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October 21, 2014

VIA ELECTRONIC AND U.S. MAIL

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

Re: UE ___ In The Matter of IDAHO POWER COMPANY's 2015 Annual Power Cost Update

Attention Filing Center:

Enclosed for filing in the above-referenced matter are an original and five copies of the Testimony of Scott Wright (Idaho Power/100-108). Please direct all communications in this matter to:

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A copy of this filing has been served on all parties to the 2014 APCU (UE 279). Please contact this office with any questions.

Very truly yours,

Wendy McIndoo
Office Manager

Enclosures
cc: 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 ___ 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 21, 2014



Wendy McIndoo
Office Manager

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

UE ____

IN THE MATTER OF IDAHO POWER)
COMPANY'S 2015 ANNUAL POWER)
COST UPDATE)
OCTOBER UPDATE)
_____)

IDAHO POWER COMPANY
DIRECT TESTIMONY
OF
SCOTT WRIGHT

October 21, 2014

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

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

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

6 A. I received a Bachelor of Science degree in Business Economics from Eastern
7 Oregon University. I have also attended the Center for Public Utilities “Practical
8 Skills for a Changing Electric Industry” course at New Mexico State University in
9 Albuquerque, New Mexico, the Edison Electric Institute “Electric Rate Advanced
10 Course” in Madison, Wisconsin, the NERA “Marginal Costing for Electric Utilities
11 Course” in Los Angeles, California and the Financial Accounting Institute “Utility
12 Finance and Accounting Course” in Las Vegas, Nevada.

13 **Q. Please describe your work experience.**

14 A. In May 1998, I accepted a position as Research Assistant with Idaho Power in the
15 Regulatory Affairs Department. In March 2007, I was promoted to a Regulatory
16 Analyst I. In March 2010, I was promoted to a Regulatory Analyst II. As a
17 Regulatory Analyst II, I am responsible for running the AURORA model to calculate
18 net power supply expenses (“NPSE”) for ratemaking purposes, as well as the
19 determination of the marginal cost of energy used in the Company’s marginal cost
20 analyses. My duties also include providing analytical support for other regulatory
21 activities within the Regulatory Affairs Department. In my current role, I have served
22 as the Company’s power supply expense witness in the last six Annual Power Cost
23 Update (“APCU”) filings before the Public Utility Commission of Oregon
24 (“Commission”), UE 203, UE 214, UE 222, UE 242, UE 257, and UE 279.

25 **Q. What is the purpose of your testimony?**

26

1 A. The purpose of my testimony is to describe the Company's October Update for the
2 2015 APCU, which has been prepared in accordance with Order No. 08-238.

3 **Q. What is the October Update?**

4 A. The October Update is the Company's estimate of what "normal" NPSE will be for an
5 upcoming 12-month test year. In this case, the 12-month test year is April 2015
6 through March 2016.

7 **Q. Was the AURORA model used for this October Update?**

8 A. Yes.

9 **Q. Please describe the AURORA model and how it is used by the Company.**

10 A. The AURORA model is a comprehensive electric market resource dispatch model.
11 For the October Update, the Company uses AURORA to simulate the economic
12 dispatch of its resources to determine NPSE under "normal" conditions.

13 **Q. Please describe the variables that are to be updated in the AURORA model as
14 delineated in Order No. 08-238.**

15 A. Order No. 08-238 identifies a number of variables to be updated in the AURORA
16 model annually in October: fuel prices, transportation costs, maintenance rates, heat
17 rates, and forced outage rates for the thermal plants. This year's NPSE modeling
18 results for the 12-month test year reflect updates to the variables listed above for all
19 Company-owned resources, as well as an updated Sales and Load Forecast.

20 Natural gas prices were updated using the forecast methodology used in prior
21 APCU filings. This methodology uses the Northwest Power and Conservation
22 Council (NPCC), New York Mercantile Exchange (NYMEX), Natural Gas Exchange
23 (NGX), Energy Information Administration (EIA), and Moody's forecast data to
24 develop a normalized gas price. The normalization process is intended to reduce
25 volatility that may occur in the short-term market.
26

1 Public Utility Regulatory Policies Act of 1978 (“PURPA”) contracts and other
2 Purchased Power Agreements (“PPA”) were updated to reflect expected generation
3 and costs during the April 2015 through March 2016 test year.

4 **Q. Have you prepared an exhibit to demonstrate the normalization of variable**
5 **power supply expenses as determined by the AURORA modeling process?**

6 A. Yes. Exhibit 101 shows the results of the AURORA modeling determination of
7 normalized NPSE for the April 2015 through March 2016 test year. Exhibit 101
8 shows the summary of results containing average variable power supply generation
9 sources and expenses based on 86 historical water conditions.

10 **Q. Please summarize the sources and disposition of energy shown on Exhibit**
11 **101.**

12 A. As can be seen on Exhibit 101, hydro generation supplies 8.7 million megawatt-
13 hours (“MWh”), approximately 49 percent (8.7 million MWh / 17.9 million MWh = 49
14 percent) of the generation mix. Thermal generation supplies 6.0 million MWh
15 (Bridger 4.2, Boardman 0.3, Valmy 0.4, Langley Gulch 1.1), approximately 33
16 percent (6.0 million MWh / 17.9 million MWh = 33 percent) of the generation mix.
17 Danskin and Bennett Mountain are peaking units typically supplying energy at times
18 when resources and/or transmission lines are constrained. Purchases of power are
19 made up of short-term and longer-term market purchases, PPAs, and PURPA.
20 PURPA purchases reflect normalized and annualized generation levels and account
21 for nearly 2.3 million MWh. PURPA purchases are not included on Exhibit 101;
22 however, when combined with market purchases of 0.9 million MWh, total purchases
23 amount to 3.2 million MWh (2.3 million MWh + 0.9 million MWh = 3.2 million MWh) or
24 approximately 18 percent (3.2 million MWh / 17.9 million MWh = 18 percent) of the
25 generation mix. Of the 17.9 million MWh generated by the system, 15.8 million MWh
26 are utilized for system loads while nearly 2.1 million MWh are sold as surplus.

1 **Q. Have any changes in the variable cost of coal production occurred since last**
2 **year's October Update filing?**

3 A. Yes. The per-unit variable cost of production for each of the Company's coal-fired
4 thermal generation plants have been updated to reflect current operating costs. The
5 per-unit cost of output at the Bridger plant has increased from \$22.70 per MWh to
6 \$26.25 per MWh. The per-unit cost of output at the Boardman plant has increased
7 from \$26.71 per MWh to \$27.57 per MWh. The per-unit cost of output at the Valmy
8 plant has remained relatively unchanged, moving from \$35.58 per MWh to \$35.45
9 per MWh.

10 **Q. Please explain the changes in coal generation costs described above.**

11 A. Fuel costs at the Company's coal plants are expected to vary from year to year in the
12 course of normal operations. These normal variations can be attributed to price
13 variability provided for in existing contracts for coal supply and shipment, plant
14 operational variability, and coal yard operational variability.

15 In addition to the normal variations in coal fuel costs that should be expected
16 from year to year, there were additional factors that contributed to the changes in
17 coal costs at the Bridger plant. The main drivers of increased costs are due to
18 additional roof support to further enhance the safety of Bridger Coal Company
19 miners, and changes in underground mine plans due to coal seam variability, weak
20 geological formations overlying the coal seam, and previously unrecognized faults.
21 Also, the current coal contract with Black Butte will expire before the 2015/2016
22 APCU test period, so new contract provisions based on the recent request for
23 proposal results have been included in this forecast.

24 Similarly the increase in the Boardman plant fuel costs can be attributed to an
25 updated coal price forecast using the provisions of a new contract for low sulfur coal
26 at the Boardman plant.

1 **Q. In light of the upward movement in coal generation costs, how does the**
2 **modeled variable cost of production at Bridger and Boardman compare to**
3 **modeled variable cost of other resources?**

4 A. With the exception of the Company's hydro generation resources, the per unit costs
5 for Bridger and Boardman are still the lowest cost of all the Company's resources,
6 despite the increase in coal costs described above.

7 **Q. Have natural gas prices changed from last year's October Update?**

8 A. Yes. The Henry Hub price used for the 2014 October Update was \$4.32 per MMBtu,
9 while the Henry Hub price used in the 2015 October Update is \$4.07 per MMBtu, a
10 decrease of \$0.25 per MMBtu. The decrease in gas prices between the 2014
11 October Update and the 2015 October Update is the result of a combination of
12 several factors. The first factor is that growth in supply has outpaced the growth in
13 demand, which means natural gas is being produced in excess of usage. The
14 second factor is storage levels have recovered from the previous winter's drawdown
15 due to increased supply and lower summer demand.

16 **Q. Please describe the change in PURPA generation and expenses since last**
17 **year's October filing.**

18 A. PURPA generation has increased from 252 average megawatts ("aMW") to 258
19 aMW, an increase of 6 aMW. Corresponding PURPA expenses have increased from
20 \$165.9 million to \$172.8 million, an increase of \$6.9 million.

21 **Q. What drove the changes in PURPA generation since the 2014 October Update?**

22 A. The change in PURPA generation and expenses since the 2014 October Update
23 was driven by the expiration of two contracts, the termination of one contract, and the
24 addition of six new contracts, resulting in a net increase of 6 aMW. Three of the new
25 projects are hydro, two of the new projects are biomass, and the last new project is
26 solar, which is the first solar PURPA project to be included in an APCU filing.

1 **Q. Have the Company's system loads changed since last year's October Update?**

2 A. Yes. The Company's annual normalized system load used in last year's April 2014
3 through March 2015 filing was 1,780 aMW. The Company's April 2015 through
4 March 2016 annual normalized system load used in this filing is 1,798 aMW, an
5 increase of 18 aMW. The increase of 18 aMW is about a one percent increase in
6 loads between the two test years.

7 **Q. What forward price curve did the Company use to re-price purchased power
8 and surplus sales?**

9 A. For the October Update, the Company used the methodology approved in Order No.
10 08-238. This methodology uses a one-year average of the daily forward price curves
11 for April 2016 through March 2017 shown in Exhibit 102, which is then discounted for
12 inflation back to April 2015 through March 2016 according to the quarterly inflation
13 indices provided in Exhibit 103.

14 **Q. What average forward price curves did the Company use to re-price purchased
15 power and surplus sales for the normalized test year?**

16 A. Exhibit 104 shows the revised monthly prices for April 2015 through March 2016.
17 Per Order No. 08-238, these are considered the "normal" forward prices used to re-
18 price the Company's purchased power and surplus sales estimates for the
19 normalized test year.

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

23 A. Exhibit 101 shows the purchased power expenses and surplus sales revenues
24 before re-pricing as determined by the AURORA modeling process. Exhibit 105
25 shows the same normalized generation dispatch with purchased power and surplus
26 sales re-priced using the normalized forward price curve shown in Exhibit 104. A

1 comparison of Exhibit 101 and Exhibit 105 demonstrates the changes due to re-
2 pricing. Purchased power expenses decrease by \$0.8 million, moving from \$15.0
3 million to \$14.2 million. Surplus sales revenues increase by \$5.5 million, moving
4 from \$56.1 million to \$61.6 million. In this case, the NPSE resulting from the re-
5 pricing methodology shown on Exhibit 105 is a decrease in NPSE of \$6.3 million or
6 approximately \$0.43 per MWh as compared to the AURORA generated expectation
7 shown on Exhibit 101. The difference for the re-pricing of purchased power of \$0.8
8 million and surplus sales of \$5.5 million are shown on Exhibit 106, Columns G and H.

9 **Q. Does the methodology used to estimate the power supply expenses**
10 **represented in Exhibit 105 conform with the methodology detailed in Order No.**
11 **08-238?**

12 A. Yes, it does.

13 **Q. What is the October Update unit cost per megawatt-hour (\$/MWh) represented**
14 **by this filing?**

15 A. Exhibit 105 shows the normalized annual sales at customer level for the April 2015
16 through March 2016 test year are 14,484,458 MWh. Based upon test year sales, the
17 cost per unit for the October Update to become effective on June 1, 2015, is \$23.44
18 per MWh ($\$339.5 \text{ million} / 14.484 \text{ million MWh} = \23.44 per MWh).

19 **Q. How does this \$23.44 per MWh October Update compare to the October Update**
20 **that resulted from last year's computation?**

21 A. The October Update unit cost which became effective June 1, 2014, was \$21.82 per
22 MWh based upon a determination of total net power supply expenses of \$309.6
23 million. This year's October Update per unit cost of \$23.44 per MWh equates to an
24 increase of \$1.62 per MWh ($\$23.44 - 21.82 = \1.62) or a \$29.9 million increase in
25 system net power supply expenses from last year's October Update.
26

1 **Q. Please explain how the Oregon Jurisdictional revenue deficiency for the**
2 **October Update is calculated using the unit cost of \$1.62 per MWh.**

3 A. The revenue deficiency for the October Update is calculated by multiplying the
4 incremental unit cost of \$1.62 per MWh by the sales for the April 2015 through March
5 2016 test period of 653,468.079 MWh. The result of this calculation indicates a need
6 for an additional \$1.1 million from Oregon customers.

