIFFERENCES</b>				
<b>GENERATION</b>			<b>GENERATION</b>					<b>GENERATION</b>				
Line No.	Resource Type	A 2017 October Update	B 2018 October Update	Resource Type	C 2017 October Update	D 2018 October Update	E 2018 October Update	F	G (B-A)	H (E-C)	I (C-A)	J (E-B)
1	Hydro (MWh)	8,650,907	8,630,352	Hydro (MWh)	8,650,907	54%	8,630,352	53%	(20,555)	(20,555)	-	-
2	Coal (MWh)	2,531,291	2,081,742	Coal (MWh)	2,531,291	16%	2,081,742	13%	(449,549)	(449,549)	-	-
3	Natural Gas (MWh)	2,536,761	2,995,041	Natural Gas (MWh)	2,536,761	16%	2,995,041	18%	458,280	458,280	-	-
	Purchased Power & Purchased			Purchased Power & Purchased								
4	Power Agreements (MWh)	1,098,264	1,020,579	Power Agreements (MWh)	1,098,264	7%	1,020,579	6%	(77,686)	(77,686)	-	-
5	PURPA (MWh)	3,079,464	2,905,539	PURPA (MWh)	3,079,464	19%	2,905,539	18%	(173,925)	(173,925)	-	-
6	Surplus Sales (MWh)	1,979,961	1,392,165	Surplus Sales (MWh)	1,979,961	12%	1,392,165	9%	(587,795)	(587,795)	-	-
7	System Load (MWh)	15,916,727	16,241,088	System Load (MWh)	15,916,727	100%	16,241,088	100%	324,362	324,362	-	-
8	System Load (aMW)	1,812	1,854	System Load (aMW)	1,812		1,854		37	37	-	-
	<b>NET POWER SUPPLY EXPENSES</b>			<b>NET POWER SUPPLY EXPENSES</b>								
	<b>Resource Type</b>	<b>A</b>	<b>B</b>	<b>Resource Type</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>
		2017 October Update	2018 October Update		2017 October Update	2018 October Update	2018 October Update		(B-A)	(E-C)	(C-A)	(E-B)
9	Hydro (\$ x 1000)	\$ -	\$ -	Hydro (\$ x 1000)	\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -
10	Coal (\$ x 1000)	\$ 85,387.6	\$ 77,619.6	Coal (\$ x 1000)	\$ 85,387.6	22%	\$ 77,619.6	20%	\$ (7,767.9)	\$ (7,767.9)	\$ -	\$ -
11	Natural Gas (\$ x 1000)	\$ 63,886.4	\$ 73,459.2	Natural Gas (\$ x 1000)	\$ 63,886.4	17%	\$ 73,459.2	18%	\$ 9,572.8	\$ 9,572.8	\$ -	\$ -
	Purchased Power & Purchased			Purchased Power & Purchased								
12	Power Agreements (\$ x 1000)	\$ 57,975.9	\$ 58,906.0	Power Agreements (\$ x 1000)	\$ 56,875.4	15%	\$ 55,294.2	14%	\$ 930.1	\$ (1,581.2)	\$ (1,100.5)	\$ (3,611.8)
13	PURPA (\$ x 1000)	\$ 218,076.1	\$ 217,207.2	PURPA (\$ x 1000)	\$ 218,076.1	57%	\$ 217,207.2	55%	\$ (868.9)	\$ (868.9)	\$ -	\$ -
14	Surplus Sales (\$ x 1000)	\$ (49,088.6)	\$ (31,329.9)	Surplus Sales (\$ x 1000)	\$ (42,157.7)	-11%	\$ (26,398.3)	-7%	\$ 17,758.7	\$ 15,759.4	\$ 6,930.9	\$ 4,931.6
16	<b>Total System (\$ x 1000)</b>	<b>\$ 376,237.3</b>	<b>\$ 395,862.1</b>	<b>Total System (\$ x 1000)</b>	<b>\$ 382,067.7</b>	<b>100%</b>	<b>\$ 397,181.9</b>	<b>100%</b>	<b>\$ 19,624.8</b>	<b>\$ 15,114.2</b>	<b>\$ 5,830.4</b>	<b>\$ 1,319.8</b>

Idaho Power/108  
Witness: Nicole A. Blackwell

BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Nicole A. Blackwell  
Idaho Power Company's Rate Spread for APCU October Update

October 31, 2017

**Idaho Power Company  
Revenue Spread Exhibit for 2018 APCU October Update  
Stipulated Revenue Spread (UE 314)**

Line No.