7 **Q. What factors led to a revenue deficiency of \$1.1 million?**

8 A. The main factors that led to a revenue deficiency of \$1.1 million for the 2015 October
9 Update can be seen on Exhibit 106, which compares the AURORA developed
10 results, the re-pricing of purchased power and surplus sales, which was described
11 earlier, and the differences between the 2014 October Update and the 2015 October
12 Update.

13 **Q. What are some of the main differences shown on Exhibit 106?**

14 A. Column F of Exhibit 106 shows the following: an increase in coal expenses of \$5.6
15 million associated with a decrease in coal-fired generation; an increase in natural gas
16 expenses of \$8.3 million associated with an increase in gas-fired generation; a
17 decrease in purchased power expense of \$9.9 million associated with a decrease in
18 purchased power; an increase in PURPA expense of \$6.8 million associated with an
19 increase in PURPA generation; and finally a decrease in surplus sales revenue of
20 \$19.1 million associated with a decrease in surplus sales.

21 **Q. What can be concluded from the information included on Exhibit 106?**

22 A. The combination of lower natural gas prices and generally higher coal costs led to
23 higher gas production and lower coal production. The relationship between modeled
24 coal and gas production costs also drove reductions in surplus sales.

25 **Q. Please explain how the relationship between coal and gas decreased surplus**
26 **sales.**

1 A. The AURORA simulation determines hourly market energy prices for the power
2 markets available to Idaho Power. These prices are generally reflective of the
3 dispatch cost of a combined-cycle gas plant in the region. Therefore, as natural gas
4 prices decrease, AURORA modeled market prices decrease. Whenever electric
5 market prices are changed, the economic dispatch of generation resources also
6 changes. In this case lower modeled market prices led to reduced coal productions
7 due to economics. For example, the average cost for Jim Bridger was \$26.25 per
8 MWh, which is very close to the average cost for surplus sales of \$26.97 per MWh.
9 Total coal generation was reduced by approximately 0.4 million MWh from the 2014
10 October Update which is approximately the same amount as the reduced surplus
11 sales energy. It is also worth mentioning that natural gas units have more flexible
12 operating characteristics than coal units, therefore they are dispatched differently.
13 For example, a coal unit might have a minimum down time of 12 hours once it is shut
14 down, while a natural gas unit might have a minimum down time of 6 hours once it is
15 shut down. These types of constraints are used when AURORA dispatches
16 resources. If a coal unit is unavailable, the model will proceed to the next lowest cost
17 resource, which is often the combined-cycle gas unit.

18 **Q. Is there anything else that can be learned from Exhibit 106?**

19 A. Yes. Purchased power expenses and generation decreased because the majority of
20 the system load was served by Company-owned resources at a cost less than the
21 average \$39.72 per MWh for purchased power. Further, as mentioned earlier in my
22 testimony, six new take-or-pay PURPA projects were added at an expense of \$6.8
23 million.

24 **Q. What method of allocation are you proposing to spread the incremental**
25 **revenue requirement associated with the October Update to the various**
26 **customer classes?**

1 A. I am proposing to allocate the revenue deficiency associated with the 2015 October
2 Update according to the revenue spread methodology approved by the Commission
3 in UE 214, Order No. 10-191. Order No. 10-191 established a revenue spread
4 methodology whereby the revenue deficiency for the October Update is allocated to
5 individual customer classes on the basis of the total generation-related revenue
6 requirement approved in the Company's last general rate case. In this instance, the
7 Company's last general rate case, UE 233, was a settled case in which parties did
8 not adopt the Company's class cost-of-service methodology, but rather agreed to a
9 revenue spread methodology that was set forth in Exhibit B to the Partial Stipulation
10 filed on February 1, 2012. In light of the stipulated revenue spread, the Company
11 has utilized the total generation-related revenue requirement detailed on Exhibit B to
12 apportion the October Update revenue requirement to each customer class. The
13 proposed revenue spread resulting from the application of the stipulated
14 methodology in UE 233 is shown on Exhibit 107.

15 **Q. Was the incremental spread of the revenue requirement mentioned above**
16 **approved in prior years' APCU filings?**

17 A. Yes. The Company used this same methodology in UE 242, UE 257, and UE 279.
18 This methodology was approved in Order No. 12-176 on May 18, 2012.

19 **Q. What is the overall revenue impact in percentage terms of this year's October**
20 **Update compared to last year's October Update using the rate spread**
21 **methodology described above?**

22 A. The overall revenue impact of the October Update compared to last year's October
23 Update is a 1.99 percent increase.

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

26

1 A. Yes. Exhibit 108 provides a summary of the revenue change resulting from this
2 year's October Update as compared to current revenue.

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

4 A. Yes, it does.
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Idaho Power/101
Witness: Scott Wright

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Scott Wright
Idaho Power Company's Power Supply Expenses for April 1, 2015 – March 31, 2016
Normalized Loads Over 86 Water Year Conditions

October 21, 2014

IPCO POWER SUPPLY EXPENSES FOR APRIL 1, 2015 -- MARCH 31, 2016 (Multiple Gas Prices/86 Years of Hydro Conditions)
Repriced Using UE 195 Settlement Methodology - October Update
AVERAGE

	<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>
Hydroelectric Generation (MWh)	877,619.0	934,569.6	916,572.2	700,293.3	525,815.1	546,256.7	552,023.8	468,759.2	676,090.4	758,485.7	861,193.1	856,357.8	8,674,036.0
Bridger													
Energy (MWh)	205,912.7	214,679.7	302,141.3	441,125.9	449,676.9	310,051.8	293,377.1	372,611.2	448,779.5	398,848.6	349,407.7	380,148.1	4,166,760.5
Expense (\$ x 1000)	\$ 5,492.3	\$ 5,739.3	\$ 8,005.2	\$ 11,539.6	\$ 11,756.3	\$ 8,146.4	\$ 7,717.2	\$ 9,800.9	\$ 11,729.7	\$ 10,395.4	\$ 9,133.4	\$ 9,928.3	\$ 109,383.9
Boardman													
Energy (MWh)	10,322.4	-	18,427.6	37,749.1	38,399.8	32,680.4	30,396.3	30,676.3	37,707.8	19,799.3	16,690.9	16,822.1	289,672.0
Expense (\$ x 1000)	\$ 282.2	\$ -	\$ 504.3	\$ 1,022.1	\$ 1,038.3	\$ 886.8	\$ 824.8	\$ 831.7	\$ 1,017.9	\$ 582.1	\$ 494.2	\$ 503.3	\$ 7,987.7
Valmy													
Energy (MWh)	1,816.9	5,861.9	20,574.6	76,544.8	66,956.1	34,393.6	29,462.0	29,812.0	58,351.9	29,171.9	27,639.2	12,860.6	393,445.4
Expense (\$ x 1000)	\$ 67.3	\$ 219.7	\$ 749.0	\$ 2,664.8	\$ 2,342.8	\$ 1,212.7	\$ 1,046.9	\$ 1,071.8	\$ 2,036.9	\$ 1,060.9	\$ 1,001.4	\$ 473.0	\$ 13,947.2
Langley Gulch													
Energy (MWh)	54,811.1	64,471.8	117,407.2	171,610.1	172,038.7	145,760.5	131,560.6	64,940.2	70,707.4	39,261.0	40,530.3	41,434.2	1,114,533.2
Expense (\$ x 1000)	\$ 1,505.5	\$ 1,689.0	\$ 3,061.1	\$ 4,641.5	\$ 4,679.0	\$ 4,027.4	\$ 3,741.3	\$ 2,128.0	\$ 2,547.4	\$ 1,439.5	\$ 1,426.0	\$ 1,413.3	\$ 32,299.1
Danskin													
Energy (MWh)	0.9	-	490.1	26,367.1	18,259.1	2,590.9	149.3	2.0	3.6	6.2	4.6	0.5	47,874.3
Expense (\$ x 1000)	\$ 0.0	\$ -	\$ 23.0	\$ 1,208.6	\$ 829.1	\$ 124.2	\$ 6.7	\$ 0.1	\$ 0.2	\$ 0.4	\$ 0.3	\$ 0.0	\$ 2,192.7
Bennett Mountain													
Energy (MWh)	-	-	71.1	8,034.0	3,640.8	95.4	7.6	0.3	0.1	0.6	-	-	11,849.8
Expense (\$ x 1000)	\$ -	\$ -	\$ 3.4	\$ 377.0	\$ 169.0	\$ 4.7	\$ 0.3	\$ 0.0	\$ 0.0	\$ 0.0	\$ -	\$ -	\$ 554.4
Fixed Capacity Charge - Gas Transportation (\$ x 1000)	\$ 737.6	\$ 761.7	\$ 746.6	\$ 780.3	\$ 780.3	\$ 755.6	\$ 761.7	\$ 737.6	\$ 761.7	\$ 761.7	\$ 713.6	\$ 761.7	\$ 9,059.8
Purchased Power (Excluding CSPP)													
Market Energy (MWh)	4,156.0	4,378.2	20,121.6	126,706.3	91,085.0	34,136.4	8,090.4	23,232.9	22,625.8	37,435.8	3,219.9	1,966.7	377,155.0
Elkhorn Wind Energy (MWh)	23,518.2	24,014.7	23,574.3	26,612.0	26,462.2	20,831.4	22,703.6	23,844.0	26,274.9	27,546.2	23,761.2	27,261.8	296,404.6
Neal Hot Springs Energy (MWh)	13,569.7	10,684.5	11,067.6	7,824.1	8,991.1	9,658.6	11,060.4	14,749.6	19,041.5	18,746.8	16,677.7	16,242.3	158,313.9
Raft River Geothermal Energy (MWh)	6,109.5	5,408.3	5,093.9	5,657.0	5,824.0	5,471.0	7,569.9	6,559.2	6,791.4	6,789.2	6,564.6	6,484.3	74,322.2
Total Energy Excl. CSPP (MWh)	47,353.4	44,485.8	59,857.3	166,799.3	132,362.3	70,097.3	49,424.4	68,385.7	74,733.6	90,518.0	50,223.5	51,955.2	906,195.8
Market Expense (\$ x 1000)	\$ 118.0	\$ 114.5	\$ 772.1	\$ 5,680.0	\$ 3,819.4	\$ 1,427.7	\$ 269.2	\$ 726.0	\$ 784.4	\$ 1,137.8	\$ 80.0	\$ 50.6	\$ 14,979.7
Elkhorn Wind Expense (\$ x 1000)	\$ 987.5	\$ 1,008.4	\$ 1,346.8	\$ 1,824.5	\$ 1,814.3	\$ 1,190.1	\$ 1,297.1	\$ 1,634.7	\$ 1,801.4	\$ 1,621.1	\$ 1,398.3	\$ 1,179.1	\$ 17,103.3
Neal Hot Springs Expense (\$ x 1000)	\$ 1,062.2	\$ 836.4	\$ 1,181.9	\$ 1,002.7	\$ 1,152.2	\$ 1,031.4	\$ 1,181.1	\$ 1,890.2	\$ 2,440.2	\$ 2,048.5	\$ 1,822.4	\$ 1,300.8	\$ 16,950.0
Raft River Geothermal Expense (\$ x 1000)	\$ 278.4	\$ 246.5	\$ 315.8	\$ 420.9	\$ 433.3	\$ 339.2	\$ 469.3	\$ 488.0	\$ 505.3	\$ 429.8	\$ 415.5	\$ 301.7	\$ 4,643.7
Total Expense Excl. CSPP (\$ x 1000)	\$ 2,446.2	\$ 2,205.8	\$ 3,616.7	\$ 8,928.0	\$ 7,219.2	\$ 3,988.5	\$ 3,216.8	\$ 4,738.9	\$ 5,531.2	\$ 5,237.1	\$ 3,716.3	\$ 2,832.2	\$ 53,676.7
Surplus Sales													
Energy (MWh)	337,383.8	274,413.5	230,048.0	23,158.6	16,913.5	66,658.1	131,963.7	74,773.2	111,814.0	140,161.3	317,832.8	354,579.8	2,079,700.2
Revenue Including Transmission Expenses (\$ x 1000)	\$ 8,578.8	\$ 6,606.7	\$ 5,824.8	\$ 650.5	\$ 498.9	\$ 1,933.3	\$ 3,957.5	\$ 2,238.8	\$ 3,690.6	\$ 4,230.9	\$ 9,575.9	\$ 10,391.5	\$ 58,178.1
Transmission Expenses (\$ x 1000)	\$ 337.4	\$ 274.4	\$ 230.0	\$ 23.2	\$ 16.9	\$ 66.7	\$ 132.0	\$ 74.8	\$ 111.8	\$ 140.2	\$ 317.8	\$ 354.6	\$ 2,079.7
Revenue Excluding Transmission Expenses (\$ x 1000)	\$ 8,241.4	\$ 6,332.3	\$ 5,594.7	\$ 627.4	\$ 482.0	\$ 1,866.6	\$ 3,825.6	\$ 2,164.0	\$ 3,578.8	\$ 4,090.8	\$ 9,258.0	\$ 10,036.9	\$ 56,098.4
Net Power Supply Expenses (\$ x 1000)	\$ 2,289.7	\$ 4,283.1	\$ 11,114.4	\$ 30,534.5	\$ 28,332.0	\$ 17,279.7	\$ 13,490.0	\$ 17,145.0	\$ 20,046.2	\$ 15,386.3	\$ 7,227.1	\$ 5,874.9	\$ 173,003.0

Idaho Power/102
Witness: Scott Wright

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Scott Wright

Mid Columbia Heavy and Light Load
Forward Market Prices

October 21, 2014

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

Idaho Power/102
 Wright/1

MidC HL	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
9/30/2013	30.8589	30.0503	28.3725	41.9581	43.6851	43.7314	41.6042	42.7511	43.9062	42.4706	43.1472	39.5577
10/1/2013	31.0178	30.205	28.5186	42.1741	43.91	43.9566	41.8185	42.9712	44.1323	42.6788	43.3587	39.7516
10/2/2013	31.1767	30.3598	28.6647	42.3902	44.135	44.1818	42.0327	43.1914	44.3584	42.887	43.5702	39.9455
10/3/2013	30.986	30.1741	28.4894	42.1309	43.865	43.9116	41.7756	42.9272	44.0871	42.6788	43.3587	39.7516
10/4/2013	30.9463	30.1354	28.4528	42.0769	43.8088	43.8553	41.7221	42.8721	44.0306	42.6268	43.3059	39.7031
10/7/2013	31.1926	30.3752	28.6793	42.4118	44.1574	44.2043	42.0541	43.2134	44.381	42.9495	43.6337	40.0037
10/8/2013	31.431	30.6073	28.8984	42.7359	44.4949	44.5421	42.3755	43.5436	44.7202	43.2617	43.9509	40.2946
10/9/2013	31.3515	30.53	28.8254	42.6279	44.3824	44.4295	42.2684	43.4335	44.6071	43.1472	43.8346	40.1879
10/10/2013	31.3515	30.53	28.8254	42.6279	44.3824	44.4295	42.2684	43.4335	44.6071	43.1472	43.8346	40.1879
10/11/2013	31.431	30.6073	28.8984	42.7359	44.4949	44.5421	42.3755	43.5436	44.7202	43.2513	43.9404	40.2849
10/14/2013	31.566	30.7389	29.0226	42.9195	44.6861	44.7335	42.5576	43.7307	44.9123	43.4075	44.099	40.4303
10/15/2013	31.5025	30.677	28.9642	42.8331	44.5961	44.6434	42.4719	43.6426	44.8219	43.4075	44.099	40.4303
10/16/2013	31.5025	30.677	28.9642	42.8331	44.5961	44.6434	42.4719	43.6426	44.8219	43.4075	44.099	40.4303
10/17/2013	31.4627	30.6383	28.9276	42.7791	44.5399	44.5871	42.4183	43.5876	44.7654	43.4075	44.099	40.4303
10/18/2013	31.5025	30.677	28.9642	42.8331	44.5961	44.6434	42.4719	43.6426	44.8219	43.4075	44.099	40.4303
10/21/2013	31.137	30.3211	28.6281	42.3362	44.0787	44.1255	41.9791	43.1363	44.3019	42.9911	43.676	40.0425
10/22/2013	31.1449	30.3288	28.6355	42.347	44.09	44.1367	41.9899	43.1473	44.3132	42.9911	43.676	40.0425
10/23/2013	31.2641	30.4449	28.745	42.509	44.2587	44.3056	42.1505	43.3124	44.4828	43.1472	43.8346	40.1879
10/24/2013	31.2244	30.4062	28.7085	42.455	44.2024	44.2493	42.097	43.2574	44.4262	43.0952	43.7817	40.1394
10/25/2013	31.3833	30.5609	28.8546	42.6711	44.4274	44.4745	42.3112	43.4775	44.6523	43.3138	44.0038	40.3431
10/28/2013	30.7397	29.9342	28.2629	41.796	43.5163	43.5625	41.4436	42.586	43.7367	42.4706	43.1472	39.5577
10/29/2013	30.8192	30.0116	28.3359	41.9041	43.6288	43.6751	41.5507	42.696	43.8497	42.5643	43.2424	39.645
10/30/2013	30.9384	30.1277	28.4455	42.0661	43.7975	43.844	41.7114	42.8611	44.0193	42.7309	43.4116	39.8001
10/31/2013	30.7556	29.9497	28.2775	41.8177	43.5388	43.585	41.465	42.608	43.7593	42.5227	43.2001	39.6062
11/1/2013	30.7159	29.911	28.241	41.7636	43.4826	43.5287	41.4114	42.5529	43.7028	42.4706	43.1472	39.5577
11/4/2013	30.1995	29.4081	27.7662	41.0615	42.7515	42.7969	40.7152	41.8375	42.968	41.7836	42.4493	38.9178
11/5/2013	30.2789	29.4855	27.8392	41.1695	42.864	42.9095	40.8223	41.9476	43.081	41.8981	42.5656	39.0245
11/6/2013	30.3584	29.5629	27.9123	41.2775	42.9765	43.0221	40.9294	42.0576	43.1941	42.0022	42.6713	39.1214
11/7/2013	30.3584	29.5629	27.9123	41.2775	42.9765	43.0221	40.9294	42.0576	43.1941	42.0022	42.6713	39.1214
11/8/2013	30.3107	29.5164	27.8684	41.2127	42.909	42.9545	40.8651	41.9916	43.1262	42.3561	43.0309	39.4511
11/11/2013	30.3107	29.5164	27.8684	41.2127	42.909	42.9545	40.8651	41.9916	43.1262	42.3561	43.0309	39.4511
11/12/2013	30.3345	29.5396	27.8903	41.2451	42.9427	42.9883	40.8973	42.0246	43.1601	42.4082	43.0838	39.4995
11/13/2013	30.1359	29.3462	27.7077	40.975	42.6615	42.7068	40.6295	41.7494	42.8775	42.1375	42.8088	39.2475
11/14/2013	30.1359	29.3462	27.7077	40.975	42.6615	42.7068	40.6295	41.7494	42.8775	42.1375	42.8088	39.2475
11/15/2013	30.2154	29.4236	27.7808	41.0831	42.774	42.8194	40.7366	41.8595	42.9906	42.2416	42.9146	39.3444
11/18/2013	30.1756	29.3849	27.7442	41.029	42.7178	42.7631	40.683	41.8045	42.9341	42.1896	42.8617	39.2959
11/19/2013	29.8181	29.0367	27.4155	40.5429	42.2116	42.2564	40.201	41.3092	42.4254	41.7211	42.3858	38.8596
11/20/2013	30.1995	29.4081	27.7662	41.0615	42.7515	42.7969	40.7152	41.8375	42.968	42.1896	42.8617	39.2959
11/21/2013	30.1995	29.4081	27.7662	41.0615	42.7515	42.7969	40.7152	41.8375	42.968	42.1896	42.8617	39.2959
11/22/2013	30.3981	29.6015	27.9488	41.3315	43.0327	43.0784	40.983	42.1127	43.2506	42.4498	43.1261	39.5383
11/25/2013	30.7318	29.9265	28.2556	41.7852	43.5051	43.5513	41.4329	42.575	43.7254	42.8662	43.5491	39.9261
11/26/2013	30.5649	29.764	28.1022	41.5584	43.2689	43.3148	41.2079	42.3438	43.488	42.6372	43.3164	39.7128
11/27/2013	30.3663	29.5706	27.9196	41.2883	42.9877	43.0333	40.9401	42.0686	43.2054	42.3769	43.052	39.4705
11/29/2013	30.3663	29.5706	27.9196	41.2883	42.9877	43.0333	40.9401	42.0686	43.2054	42.3769	43.052	39.4705
12/2/2013	30.7159	29.911	28.241	41.7636	43.4826	43.5287	41.4114	42.5529	43.7028	42.8141	43.4962	39.8777
12/3/2013	30.5967	29.795	28.1314	41.6016	43.3139	43.3598	41.2508	42.3878	43.5332	42.658	43.3376	39.7322
12/4/2013	30.2074	29.4159	27.7735	41.0723	42.7628	42.8081	40.7259	41.8485	42.9793	42.1167	42.7877	39.2281
12/5/2013	30.0882	29.2998	27.6639	40.9102	42.5941	42.6392	40.5652	41.6834	42.8097	41.9606	42.629	39.0826
12/6/2013	30.2074	29.4159	27.7735	41.0723	42.7628	42.8081	40.7259	41.8485	42.9793	42.1375	42.8088	39.2475
12/9/2013	30.0088	29.2224	27.5908	40.8022	42.4816	42.5266	40.4581	41.5733	42.6967	41.8773	42.5444	39.0051
12/10/2013	29.6989	28.9207	27.3059	40.3809	42.0429	42.0875	40.0403	41.1441	42.2558	41.0237	41.6773	38.21
12/11/2013	29.4526	28.6808	27.0795	40.046	41.6943	41.7385	39.7083	40.8028	41.9054	40.7322	41.3812	37.9386
12/12/2013	29.5559	28.7814	27.1745	40.1864	41.8405	41.8849	39.8475	40.9459	42.0523	40.8363	41.4869	38.0355
12/13/2013	29.3017	28.5338	26.9407	39.8407	41.4806	41.5246	39.5047	40.5937	41.6906	40.5032	41.1485	37.7253

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

Idaho Power/102
 Wright/2

MidC HL	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
12/16/2013	29.2222	28.4565	26.8677	39.7327	41.3681	41.412	39.3976	40.4836	41.5775	40.3991	41.0427	37.6283
12/17/2013	29.4526	28.6808	27.0795	40.046	41.6943	41.7385	39.7083	40.8028	41.9054	40.7322	41.3812	37.9386
12/18/2013	29.9134	29.1296	27.5032	40.6726	42.3466	42.3915	40.3295	41.4412	42.561	41.3048	41.9628	38.4718
12/19/2013	30.9781	30.1663	28.482	42.1201	43.8538	43.9003	41.7649	42.9162	44.0758	42.71	43.3905	39.7807
12/20/2013	30.5888	29.7872	28.1241	41.5908	43.3026	43.3486	41.24	42.3768	43.5219	42.2416	42.9146	39.3444
12/23/2013	30.5888	29.7872	28.1241	41.5908	43.3026	43.3486	41.24	42.3768	43.5219	42.2416	42.9146	39.3444
12/24/2013	30.7	29.8955	28.2264	41.742	43.4601	43.5062	41.39	42.5309	43.6802	42.3769	43.052	39.4705
12/26/2013	30.6603	29.8569	28.1898	41.688	43.4039	43.4499	41.3364	42.4759	43.6236	42.3249	42.9992	39.422
12/27/2013	30.6603	29.8569	28.1898	41.688	43.4039	43.4499	41.3364	42.4759	43.6236	42.3249	42.9992	39.422
12/30/2013	30.6603	29.8569	28.1898	41.688	43.4039	43.4499	41.3364	42.4759	43.6236	42.3249	42.9992	39.422
12/31/2013	30.3902	29.5938	27.9415	41.3207	43.0215	43.0671	40.9722	42.1017	43.2393	41.9814	42.6502	39.102
1/2/2014	30.4299	29.6325	27.978	41.3747	43.0777	43.1234	41.0258	42.1567	43.2958	42.0334	42.7031	39.1505
1/3/2014	30.4299	29.6325	27.978	41.3747	43.0777	43.1234	41.0258	42.1567	43.2958	42.0334	42.7031	39.1505
1/6/2014	30.4696	29.6712	28.0145	41.4288	43.1339	43.1797	41.0794	42.2117	43.3523	42.0855	42.7559	39.199
1/7/2014	30.4696	29.6712	28.0145	41.4288	43.1339	43.1797	41.0794	42.2117	43.3523	42.0855	42.7559	39.199
1/8/2014	30.2154	29.4236	27.7808	41.0831	42.774	42.8194	40.7366	41.8595	42.9906	41.7524	42.4175	38.8887
1/9/2014	29.6592	28.882	27.2694	40.3269	41.9867	42.0312	39.9868	41.089	42.1993	41.0237	41.6773	38.21
1/10/2014	29.7545	28.9748	27.3571	40.4565	42.1217	42.1663	40.1153	41.2211	42.3349	41.159	41.8147	38.3361
1/13/2014	30.1756	29.3849	27.7442	41.029	42.7178	42.7631	40.683	41.8045	42.9341	41.7003	42.3647	38.8402
1/14/2014	30.3425	29.5474	27.8976	41.2559	42.954	42.9995	40.908	42.0356	43.1715	41.9397	42.6079	39.0632
1/15/2014	30.0723	29.2843	27.6493	40.8886	42.5716	42.6167	40.5438	41.6614	42.7871	41.5858	42.2483	38.7336
1/16/2014	30.2233	29.4313	27.7881	41.0939	42.7853	42.8307	40.7473	41.8705	43.0019	41.7836	42.4493	38.9178
1/17/2014	30.2233	29.4313	27.7881	41.0939	42.7853	42.8307	40.7473	41.8705	43.0019	41.7836	42.4493	38.9178
1/21/2014	30.263	29.47	27.8246	41.1479	42.8415	42.8869	40.8009	41.9255	43.0584	41.8356	42.5021	38.9663
1/22/2014	30.2233	29.4313	27.7881	41.0939	42.7853	42.8307	40.7473	41.8705	43.0019	41.7836	42.4493	38.9178
1/23/2014	30.414	29.617	27.9634	41.3531	43.0552	43.1009	41.0044	42.1347	43.2732	42.0334	42.7031	39.1505
1/24/2014	30.414	29.617	27.9634	41.3531	43.0552	43.1009	41.0044	42.1347	43.2732	42.0334	42.7031	39.1505
1/27/2014	30.414	29.617	27.9634	41.3531	43.0552	43.1009	41.0044	42.1347	43.2732	42.0334	42.7031	39.1505
1/28/2014	30.414	29.617	27.9634	41.3531	43.0552	43.1009	41.0044	42.1347	43.2732	42.0334	42.7031	39.1505
1/29/2014	30.414	29.617	27.9634	41.3531	43.0552	43.1009	41.0044	42.1347	43.2732	42.0334	42.7031	39.1505
1/30/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
1/31/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/3/2014	30.1021	29.3133	27.6767	40.9291	42.6137	42.6589	40.584	41.7027	42.8295	41.6509	42.3144	38.7942
2/4/2014	31.0099	30.1973	28.5113	42.1633	43.8988	43.9453	41.8078	42.9602	44.121	42.835	43.5174	39.8971
2/5/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/6/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/7/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/10/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/11/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/12/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/13/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/14/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/18/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/19/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/20/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/21/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/24/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/25/2014	29.9373	29.1528	27.5251	40.705	42.3804	42.4253	40.3617	41.4743	42.5949	41.4193	42.0791	38.5785
2/26/2014	30.5788	29.7776	28.115	41.5773	43.2886	43.3345	41.2267	42.3631	43.5078	41.9371	42.6052	39.0608
2/27/2014	30.6484	29.8453	28.1789	41.6718	43.387	43.433	41.3204	42.4594	43.6067	42.0152	42.6846	39.1335
2/28/2014	30.6484	29.8453	28.1789	41.6718	43.387	43.433	41.3204	42.4594	43.6067	42.0152	42.6846	39.1335
3/3/2014	30.4895	29.6905	28.0328	41.4558	43.1621	43.2078	41.1061	42.2392	43.3806	41.807	42.4731	38.9396
3/4/2014	30.4895	29.6905	28.0328	41.4558	43.1621	43.2078	41.1061	42.2392	43.3806	41.807	42.4731	38.9396
3/5/2014	30.1319	29.3424	27.7041	40.9696	42.6559	42.7012	40.6241	41.7439	42.8719	41.3386	41.9972	38.5033