1	2018 October Update Oregon Jurisdictional Share of Base NPSE = \$26.54/MWh x 699,655,310 MWhs =	\$18,568,852
2	Base NPSE Recovered under Current APCU Rates	\$18,208,743
3	2018 October Update Incremental Base NPSE	\$360,109
4	Oregon Allocated EIM Costs	\$81,520
5	Oregon Allocated EIM Benefits	(\$81,520)
6	<b>Proposed October Update APCU Revenue Requirement</b>	<b>\$360,109</b>

	TOTAL SYSTEM	RESIDENTIAL (1)	GEN SRV (7)	GEN SRV SECONDARY (9-S)	GEN SRV PRIMARY (9-P)	GEN SRV TRANS (9-T)	AREA LIGHTING (18)	LG POWER PRIMARY (19-P)	LG POWER TRANS (19-T)	IRRIGATION SECONDARY (24-S)	UNMETERED GEN SERVICE (40)	MUNICIPAL ST LIGHT (41)	TRAFFIC CONTROL (42)	
7	April 2018 - March 2019 Generation Level Normalized Sales (kWh)	754,047,456	210,599,086	21,029,056	131,927,444	17,659,314	2,703,004	479,376	186,547,943	110,687,576	71,389,143	5,904	995,568	24,042
8	Class Share of April 2018 - March 2019 Generation Level Normalized Sales (kWh)	100%	27.93%	2.79%	17.50%	2.34%	0.36%	0.06%	24.74%	14.68%	9.47%	0.00%	0.13%	0.00%
9	2018 October Update Class Allocated Base NPSE	\$ 360,109	\$ 100,575	\$ 10,043	\$ 63,004	\$ 8,434	\$ 1,291	\$ 229	\$ 89,089	\$ 52,861	\$ 34,093	\$ 3	\$ 475	\$ 11
10	June 2018 - May 2019 Loss-Adjusted Normalized Sales (kWh)	701,192,978	192,406,240	19,194,238	120,419,625	16,650,440	2,614,124	437,387	176,139,627	107,221,928	65,173,680	5,388	908,365	21,936
11	Proposed APCU Rates for 2018 October Update (\$/kWh)	0.00051	0.00052	0.00052	0.00052	0.00051	0.00049	0.00052	0.00051	0.00049	0.00052	0.00052	0.00052	0.00052
12	<b>Proposed October Update APCU Revenue Requirement</b>	<b>\$360,109</b>	<b>\$100,575</b>	<b>\$10,043</b>	<b>\$63,004</b>	<b>\$8,434</b>	<b>\$1,291</b>	<b>\$229</b>	<b>\$89,089</b>	<b>\$52,861</b>	<b>\$34,093</b>	<b>\$3</b>	<b>\$475</b>	<b>\$11</b>
13	APCU Rates for 2017 October Update - Order No. 17-165	25.979	31.101	25.408	25.878	23.452	26.369	22.645	24.906	19.884	24.793	60.766	17.563	18.916
14	June 2018 - May 2019 Loss-Adjusted Normalized Sales (kWh)	701,192,978	192,406,240	19,194,238	120,419,625	16,650,440	2,614,124	437,387	176,139,627	107,221,928	65,173,680	5,388	908,365	21,936
15	Base NPSE Recovered under Current APCU Rates	\$18,208,743	\$5,983,952	\$487,681	\$3,116,276	\$390,486	\$68,933	\$9,905	\$4,386,963	\$2,132,006	\$1,615,845	\$327	\$15,954	\$415

Idaho Power/109  
Witness: Nicole A. Blackwell

BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Nicole A. Blackwell

Idaho Power Company's Current Base Revenue to  
Proposed Base Revenue

October 31, 2017

Idaho Power Company  
Calculation of Revenue Impact  
State of Oregon  
APCU October Update  
Effective June 1, 2018

Summary of Revenue Impact  
Current Base Revenue to Proposed Base Revenue

Line No.	Tariff Description	Rate Sch. No.	Average Number of Customers	Normalized Energy (kWh)	Current Base Revenue	Proposed Adjustments to Base Revenue	Proposed Base Revenue	Percent Change Base to Base Revenue
<u>Uniform Tariff Rates:</u>								
1	Residential Service	1	13,844	192,406,240	\$19,177,233	\$100,575	\$19,277,808	0.52%
2	Small General Service	7	2,577	19,194,238	\$2,017,560	\$10,043	\$2,027,603	0.50%
3	Large General Service	9	940	139,684,189	\$10,759,008	\$72,729	\$10,831,736	0.68%
4	Dusk to Dawn Lighting	15	0	437,388	\$109,540	\$229	\$109,769	0.21%
5	Large Power Service	19	7	283,361,555	\$17,081,924	\$141,950	\$17,223,874	0.83%
6	Agricultural Irrigation Service	24	1,977	65,173,679	\$6,357,658	\$34,093	\$6,391,751	0.54%
7	Unmetered General Service	40	2	5,388	\$544	\$3	\$547	0.52%
8	Street Lighting	41	26	908,365	\$142,943	\$475	\$143,419	0.33%
9	Traffic Control Lighting	42	8	21,936	\$2,061	\$11	\$2,073	0.56%
10	Total Uniform Tariffs		19,381	701,192,978	\$55,648,472	\$360,109	\$56,008,581	0.65%
11	Total Oregon Retail Sales		19,381	701,192,978	\$55,648,472	\$360,109	\$56,008,581	0.65%

(1) Updated June 2018-May 2019 Test Year