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

Idaho Power/102
 Wright/3

MidC HL	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
3/6/2014	30.1717	29.381	27.7406	41.0236	42.7122	42.7575	40.6777	41.799	42.9284	41.3906	42.05	38.5518
3/7/2014	30.1717	29.381	27.7406	41.0236	42.7122	42.7575	40.6777	41.799	42.9284	41.3906	42.05	38.5518
3/10/2014	30.1717	29.381	27.7406	41.0236	42.7122	42.7575	40.6777	41.799	42.9284	41.3906	42.05	38.5518
3/11/2014	30.3306	29.5358	27.8867	41.2397	42.9371	42.9827	40.8919	42.0191	43.1545	41.5988	42.2615	38.7457
3/12/2014	30.261	29.4681	27.8228	41.1452	42.8387	42.8841	40.7982	41.9228	43.0556	41.5208	42.1822	38.673
3/13/2014	30.1518	29.3617	27.7223	40.9966	42.684	42.7293	40.6509	41.7715	42.9001	41.3776	42.0368	38.5397
3/14/2014	30.1518	29.3617	27.7223	40.9966	42.684	42.7293	40.6509	41.7715	42.9001	41.3776	42.0368	38.5397
3/17/2014	30.1518	29.3617	27.7223	40.9966	42.684	42.7293	40.6509	41.7715	42.9001	41.3776	42.0368	38.5397
3/18/2014	30.0823	29.294	27.6584	40.9021	42.5856	42.6308	40.5572	41.6751	42.8012	41.2865	41.9443	38.4548
3/19/2014	30.0823	29.294	27.6584	40.9021	42.5856	42.6308	40.5572	41.6751	42.8012	41.2865	41.9443	38.4548
3/20/2014	29.9631	29.1779	27.5488	40.7401	42.4169	42.4619	40.3965	41.51	42.6317	41.1434	41.7989	38.3215
3/21/2014	29.9631	29.1779	27.5488	40.7401	42.4169	42.4619	40.3965	41.51	42.6317	41.1434	41.7989	38.3215
3/24/2014	29.8141	29.0329	27.4119	40.5375	42.206	42.2508	40.1957	41.3037	42.4197	40.9482	41.6006	38.1397
3/25/2014	31.6137	30.7853	29.0664	42.9844	44.7536	44.801	42.6219	43.7967	44.9802	43.4595	44.1519	40.4788
3/26/2014	30.7775	29.971	28.2976	41.8474	43.5698	43.616	41.4944	42.6383	43.7904	42.2104	42.8828	39.3153
3/27/2014	30.847	30.0387	28.3615	41.9419	43.6682	43.7145	41.5882	42.7346	43.8893	42.3015	42.9754	39.4002
3/28/2014	30.847	30.0387	28.3615	41.9419	43.6682	43.7145	41.5882	42.7346	43.8893	42.3015	42.9754	39.4002
3/31/2014	30.5689	29.7679	28.1058	41.5638	43.2745	43.3204	41.2133	42.3493	43.4936	41.9241	42.592	39.0487
4/1/2014	30.3703	29.5745	27.9232	41.2937	42.9933	43.039	40.9455	42.0741	43.211	41.6639	42.3276	38.8063
4/2/2014	30.41	29.6131	27.9597	41.3477	43.0496	43.0952	40.999	42.1292	43.2675	41.7159	42.3805	38.8548
4/3/2014	30.7179	29.913	28.2428	41.7663	43.4854	43.5315	41.4141	42.5557	43.7056	42.1193	42.7903	39.2305
4/4/2014	30.7675	29.9613	28.2885	41.8339	43.5557	43.6019	41.4811	42.6245	43.7762	42.1844	42.8564	39.2911
4/7/2014	30.8172	30.0097	28.3341	41.9014	43.626	43.6723	41.548	42.6933	43.8469	42.2494	42.9225	39.3517
4/8/2014	31.0158	30.2031	28.5167	42.1714	43.9072	43.9538	41.8158	42.9685	44.1295	42.5097	43.1869	39.5941
4/9/2014	31.3734	30.5513	28.8455	42.6576	44.4133	44.4604	42.2978	43.4638	44.6382	42.9781	43.6628	40.0304
4/10/2014	31.7508	30.9188	29.1925	43.1707	44.9476	44.9953	42.8066	43.9866	45.1752	43.4855	44.1783	40.503
4/11/2014	31.5819	30.7543	29.0372	42.9411	44.7086	44.756	42.579	43.7527	44.9349	43.2643	43.9536	40.297
4/14/2014	31.5819	30.7543	29.0372	42.9411	44.7086	44.756	42.579	43.7527	44.9349	43.7328	44.4295	40.7333
4/15/2014	31.3833	30.5609	28.8546	42.6711	44.4274	44.4745	42.3112	43.4775	44.6523	43.5896	44.2841	40.6
4/16/2014	31.423	30.5996	28.8911	42.7251	44.4836	44.5308	42.3648	43.5326	44.7089	43.6417	44.3369	40.6485
4/17/2014	31.7408	30.9091	29.1833	43.1572	44.9335	44.9812	42.7932	43.9728	45.161	43.993	44.6939	40.9757
4/21/2014	31.7408	30.9091	29.1833	43.1572	44.9335	44.9812	42.7932	43.9728	45.161	43.993	44.6939	40.9757
4/22/2014	31.6117	30.7834	29.0646	42.9817	44.7508	44.7982	42.6192	43.794	44.9773	43.7978	44.4956	40.7939
4/23/2014	31.572	30.7447	29.0281	42.9276	44.6945	44.7419	42.5656	43.7389	44.9208	43.7458	44.4427	40.7454
4/24/2014	31.4925	30.6673	28.955	42.8196	44.582	44.6293	42.4585	43.6289	44.8078	43.6417	44.3369	40.6485
4/25/2014	31.4329	30.6093	28.9003	42.7386	44.4977	44.5449	42.3782	43.5463	44.723	43.5636	44.2576	40.5757
4/28/2014	31.4329	30.6093	28.9003	42.7386	44.4977	44.5449	42.3782	43.5463	44.723	43.5636	44.2576	40.5757
4/29/2014	31.5819	30.7543	29.0372	42.9411	44.7086	44.756	42.579	43.7527	44.9349	43.9019	44.6013	40.8908
4/30/2014	31.5124	30.6866	28.9733	42.8466	44.6102	44.6575	42.4853	43.6564	44.836	43.8108	44.5088	40.806
5/1/2014	31.5124	30.6866	28.9733	42.8466	44.6102	44.6575	42.4853	43.6564	44.836	43.8108	44.5088	40.806
5/2/2014	31.2939	30.4739	28.7724	42.5495	44.3009	44.3479	42.1907	43.3537	44.5252	43.5246	44.218	40.5394
5/5/2014	31.6415	30.8124	29.092	43.0222	44.7929	44.8405	42.6593	43.8353	45.0197	43.98	44.6806	40.9636
5/6/2014	31.7508	30.9188	29.1925	43.1707	44.9476	44.9953	42.8066	43.9866	45.1752	44.1231	44.8261	41.0969
5/7/2014	31.7508	30.9188	29.1925	43.1707	44.9476	44.9953	42.8066	43.9866	45.1752	44.1231	44.8261	41.0969
5/8/2014	31.5819	30.7543	29.0372	42.9411	44.7086	44.756	42.579	43.7527	44.9349	43.9019	44.6013	40.8908
5/9/2014	31.5422	30.7157	29.0007	42.8871	44.6523	44.6997	42.5254	43.6977	44.8784	43.8499	44.5485	40.8424
5/12/2014	31.284	30.4642	28.7633	42.536	44.2868	44.3338	42.1773	43.3399	44.511	43.5116	44.2048	40.5273
5/13/2014	30.9463	30.1354	28.4528	42.0769	43.8088	43.8553	41.7221	42.8721	44.0306	43.0562	43.7421	40.1031
5/14/2014	30.8768	30.0677	28.3889	41.9824	43.7104	43.7567	41.6283	42.7758	43.9317	42.9651	43.6496	40.0183
5/15/2014	31.4429	30.6189	28.9094	42.7521	44.5117	44.559	42.3915	43.5601	44.7371	44.0581	44.76	41.0363
5/16/2014	31.3932	30.5706	28.8637	42.6846	44.4414	44.4886	42.3246	43.4913	44.6665	44.006	44.7071	40.9878
5/19/2014	31.4528	30.6286	28.9185	42.7656	44.5258	44.573	42.4049	43.5738	44.7512	44.0841	44.7864	41.0605
5/20/2014	31.6713	30.8414	29.1194	43.0627	44.8351	44.8827	42.6995	43.8765	45.0621	44.3704	45.0772	41.3271
5/21/2014	31.5025	30.677	28.9642	42.8331	44.5961	44.6434	42.4719	43.6426	44.8219	44.1492	44.8525	41.1211

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

Idaho Power/102
 Wright/4

MidC HL	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
5/22/2014	31.2343	30.4159	28.7176	42.4685	44.2165	44.2634	42.1104	43.2712	44.4404	43.8108	44.5088	40.806
5/23/2014	31.2343	30.4159	28.7176	42.4685	44.2165	44.2634	42.1104	43.2712	44.4404	43.8108	44.5088	40.806
5/27/2014	31.3833	30.5609	28.8546	42.6711	44.4274	44.4745	42.3112	43.4775	44.6523	44.006	44.7071	40.9878
5/28/2014	31.8203	30.9865	29.2564	43.2652	45.046	45.0938	42.9004	44.0829	45.2741	44.5785	45.2887	41.5211
5/29/2014	31.8203	30.9865	29.2564	43.2652	45.046	45.0938	42.9004	44.0829	45.2741	44.5785	45.2887	41.5211
5/30/2014	31.86	31.0251	29.2929	43.3192	45.1022	45.1501	42.9539	44.1379	45.3306	44.6306	45.3416	41.5695
6/2/2014	32.1579	31.3153	29.5668	43.7243	45.524	45.5723	43.3556	44.5507	45.7545	45.0209	45.7382	41.9331
6/3/2014	32.2076	31.3636	29.6125	43.7919	45.5943	45.6427	43.4226	44.6195	45.8252	45.086	45.8043	41.9937
6/4/2014	32.2076	31.3636	29.6125	43.7919	45.5943	45.6427	43.4226	44.6195	45.8252	45.086	45.8043	41.9937
6/5/2014	32.1679	31.3249	29.576	43.7379	45.5381	45.5864	43.369	44.5645	45.7686	45.034	45.7514	41.9452
6/6/2014	32.3764	31.528	29.7677	44.0214	45.8333	45.8819	43.6502	44.8534	46.0654	45.3072	46.029	42.1997
6/9/2014	32.3367	31.4894	29.7312	43.9674	45.7771	45.8256	43.5966	44.7984	46.0089	45.2552	45.9761	42.1513
6/10/2014	32.1182	31.2766	29.5303	43.6703	45.4678	45.516	43.302	44.4957	45.698	44.9689	45.6853	41.8846
6/11/2014	32.0288	31.1895	29.4481	43.5488	45.3412	45.3893	43.1815	44.3718	45.5708	44.8648	45.5795	41.7877
6/12/2014	32.6744	31.8182	30.0417	44.4265	46.2551	46.3042	44.0519	45.2662	46.4893	45.7106	46.4388	42.5754
6/13/2014	32.7439	31.8859	30.1056	44.5211	46.3535	46.4027	44.1456	45.3625	46.5882	45.8017	46.5313	42.6603
6/16/2014	32.7836	31.9246	30.1421	44.5751	46.4097	46.459	44.1991	45.4175	46.6447	45.8537	46.5842	42.7088
6/17/2014	32.7836	31.9246	30.1421	44.5751	46.4097	46.459	44.1991	45.4175	46.6447	45.8537	46.5842	42.7088
6/18/2014	32.6049	31.7505	29.9777	44.332	46.1567	46.2056	43.9581	45.1699	46.3904	45.6065	46.333	42.4785
6/19/2014	32.5453	31.6924	29.923	44.251	46.0723	46.1212	43.8778	45.0873	46.3056	45.5284	46.2537	42.4058
6/20/2014	32.297	31.4507	29.6947	43.9134	45.7208	45.7693	43.5431	44.7433	45.9523	45.2031	45.9232	42.1028
6/23/2014	32.0785	31.2379	29.4938	43.6163	45.4115	45.4597	43.2485	44.4406	45.6415	44.9169	45.6324	41.8362
6/24/2014	32.1182	31.2766	29.5303	43.6703	45.4678	45.516	43.302	44.4957	45.698	44.9689	45.6853	41.8846
6/25/2014	32.4757	31.6248	29.859	44.1565	45.9739	46.0227	43.7841	44.991	46.2067	45.4373	46.1612	42.3209
6/26/2014	32.0785	31.2379	29.4938	43.6163	45.4115	45.4597	43.2485	44.4406	45.6415	44.9169	45.6324	41.8362
6/27/2014	32.0547	31.2147	29.4719	43.5839	45.3778	45.4259	43.2164	44.4076	45.6075	44.8648	45.5795	41.7877
6/30/2014	32.148	31.3056	29.5577	43.7108	45.51	45.5582	43.3422	44.537	45.7404	44.9689	45.6853	41.8846
7/1/2014	32.148	31.3056	29.5577	43.7108	45.51	45.5582	43.3422	44.537	45.7404	44.9689	45.6853	41.8846
7/2/2014	31.8401	31.0058	29.2746	43.2922	45.0741	45.1219	42.9271	44.1104	45.3023	44.5655	45.2755	41.5089
7/3/2014	31.8401	31.0058	29.2746	43.2922	45.0741	45.1219	42.9271	44.1104	45.3023	44.5655	45.2755	41.5089
7/7/2014	31.6415	30.8124	29.092	43.0222	44.7929	44.8405	42.6593	43.8353	45.0197	44.3053	45.0111	41.2665
7/8/2014	31.572	30.7447	29.0281	42.9276	44.6945	44.7419	42.5656	43.7389	44.9208	44.2142	44.9186	41.1817
7/9/2014	31.572	30.7447	29.0281	42.9276	44.6945	44.7419	42.5656	43.7389	44.9208	44.2142	44.9186	41.1817
7/10/2014	31.5323	30.706	28.9916	42.8736	44.6383	44.6856	42.5121	43.6839	44.8643	44.1622	44.8657	41.1332
7/11/2014	31.5919	30.764	29.0464	42.9546	44.7226	44.7701	42.5924	43.7665	44.9491	44.2402	44.945	41.206
7/14/2014	31.6316	30.8027	29.0829	43.0087	44.7789	44.8264	42.646	43.8215	45.0056	44.2923	44.9979	41.2544
7/15/2014	31.3634	30.5416	28.8363	42.6441	44.3993	44.4464	42.2844	43.45	44.6241	43.928	44.6278	40.9151
7/16/2014	31.2939	30.4739	28.7724	42.5495	44.3009	44.3479	42.1907	43.3537	44.5252	43.8369	44.5352	40.8303
7/17/2014	30.8371	30.029	28.3524	41.9284	43.6541	43.7004	41.5748	42.7208	43.8752	43.2383	43.9272	40.2728
7/18/2014	30.8371	30.029	28.3524	41.9284	43.6541	43.7004	41.5748	42.7208	43.8752	43.2383	43.9272	40.2728
7/21/2014	30.5193	29.7195	28.0602	41.4963	43.2042	43.2501	41.1463	42.2805	43.423	42.8219	43.5041	39.8849
7/22/2014	30.122	29.3327	27.6949	40.9561	42.6419	42.6871	40.6107	41.7302	42.8578	42.3015	42.9754	39.4002
7/23/2014	29.9234	29.1393	27.5123	40.6861	42.3607	42.4056	40.3429	41.455	42.5751	42.0412	42.711	39.1578
7/24/2014	30.3902	29.5938	27.9415	41.3207	43.0215	43.0671	40.9722	42.1017	43.2393	42.6528	43.3323	39.7274
7/25/2014	30.2412	29.4487	27.8045	41.1182	42.8106	42.856	40.7714	41.8953	43.0273	42.4576	43.134	39.5456
7/28/2014	30.0922	29.3037	27.6675	40.9156	42.5997	42.6449	40.5706	41.6889	42.8154	42.2624	42.9357	39.3638
7/29/2014	30.1419	29.352	27.7132	40.9831	42.67	42.7152	40.6375	41.7577	42.886	42.3275	43.0018	39.4244
7/30/2014	30.0326	29.2456	27.6128	40.8346	42.5153	42.5604	40.4902	41.6063	42.7306	42.1844	42.8564	39.2911
7/31/2014	30.1816	29.3907	27.7497	41.0372	42.7262	42.7715	40.6911	41.8127	42.9425	42.3795	43.0547	39.4729
8/1/2014	30.1121	29.323	27.6858	40.9426	42.6278	42.673	40.5973	41.7164	42.8436	42.2885	42.9622	39.388
8/4/2014	30.1915	29.4004	27.7589	41.0507	42.7403	42.7856	40.7045	41.8265	42.9567	42.3926	43.0679	39.485
8/5/2014	30.3008	29.5068	27.8593	41.1992	42.8949	42.9404	40.8517	41.9778	43.1121	42.5357	43.2133	39.6183
8/6/2014	30.2412	29.4487	27.8045	41.1182	42.8106	42.856	40.7714	41.8953	43.0273	42.4576	43.134	39.5456
8/7/2014	30.1319	29.3424	27.7041	40.9696	42.6559	42.7012	40.6241	41.7439	42.8719	42.3145	42.9886	39.4123

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

Idaho Power/102
 Wright/5

MidC HL	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
8/8/2014	30.3405	29.5454	27.8958	41.2532	42.9512	42.9967	40.9053	42.0329	43.1686	42.5877	43.2662	39.6668
8/11/2014	30.1915	29.4004	27.7589	41.0507	42.7403	42.7856	40.7045	41.8265	42.9567	42.3926	43.0679	39.485
8/12/2014	30.1518	29.3617	27.7223	40.9966	42.684	42.7293	40.6509	41.7715	42.9001	42.3405	43.015	39.4365
8/13/2014	29.8638	29.0812	27.4575	40.605	42.2763	42.3212	40.2626	41.3724	42.4904	41.9632	42.6317	39.0851
8/14/2014	30.0128	29.2263	27.5945	40.8076	42.4872	42.5323	40.4634	41.5788	42.7023	42.4316	43.1076	39.5214
8/15/2014	29.8141	29.0329	27.4119	40.5375	42.206	42.2508	40.1957	41.3037	42.4197	42.4316	43.1076	39.5214
8/18/2014	29.8141	29.0329	27.4119	40.5375	42.206	42.2508	40.1957	41.3037	42.4197	42.4316	43.1076	39.5214
8/19/2014	29.8141	29.0329	27.4119	40.5375	42.206	42.2508	40.1957	41.3037	42.4197	42.4316	43.1076	39.5214
8/20/2014	29.8141	29.0329	27.4119	40.5375	42.206	42.2508	40.1957	41.3037	42.4197	42.4316	43.1076	39.5214
8/21/2014	29.8141	29.0329	27.4119	40.5375	42.206	42.2508	40.1957	41.3037	42.4197	42.4316	43.1076	39.5214
8/22/2014	29.8141	29.0329	27.4119	40.5375	42.206	42.2508	40.1957	41.3037	42.4197	42.4316	43.1076	39.5214
8/25/2014	29.8141	29.0329	27.4119	40.5375	42.206	42.2508	40.1957	41.3037	42.4197	42.4316	43.1076	39.5214
8/26/2014	30.7278	29.9226	28.2519	41.7798	43.4995	43.5456	41.4275	42.5695	43.7197	43.4075	44.099	40.4303
8/27/2014	30.5967	29.795	28.1314	41.6016	43.3139	43.3598	41.2508	42.3878	43.5332	43.2123	43.9007	40.2485
8/28/2014	30.5888	29.7872	28.1241	41.5908	43.3026	43.3486	41.24	42.3768	43.5219	43.2123	43.9007	40.2485
8/29/2014	30.5888	29.7872	28.1241	41.5908	43.3026	43.3486	41.24	42.3768	43.5219	43.2123	43.9007	40.2485
9/2/2014	30.5193	29.7195	28.0602	41.4963	43.2042	43.2501	41.1463	42.2805	43.423	43.1082	43.795	40.1516
9/3/2014	30.5193	29.7195	28.0602	41.4963	43.2042	43.2501	41.1463	42.2805	43.423	42.913	43.5967	39.9698
9/4/2014	30.4795	29.6808	28.0237	41.4423	43.148	43.1938	41.0928	42.2255	43.3665	42.861	43.5438	39.9213
9/5/2014	30.4795	29.6808	28.0237	41.4423	43.148	43.1938	41.0928	42.2255	43.3665	42.861	43.5438	39.9213
9/8/2014	30.4795	29.6808	28.0237	41.4423	43.148	43.1938	41.0928	42.2255	43.3665	42.861	43.5438	39.9213
9/9/2014	30.4795	29.6808	28.0237	41.4423	43.148	43.1938	41.0928	42.2255	43.3665	42.861	43.5438	39.9213
9/10/2014	30.4795	29.6808	28.0237	41.4423	43.148	43.1938	41.0928	42.2255	43.3665	42.861	43.5438	39.9213
9/11/2014	30.4795	29.6808	28.0237	41.4423	43.148	43.1938	41.0928	42.2255	43.3665	42.861	43.5438	39.9213
9/12/2014	30.4795	29.6808	28.0237	41.4423	43.148	43.1938	41.0928	42.2255	43.3665	42.861	43.5438	39.9213
9/15/2014	30.4795	29.6808	28.0237	41.4423	43.148	43.1938	41.0928	42.2255	43.3665	42.861	43.5438	39.9213
9/16/2014	30.4795	29.6808	28.0237	41.4423	43.148	43.1938	41.0928	42.2255	43.3665	42.861	43.5438	39.9213
9/17/2014	30.4795	29.6808	28.0237	41.4423	43.148	43.1938	41.0928	42.2255	43.3665	42.861	43.5438	39.9213
9/18/2014	30.4795	29.6808	28.0237	41.4423	43.148	43.1938	41.0928	42.2255	43.3665	42.861	43.5438	39.9213
9/19/2014	30.4398	29.6422	27.9871	41.3882	43.0918	43.1375	41.0392	42.1705	43.3099	42.861	43.5438	39.9213
9/22/2014	30.4398	29.6422	27.9871	41.3882	43.0918	43.1375	41.0392	42.1705	43.3099	42.861	43.5438	39.9213
9/23/2014	30.4398	29.6422	27.9871	41.3882	43.0918	43.1375	41.0392	42.1705	43.3099	42.861	43.5438	39.9213
9/24/2014	30.4398	29.6422	27.9871	41.3882	43.0918	43.1375	41.0392	42.1705	43.3099	42.861	43.5438	39.9213
9/25/2014	30.41	29.6131	27.9597	41.3477	43.0496	43.0952	40.999	42.1292	43.2675	42.8219	43.5041	39.8849
9/26/2014	30.41	29.6131	27.9597	41.3477	43.0496	43.0952	40.999	42.1292	43.2675	42.8219	43.5041	39.8849
9/29/2014	30.4795	29.6808	28.0237	41.4423	43.148	43.1938	41.0928	42.2255	43.3665	42.926	43.6099	39.9819
Average HL	30.77	29.96	28.29	41.83	43.56	43.60	41.48	42.62	43.78	42.79	43.47	39.86
Max HL	32.78	31.92	30.14	44.58	46.41	46.46	44.20	45.42	46.64	45.85	46.58	42.71
Min HL	29.22	28.46	26.87	39.73	41.37	41.41	39.40	40.48	41.58	40.40	41.04	37.63
Spread	3.56	3.47	3.27	4.84	5.04	5.05	4.80	4.93	5.07	5.45	5.54	5.08

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

Idaho Power/102
 Wright/6

MidC LL	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
9/30/2013	19.5644	15.6011	14.3268	28.1102	31.0655	31.5034	34.9273	34.8084	35.6116	35.3756	34.7458	33.1387
10/1/2013	19.6671	15.683	14.402	28.2577	31.2285	31.6687	35.1105	34.991	35.7984	35.551	34.918	33.3029
10/2/2013	19.8039	15.7921	14.5022	28.4543	31.4458	31.8891	35.3549	35.2345	36.0475	35.7965	35.1592	33.5329
10/3/2013	19.8176	15.803	14.5122	28.474	31.4676	31.9111	35.3793	35.2588	36.0724	35.8549	35.2166	33.5877
10/4/2013	19.715	15.7212	14.437	28.3265	31.3046	31.7459	35.1961	35.0762	35.8856	35.6796	35.0443	33.4234
10/7/2013	19.9271	15.8903	14.5924	28.6313	31.6414	32.0875	35.5748	35.4536	36.2717	36.042	35.4003	33.7629
10/8/2013	20.1324	16.054	14.7427	28.9263	31.9674	32.418	35.9413	35.8189	36.6454	36.3927	35.7448	34.0914
10/9/2013	19.9613	15.9176	14.6174	28.6804	31.6957	32.1425	35.6359	35.5145	36.334	36.0888	35.4462	33.8067
10/10/2013	19.9613	15.9176	14.6174	28.6804	31.6957	32.1425	35.6359	35.5145	36.334	36.0888	35.4462	33.8067
10/11/2013	20.0297	15.9722	14.6675	28.7788	31.8044	32.2527	35.758	35.6363	36.4586	36.2057	35.561	33.9162
10/14/2013	20.1392	16.0595	14.7477	28.9361	31.9782	32.429	35.9535	35.8311	36.6579	36.381	35.7333	34.0805
10/15/2013	20.0571	15.994	14.6876	28.8181	31.8479	32.2968	35.8069	35.685	36.5084	36.3226	35.6759	34.0257
10/16/2013	20.0913	16.0213	14.7126	28.8673	31.9022	32.3519	35.868	35.7458	36.5707	36.381	35.7333	34.0805
10/17/2013	20.0571	15.994	14.6876	28.8181	31.8479	32.2968	35.8069	35.685	36.5084	36.381	35.7333	34.0805
10/18/2013	20.0571	15.994	14.6876	28.8181	31.8479	32.2968	35.8069	35.685	36.5084	36.3226	35.6759	34.0257
10/21/2013	19.7355	15.7375	14.4521	28.356	31.3372	31.7789	35.2327	35.1127	35.923	35.8549	35.2166	33.5877
10/22/2013	19.7423	15.743	14.4571	28.3658	31.348	31.7899	35.2449	35.1249	35.9354	35.8549	35.2166	33.5877
10/23/2013	19.8518	15.8303	14.5373	28.5231	31.5219	31.9662	35.4404	35.3197	36.1347	36.0303	35.3888	33.7519
10/24/2013	19.8176	15.803	14.5122	28.474	31.4676	31.9111	35.3793	35.2588	36.0724	35.9718	35.3314	33.6972
10/25/2013	19.9545	15.9121	14.6124	28.6706	31.6849	32.1315	35.6236	35.5023	36.3215	36.2174	35.5725	33.9272
10/28/2013	19.3933	15.4647	14.2015	27.8644	30.7939	31.228	34.6219	34.504	35.3002	35.2704	34.6425	33.0401
10/29/2013	19.4618	15.5192	14.2516	27.9627	30.9025	31.3382	34.7441	34.6257	35.4247	35.3756	34.7458	33.1387
10/30/2013	19.5302	15.5738	14.3017	28.061	31.0112	31.4483	34.8662	34.7475	35.5493	35.5042	34.8721	33.2591
10/31/2013	19.3796	15.4538	14.1915	27.8447	30.7721	31.2059	34.5975	34.4796	35.2752	35.2704	34.6425	33.0401
11/1/2013	19.3454	15.4265	14.1664	27.7956	30.7178	31.1508	34.5364	34.4188	35.213	35.212	34.585	32.9854
11/4/2013	18.9006	15.0718	13.8407	27.1565	30.0115	30.4346	33.7423	33.6274	34.4033	34.4404	33.8272	32.2626
11/5/2013	18.9691	15.1264	13.8908	27.2548	30.1202	30.5448	33.8645	33.7491	34.5279	34.569	33.9535	32.383
11/6/2013	19.0375	15.1809	13.9409	27.3531	30.2288	30.655	33.9866	33.8709	34.6524	34.6859	34.0683	32.4925
11/7/2013	19.0375	15.1809	13.9409	27.3531	30.2288	30.655	33.9866	33.8709	34.6524	34.6859	34.0683	32.4925
11/8/2013	19.5302	15.5738	14.3017	28.061	31.0112	31.4483	34.8662	34.7475	35.5493	35.8783	35.2395	33.6096
11/11/2013	19.5302	15.5738	14.3017	28.061	31.0112	31.4483	34.8662	34.7475	35.5493	35.8783	35.2395	33.6096
11/12/2013	19.5576	15.5956	14.3218	28.1004	31.0546	31.4924	34.9151	34.7962	35.5991	35.9368	35.297	33.6643
11/13/2013	19.2496	15.3501	14.0963	27.6579	30.5657	30.9966	34.3653	34.2483	35.0386	35.399	34.7688	33.1606
11/14/2013	19.2496	15.3501	14.0963	27.6579	30.5657	30.9966	34.3653	34.2483	35.0386	35.399	34.7688	33.1606
11/15/2013	19.3181	15.4047	14.1464	27.7562	30.6743	31.1068	34.4875	34.3701	35.1631	35.5159	34.8836	33.2701
11/18/2013	19.2838	15.3774	14.1213	27.7071	30.62	31.0517	34.4264	34.3092	35.1009	35.4575	34.8262	33.2153
11/19/2013	18.9759	15.1318	13.8958	27.2646	30.1311	30.5558	33.8767	33.7613	34.5403	34.9314	34.3095	32.7225
11/20/2013	19.3386	15.421	14.1614	27.7857	30.7069	31.1398	34.5242	34.4066	35.2005	35.5159	34.8836	33.2701
11/21/2013	19.3728	15.4483	14.1865	27.8349	30.7613	31.1949	34.5852	34.4675	35.2628	35.5744	34.941	33.3248
11/22/2013	19.5439	15.5847	14.3118	28.0807	31.0329	31.4704	34.8907	34.7718	35.5742	35.8666	35.2281	33.5986
11/25/2013	19.8313	15.8139	14.5222	28.4936	31.4893	31.9332	35.4037	35.2832	36.0973	36.3343	35.6874	34.0367
11/26/2013	19.6191	15.6448	14.3669	28.1888	31.1524	31.5916	35.025	34.9058	35.7112	35.9718	35.3314	33.6972
11/27/2013	19.4481	15.5083	14.2416	27.943	30.8808	31.3161	34.7196	34.6014	35.3998	35.6796	35.0443	33.4234
11/29/2013	19.4481	15.5083	14.2416	27.943	30.8808	31.3161	34.7196	34.6014	35.3998	35.6796	35.0443	33.4234
12/2/2013	19.7492	15.7484	14.4621	28.3757	31.3589	31.801	35.2571	35.1371	35.9479	36.1589	35.5151	33.8724
12/3/2013	19.6123	15.6393	14.3619	28.179	31.1416	31.5806	35.0128	34.8936	35.6987	35.9251	35.2855	33.6534
12/4/2013	19.3454	15.4265	14.1664	27.7956	30.7178	31.1508	34.5364	34.4188	35.213	35.4458	34.8147	33.2044
12/5/2013	19.2428	15.3446	14.0913	27.6481	30.5548	30.9855	34.3531	34.2361	35.0261	35.2704	34.6425	33.0401
12/6/2013	19.3454	15.4265	14.1664	27.7956	30.7178	31.1508	34.5364	34.4188	35.213	35.4575	34.8262	33.2153
12/9/2013	19.1743	15.2901	14.0412	27.5497	30.4462	30.8754	34.231	34.1144	34.9016	35.1652	34.5391	32.9415
12/10/2013	18.8048	14.9954	13.7706	27.0188	29.8594	30.2803	33.5713	33.4569	34.2289	34.0429	33.4368	31.8902
12/11/2013	19.3454	15.4265	14.1664	27.7956	30.7178	31.1508	34.5364	34.4188	35.213	34.9898	34.3669	32.7773
12/12/2013	19.4275	15.492	14.2266	27.9135	30.8482	31.2831	34.683	34.5649	35.3624	35.1067	34.4817	32.8868
12/13/2013	19.0101	15.1591	13.9209	27.3138	30.1854	30.6109	33.9378	33.8222	34.6026	34.3936	33.7813	32.2188

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

Idaho Power/102
 Wright/7

MidC LL	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
12/16/2013	18.9417	15.1045	13.8708	27.2155	30.0767	30.5007	33.8156	33.7004	34.4781	34.2767	33.6664	32.1092
12/17/2013	19.0717	15.2082	13.966	27.4023	30.2832	30.7101	34.0477	33.9318	34.7147	34.5222	33.9076	32.3392
12/18/2013	19.4686	15.5247	14.2566	27.9725	30.9134	31.3492	34.7563	34.6379	35.4372	35.1652	34.5391	32.9415
12/19/2013	20.3856	16.2559	14.9281	29.29	32.3694	32.8257	36.3933	36.2694	37.1063	36.7434	36.0892	34.42
12/20/2013	20.0503	15.9885	14.6826	28.8083	31.837	32.2858	35.7947	35.6728	36.4959	36.2174	35.5725	33.9272
12/23/2013	20.0503	15.9885	14.6826	28.8083	31.837	32.2858	35.7947	35.6728	36.4959	36.2174	35.5725	33.9272
12/24/2013	20.0366	15.9776	14.6726	28.7886	31.8153	32.2638	35.7702	35.6484	36.471	36.381	35.7333	34.0805
12/26/2013	20.0024	15.9503	14.6475	28.7394	31.7609	32.2087	35.7092	35.5876	36.4087	36.3226	35.6759	34.0257
12/27/2013	20.0024	15.9503	14.6475	28.7394	31.7609	32.2087	35.7092	35.5876	36.4087	36.3226	35.6759	34.0257
12/30/2013	20.0024	15.9503	14.6475	28.7394	31.7609	32.2087	35.7092	35.5876	36.4087	36.3226	35.6759	34.0257
12/31/2013	19.5644	15.6011	14.3268	28.1102	31.0655	31.5034	34.9273	34.8084	35.6116	35.5861	34.9525	33.3358
1/2/2014	19.5986	15.6284	14.3518	28.1593	31.1198	31.5585	34.9884	34.8692	35.6738	35.6445	35.0099	33.3906
1/3/2014	19.5986	15.6284	14.3518	28.1593	31.1198	31.5585	34.9884	34.8692	35.6738	35.6445	35.0099	33.3906
1/6/2014	19.6328	15.6557	14.3769	28.2085	31.1742	31.6136	35.0495	34.9301	35.7361	35.703	35.0673	33.4453
1/7/2014	19.4618	15.5192	14.2516	27.9627	30.9025	31.3382	34.7441	34.6257	35.4247	35.4107	34.7802	33.1715
1/8/2014	19.2975	15.3883	14.1314	27.7267	30.6417	31.0737	34.4509	34.3335	35.1258	35.1652	34.5391	32.9415
1/9/2014	18.8185	15.0063	13.7806	27.0385	29.8811	30.3024	33.5957	33.4813	34.2539	34.3469	33.7353	32.175
1/10/2014	18.9075	15.0772	13.8457	27.1663	30.0224	30.4456	33.7545	33.6396	34.4158	34.4988	33.8846	32.3173
1/13/2014	19.2633	15.361	14.1063	27.6776	30.5874	31.0186	34.3898	34.2727	35.0635	35.1067	34.4817	32.8868
1/14/2014	19.4139	15.4811	14.2165	27.8939	30.8265	31.261	34.6585	34.5405	35.3375	35.3756	34.7458	33.1387
1/15/2014	19.1812	15.2955	14.0462	27.5596	30.457	30.8864	34.2432	34.1266	34.914	34.9782	34.3554	32.7663
1/16/2014	19.3044	15.3937	14.1364	27.7366	30.6526	31.0847	34.4631	34.3457	35.1382	35.2003	34.5736	32.9744
1/17/2014	19.3044	15.3937	14.1364	27.7366	30.6526	31.0847	34.4631	34.3457	35.1382	35.2003	34.5736	32.9744
1/21/2014	19.3386	15.421	14.1614	27.7857	30.7069	31.1398	34.5242	34.4066	35.2005	35.2587	34.631	33.0292
1/22/2014	19.3044	15.3937	14.1364	27.7366	30.6526	31.0847	34.4631	34.3457	35.1382	35.2003	34.5736	32.9744
1/23/2014	19.4686	15.5247	14.2566	27.9725	30.9134	31.3492	34.7563	34.6379	35.4372	35.4692	34.8377	33.2263
1/24/2014	19.4686	15.5247	14.2566	27.9725	30.9134	31.3492	34.7563	34.6379	35.4372	35.4692	34.8377	33.2263
1/27/2014	19.4686	15.5247	14.2566	27.9725	30.9134	31.3492	34.7563	34.6379	35.4372	35.4692	34.8377	33.2263
1/28/2014	19.4686	15.5247	14.2566	27.9725	30.9134	31.3492	34.7563	34.6379	35.4372	35.4692	34.8377	33.2263
1/29/2014	19.4686	15.5247	14.2566	27.9725	30.9134	31.3492	34.7563	34.6379	35.4372	35.4692	34.8377	33.2263
1/30/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
1/31/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/3/2014	19.1692	15.286	14.0374	27.5424	30.438	30.8671	34.2218	34.1053	34.8922	34.9548	34.3324	32.7444
2/4/2014	19.9818	15.934	14.6325	28.7099	31.7283	32.1756	35.6725	35.551	36.3714	36.381	35.7333	34.0805
2/5/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/6/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/7/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/10/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/11/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/12/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/13/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/14/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/18/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/19/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/20/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/21/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/24/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/25/2014	19.058	15.1973	13.956	27.3826	30.2614	30.688	34.0233	33.9074	34.6898	34.7911	34.1717	32.5911
2/26/2014	19.5798	15.6134	14.3381	28.1323	31.09	31.5282	34.9548	34.8358	35.6396	35.2763	34.6482	33.0456
2/27/2014	19.6397	15.6611	14.3819	28.2183	31.185	31.6247	35.0617	34.9423	35.7486	35.3639	34.7343	33.1277
2/28/2014	19.6397	15.6611	14.3819	28.2183	31.185	31.6247	35.0617	34.9423	35.7486	35.3639	34.7343	33.1277
3/3/2014	19.5028	15.552	14.2817	28.0217	30.9677	31.4043	34.8174	34.6988	35.4995	35.1301	34.5047	32.9087
3/4/2014	19.5028	15.552	14.2817	28.0217	30.9677	31.4043	34.8174	34.6988	35.4995	35.1301	34.5047	32.9087
3/5/2014	19.1949	15.3064	14.0562	27.5792	30.4788	30.9084	34.2676	34.1509	34.9389	34.6041	33.988	32.4159

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

Idaho Power/102
 Wright/8

MidC LL	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
3/6/2014	19.2291	15.3337	14.0812	27.6284	30.5331	30.9635	34.3287	34.2118	35.0012	34.6625	34.0454	32.4706
3/7/2014	19.2291	15.3337	14.0812	27.6284	30.5331	30.9635	34.3287	34.2118	35.0012	34.6625	34.0454	32.4706
3/10/2014	19.2291	15.3337	14.0812	27.6284	30.5331	30.9635	34.3287	34.2118	35.0012	34.6625	34.0454	32.4706
3/11/2014	19.366	15.4429	14.1815	27.825	30.7504	31.1839	34.573	34.4553	35.2503	34.8963	34.275	32.6897
3/12/2014	19.3061	15.3951	14.1376	27.739	30.6553	31.0875	34.4661	34.3488	35.1413	34.8086	34.1889	32.6075
3/13/2014	19.212	15.3201	14.0687	27.6038	30.5059	30.936	34.2981	34.1814	34.9701	34.6479	34.031	32.457
3/14/2014	19.212	15.3201	14.0687	27.6038	30.5059	30.936	34.2981	34.1814	34.9701	34.6479	34.031	32.457
3/17/2014	19.212	15.3201	14.0687	27.6038	30.5059	30.936	34.2981	34.1814	34.9701	34.6479	34.031	32.457
3/18/2014	19.1521	15.2723	14.0249	27.5178	30.4108	30.8395	34.1912	34.0748	34.8611	34.5456	33.9305	32.3611
3/19/2014	19.1521	15.2723	14.0249	27.5178	30.4108	30.8395	34.1912	34.0748	34.8611	34.5456	33.9305	32.3611
3/20/2014	19.0495	15.1905	13.9497	27.3703	30.2479	30.6743	34.008	33.8922	34.6742	34.3849	33.7727	32.2105
3/21/2014	19.0495	15.1905	13.9497	27.3703	30.2479	30.6743	34.008	33.8922	34.6742	34.3849	33.7727	32.2105
3/24/2014	18.9212	15.0882	13.8557	27.186	30.0441	30.4677	33.7789	33.6639	34.4407	34.1657	33.5574	32.0052
3/25/2014	20.365	16.2396	14.9131	29.2605	32.3368	32.7927	36.3566	36.2328	37.0689	36.8253	36.1696	34.4966
3/26/2014	19.2376	15.3405	14.0875	27.6407	30.5467	30.9773	34.344	34.227	35.0168	35.5831	34.9496	33.3331
3/27/2014	19.289	15.3815	14.1251	27.7144	30.6282	31.0599	34.4356	34.3183	35.1102	35.6854	35.0501	33.4289
3/28/2014	19.3061	15.3951	14.1376	27.739	30.6553	31.0875	34.4661	34.3488	35.1413	35.6854	35.0501	33.4289
3/31/2014	19.1721	15.2882	14.0395	27.5465	30.4425	30.8717	34.2269	34.1103	34.8974	35.2616	34.6338	33.0319
4/1/2014	19.001	15.1518	13.9142	27.3007	30.1709	30.5962	33.9215	33.806	34.586	34.9694	34.3468	32.7581
4/2/2014	19.155	15.2746	14.027	27.5219	30.4154	30.8441	34.1963	34.0799	34.8663	35.0278	34.4042	32.8129
4/3/2014	19.4287	15.4929	14.2274	27.9152	30.85	31.2849	34.685	34.5669	35.3645	35.4808	34.8491	33.2372
4/4/2014	19.4743	15.5293	14.2608	27.9807	30.9224	31.3584	34.7664	34.6481	35.4476	35.5539	34.9209	33.3057
4/7/2014	19.6283	15.652	14.3736	28.2019	31.1669	31.6063	35.0413	34.922	35.7278	35.627	34.9927	33.3741
4/8/2014	19.7993	15.7885	14.4988	28.4478	31.4386	31.8818	35.3467	35.2264	36.0392	34.8817	34.2607	32.676
4/9/2014	20.1016	16.0295	14.7202	28.882	31.9185	32.3684	35.8863	35.7641	36.5893	35.4078	34.7774	33.1688
4/10/2014	20.4181	16.2818	14.9519	29.3367	32.421	32.8781	36.4513	36.3272	37.1654	35.9777	35.3371	33.7027
4/11/2014	20.1444	16.0636	14.7515	28.9435	31.9864	32.4373	35.9627	35.8402	36.6672	35.7293	35.0931	33.4699
4/14/2014	20.0788	16.0113	14.7035	28.8492	31.8823	32.3317	35.8456	35.7235	36.5478	36.2553	35.6098	33.9628
4/15/2014	19.882	15.8544	14.5594	28.5666	31.5699	32.0149	35.4944	35.3735	36.1897	36.0946	35.452	33.8122
4/16/2014	19.9048	15.8726	14.5761	28.5993	31.6061	32.0516	35.5351	35.4141	36.2312	36.1531	35.5094	33.8669
4/17/2014	20.1814	16.0931	14.7786	28.9967	32.0453	32.497	36.0288	35.9061	36.7347	36.5476	35.8969	34.2365
4/21/2014	20.1814	16.0931	14.7786	28.9967	32.0453	32.497	36.0288	35.9061	36.7347	36.5476	35.8969	34.2365
4/22/2014	20.0617	15.9976	14.6909	28.8247	31.8551	32.3042	35.815	35.6931	36.5167	36.3284	35.6816	34.0312
4/23/2014	20.0189	15.9635	14.6596	28.7632	31.7872	32.2353	35.7387	35.617	36.4388	36.27	35.6242	33.9764
4/24/2014	19.9476	15.9067	14.6074	28.6608	31.674	32.1205	35.6114	35.4902	36.3091	36.1531	35.5094	33.8669
4/25/2014	19.902	15.8703	14.574	28.5952	31.6016	32.047	35.53	35.409	36.226	36.0654	35.4233	33.7848
4/28/2014	20.0731	16.0067	14.6993	28.841	31.8732	32.3225	35.8354	35.7134	36.5374	36.0654	35.4233	33.7848
4/29/2014	20.1928	16.1022	14.787	29.0131	32.0634	32.5154	36.0492	35.9264	36.7554	36.723	36.0691	34.4008
4/30/2014	20.133	16.0545	14.7431	28.9271	31.9683	32.4189	35.9423	35.8199	36.6464	36.6207	35.9687	34.305
5/1/2014	19.9362	15.8976	14.5991	28.6444	31.6559	32.1021	35.5911	35.4699	36.2883	36.6207	35.9687	34.305
5/2/2014	19.748	15.7475	14.4613	28.374	31.3571	31.7991	35.2551	35.1351	35.9458	36.2992	35.6529	34.0038
5/5/2014	19.9989	15.9476	14.645	28.7345	31.7555	32.2032	35.7031	35.5815	36.4025	36.8106	36.1553	34.4829
5/6/2014	20.0845	16.0158	14.7076	28.8574	31.8913	32.3409	35.8558	35.7337	36.5582	36.9714	36.3131	34.6335
5/7/2014	20.0845	16.0158	14.7076	28.8574	31.8913	32.3409	35.8558	35.7337	36.5582	36.9714	36.3131	34.6335
5/8/2014	20.0417	15.9817	14.6763	28.796	31.8234	32.272	35.7794	35.6576	36.4804	36.723	36.0691	34.4008
5/9/2014	20.0018	15.9499	14.6471	28.7386	31.76	32.2077	35.7081	35.5865	36.4077	36.6645	36.0117	34.3461
5/12/2014	19.7794	15.7725	14.4842	28.4191	31.4069	31.8496	35.3111	35.1909	36.0029	36.2846	35.6386	33.9901
5/13/2014	19.1464	15.2678	14.0207	27.5096	30.4018	30.8304	34.1811	34.0647	34.8507	35.7731	35.1362	33.511
5/14/2014	19.155	15.2746	14.027	27.5219	30.4154	30.8441	34.1963	34.0799	34.8663	35.6708	35.0357	33.4152
5/15/2014	19.6368	15.6589	14.3798	28.2142	31.1805	31.6201	35.0566	34.9372	35.7434	36.8983	36.2414	34.5651
5/16/2014	19.5456	15.5861	14.313	28.0831	31.0356	31.4731	34.8937	34.7749	35.5773	36.8399	36.184	34.5103
5/19/2014	19.5541	15.5929	14.3193	28.0954	31.0492	31.4869	34.909	34.7901	35.5929	36.9276	36.2701	34.5925
5/20/2014	19.7024	15.7111	14.4278	28.3085	31.2846	31.7257	35.1737	35.0539	35.8627	37.249	36.5859	34.8936
5/21/2014	19.5199	15.5656	14.2942	28.0463	30.9949	31.4318	34.8479	34.7292	35.5306	37.0006	36.3419	34.6609

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

Idaho Power/102
 Wright/9

MidC LL	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
5/22/2014	19.2975	15.3883	14.1314	27.7267	30.6417	31.0737	34.4509	34.3335	35.1258	36.6207	35.9687	34.305
5/23/2014	19.2975	15.3883	14.1314	27.7267	30.6417	31.0737	34.4509	34.3335	35.1258	36.6207	35.9687	34.305
5/27/2014	19.4002	15.4701	14.2065	27.8742	30.8047	31.239	34.6341	34.5162	35.3126	36.8399	36.184	34.5103
5/28/2014	19.6568	15.6748	14.3944	28.2429	31.2122	31.6522	35.0922	34.9727	35.7797	37.4829	36.8155	35.1126
5/29/2014	19.6568	15.6748	14.3944	28.2429	31.2122	31.6522	35.0922	34.9727	35.7797	37.4829	36.8155	35.1126
5/30/2014	19.9077	15.8749	14.5782	28.6034	31.6106	32.0562	35.5402	35.4191	36.2364	37.5413	36.8729	35.1674
6/2/2014	20.1672	16.0818	14.7682	28.9762	32.0226	32.474	36.0034	35.8808	36.7087	37.9797	37.3035	35.5781
6/3/2014	20.227	16.1295	14.812	29.0623	32.1177	32.5705	36.1103	35.9873	36.8177	38.0528	37.3753	35.6465
6/4/2014	20.2242	16.1272	14.8099	29.0582	32.1132	32.5659	36.1052	35.9822	36.8125	38.0528	37.3753	35.6465
6/5/2014	20.267	16.1613	14.8413	29.1196	32.1811	32.6347	36.1815	36.0583	36.8904	37.9943	37.3179	35.5918
6/6/2014	20.5464	16.3842	15.0459	29.5211	32.6248	33.0847	36.6804	36.5555	37.399	38.3012	37.6193	35.8792
6/9/2014	20.4437	16.3023	14.9707	29.3736	32.4618	32.9194	36.4971	36.3729	37.2121	38.2427	37.5619	35.8245
6/10/2014	20.2499	16.1477	14.8287	29.095	32.1539	32.6072	36.151	36.0279	36.8592	37.9212	37.2461	35.5233
6/11/2014	20.1757	16.0886	14.7745	28.9885	32.0362	32.4878	36.0187	35.896	36.7243	37.8043	37.1313	35.4138
6/12/2014	20.7346	16.5342	15.1837	29.7915	32.9236	33.3877	37.0163	36.8903	37.7415	38.7542	38.0642	36.3036
6/13/2014	20.7944	16.582	15.2275	29.8775	33.0187	33.4841	37.1232	36.9968	37.8505	38.8565	38.1647	36.3994
6/16/2014	20.8116	16.5956	15.2401	29.9021	33.0458	33.5117	37.1538	37.0273	37.8817	38.9149	38.2221	36.4542
6/17/2014	20.8116	16.5956	15.2401	29.9021	33.0458	33.5117	37.1538	37.0273	37.8817	38.9149	38.2221	36.4542
6/18/2014	20.5977	16.4251	15.0835	29.5948	32.7063	33.1673	36.772	36.6468	37.4924	38.6373	37.9494	36.1941
6/19/2014	20.5549	16.391	15.0522	29.5334	32.6384	33.0985	36.6957	36.5707	37.4146	38.5496	37.8633	36.112
6/20/2014	20.3382	16.2182	14.8935	29.222	32.2943	32.7495	36.3088	36.1852	37.0201	38.1843	37.5044	35.7697
6/23/2014	20.2613	16.1568	14.8371	29.1114	32.172	32.6255	36.1714	36.0482	36.88	37.8628	37.1887	35.4686
6/24/2014	20.3496	16.2273	14.9018	29.2384	32.3124	32.7679	36.3292	36.2054	37.0409	37.9212	37.2461	35.5233
6/25/2014	20.7574	16.5524	15.2004	29.8243	32.9598	33.4244	37.0571	36.9309	37.783	38.4473	37.7628	36.0161
6/26/2014	20.3126	16.1977	14.8747	29.1852	32.2535	32.7082	36.263	36.1395	36.9734	37.8628	37.1887	35.4686
6/27/2014	20.2869	16.1773	14.8559	29.1483	32.2128	32.6669	36.2172	36.0938	36.9267	37.8043	37.1313	35.4138
6/30/2014	20.4067	16.2727	14.9436	29.3204	32.4029	32.8597	36.431	36.3069	37.1447	37.9212	37.2461	35.5233
7/1/2014	20.515	16.3591	15.0229	29.476	32.575	33.0342	36.6244	36.4997	37.3419	37.9212	37.2461	35.5233
7/2/2014	20.247	16.1454	14.8267	29.0909	32.1494	32.6026	36.1459	36.0228	36.854	37.4682	36.8011	35.099
7/3/2014	20.247	16.1454	14.8267	29.0909	32.1494	32.6026	36.1459	36.0228	36.854	37.4682	36.8011	35.099
7/7/2014	19.9562	15.9135	14.6137	28.6731	31.6876	32.1343	35.6267	35.5054	36.3247	37.176	36.5141	34.8252
7/8/2014	19.8307	15.8135	14.5218	28.4928	31.4884	31.9323	35.4027	35.2822	36.0963	37.0737	36.4136	34.7293
7/9/2014	19.8222	15.8066	14.5155	28.4805	31.4748	31.9185	35.3875	35.267	36.0807	37.0737	36.4136	34.7293
7/10/2014	19.6853	15.6975	14.4153	28.2839	31.2575	31.6981	35.1431	35.0235	35.8316	37.0152	36.3562	34.6746
7/11/2014	19.7366	15.7384	14.4529	28.3576	31.339	31.7808	35.2348	35.1148	35.925	37.1029	36.4423	34.7567
7/14/2014	19.7708	15.7657	14.478	28.4068	31.3933	31.8359	35.2958	35.1756	35.9873	37.1614	36.4997	34.8115
7/15/2014	19.5712	15.6066	14.3318	28.12	31.0764	31.5145	34.9395	34.8205	35.624	36.7522	36.0979	34.4282
7/16/2014	19.5598	15.5975	14.3235	28.1036	31.0583	31.4961	34.9192	34.8002	35.6033	36.6499	35.9974	34.3324
7/17/2014	19.1721	15.2882	14.0395	27.5465	30.4425	30.8717	34.2269	34.1103	34.8974	35.9777	35.3371	33.7027
7/18/2014	19.1721	15.2882	14.0395	27.5465	30.4425	30.8717	34.2269	34.1103	34.8974	35.9777	35.3371	33.7027
7/21/2014	18.9012	15.0722	13.8411	27.1573	30.0124	30.4355	33.7433	33.6284	34.4044	35.5101	34.8778	33.2646
7/22/2014	18.5419	14.7858	13.578	26.6411	29.442	29.857	33.1019	32.9892	33.7504	34.9255	34.3037	32.717
7/23/2014	18.2768	14.5743	13.3839	26.2601	29.0209	29.43	32.6285	32.5174	33.2678	34.6333	34.0167	32.4433
7/24/2014	18.2397	14.5447	13.3567	26.2068	28.9621	29.3703	32.5624	32.4515	33.2003	35.3201	34.6913	33.0867
7/25/2014	18.2996	14.5925	13.4006	26.2929	29.0571	29.4668	32.6693	32.558	33.3093	35.1009	34.476	32.8813
7/28/2014	18.2197	14.5288	13.3421	26.1782	28.9304	29.3382	32.5267	32.416	33.164	34.8817	34.2607	32.676
7/29/2014	18.368	14.6471	13.4507	26.3912	29.1658	29.5769	32.7914	32.6798	33.4338	34.9548	34.3324	32.7444
7/30/2014	18.2682	14.5675	13.3776	26.2478	29.0073	29.4163	32.6133	32.5022	33.2522	34.794	34.1745	32.5938
7/31/2014	18.4564	14.7175	13.5154	26.5182	29.3062	29.7193	32.9492	32.837	33.5947	35.0132	34.3898	32.7992
8/1/2014	18.388	14.663	13.4653	26.4199	29.1975	29.6091	32.8271	32.7153	33.4702	34.9109	34.2894	32.7034
8/4/2014	18.4535	14.7153	13.5133	26.5141	29.3016	29.7147	32.9441	32.832	33.5895	35.0278	34.4042	32.8129
8/5/2014	18.6332	14.8585	13.6449	26.7722	29.5869	30.0039	33.2648	33.1515	33.9165	35.1886	34.5621	32.9635
8/6/2014	18.5818	14.8176	13.6073	26.6984	29.5054	29.9213	33.1732	33.0602	33.8231	35.1009	34.476	32.8813
8/7/2014	18.4963	14.7494	13.5446	26.5755	29.3695	29.7836	33.0205	32.908	33.6674	34.9402	34.3181	32.7307

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

Idaho Power/102
 Wright/10

MidC LL	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
8/8/2014	18.6759	14.8926	13.6762	26.8336	29.6548	30.0728	33.3412	33.2276	33.9944	35.247	34.6195	33.0182
8/11/2014	18.5476	14.7903	13.5822	26.6493	29.451	29.8662	33.1121	32.9994	33.7608	35.0278	34.4042	32.8129
8/12/2014	18.522	14.7698	13.5634	26.6124	29.4103	29.8249	33.0663	32.9537	33.7141	34.9694	34.3468	32.7581
8/13/2014	18.2739	14.572	13.3818	26.256	29.0164	29.4254	32.6235	32.5124	33.2626	34.5456	33.9305	32.3611
8/14/2014	18.4364	14.7016	13.5008	26.4895	29.2745	29.6871	32.9136	32.8015	33.5584	35.0717	34.4473	32.8539
8/15/2014	17.966	14.3265	13.1563	25.8136	28.5274	28.9296	32.0737	31.9645	32.7021	35.0717	34.4473	32.8539
8/18/2014	18.2711	14.5698	13.3797	26.2519	29.0119	29.4208	32.6184	32.5073	33.2574	35.0717	34.4473	32.8539
8/19/2014	18.6303	14.8562	13.6428	26.7681	29.5823	29.9993	33.2597	33.1465	33.9113	35.0717	34.4473	32.8539
8/20/2014	18.579	14.8153	13.6052	26.6943	29.5008	29.9167	33.1681	33.0552	33.8179	35.0717	34.4473	32.8539
8/21/2014	18.7216	14.929	13.7096	26.8992	29.7272	30.1463	33.4226	33.3088	34.0774	35.0717	34.4473	32.8539
8/22/2014	18.7216	14.929	13.7096	26.8992	29.7272	30.1463	33.4226	33.3088	34.0774	35.0717	34.4473	32.8539
8/25/2014	18.7643	14.9631	13.7409	26.9606	29.7951	30.2151	33.499	33.3849	34.1552	35.0717	34.4473	32.8539
8/26/2014	18.7529	14.954	13.7326	26.9443	29.777	30.1968	33.4786	33.3646	34.1345	36.1677	35.5237	33.8806
8/27/2014	18.7244	14.9313	13.7117	26.9033	29.7317	30.1509	33.4277	33.3139	34.0826	35.9485	35.3084	33.6753
8/28/2014	18.656	14.8767	13.6616	26.805	29.6231	30.0407	33.3055	33.1921	33.958	35.9485	35.3084	33.6753
8/29/2014	18.6902	14.904	13.6866	26.8541	29.6774	30.0958	33.3666	33.253	34.0203	35.9485	35.3084	33.6753
9/2/2014	18.4364	14.7016	13.5008	26.4895	29.2745	29.6871	32.9136	32.8015	33.5584	35.8316	35.1936	33.5658
9/3/2014	18.4963	14.7494	13.5446	26.5755	29.3695	29.7836	33.0205	32.908	33.6674	35.6124	34.9783	33.3604
9/4/2014	18.4649	14.7244	13.5217	26.5305	29.3197	29.7331	32.9645	32.8522	33.6103	35.5539	34.9209	33.3057
9/5/2014	18.4792	14.7357	13.5321	26.551	29.3424	29.756	32.9899	32.8776	33.6362	35.5539	34.9209	33.3057
9/8/2014	18.6645	14.8835	13.6678	26.8173	29.6367	30.0544	33.3208	33.2073	33.9736	35.5539	34.9209	33.3057
9/9/2014	18.8784	15.0541	13.8244	27.1245	29.9762	30.3988	33.7026	33.5878	34.3628	35.5539	34.9209	33.3057
9/10/2014	18.8641	15.0427	13.814	27.104	29.9536	30.3758	33.6771	33.5625	34.3369	35.5539	34.9209	33.3057
9/11/2014	18.6588	14.879	13.6637	26.8091	29.6276	30.0453	33.3106	33.1972	33.9632	35.5539	34.9209	33.3057
9/12/2014	18.4678	14.7266	13.5238	26.5346	29.3243	29.7376	32.9696	32.8573	33.6155	35.5539	34.9209	33.3057
9/15/2014	18.6702	14.8881	13.672	26.8254	29.6457	30.0636	33.331	33.2175	33.984	35.5539	34.9209	33.3057
9/16/2014	18.8926	15.0654	13.8349	27.145	29.9988	30.4217	33.728	33.6132	34.3888	35.5539	34.9209	33.3057
9/17/2014	18.9212	15.0882	13.8557	27.186	30.0441	30.4677	33.7789	33.6639	34.4407	35.5539	34.9209	33.3057
9/18/2014	18.847	15.029	13.8015	27.0794	29.9264	30.3483	33.6466	33.532	34.3058	35.5539	34.9209	33.3057
9/19/2014	18.7957	14.9881	13.7639	27.0057	29.8449	30.2656	33.555	33.4407	34.2123	35.5539	34.9209	33.3057
9/22/2014	18.7643	14.9631	13.7409	26.9606	29.7951	30.2151	33.499	33.3849	34.1552	35.5539	34.9209	33.3057
9/23/2014	18.7615	14.9608	13.7388	26.9565	29.7906	30.2105	33.4939	33.3798	34.1501	35.5539	34.9209	33.3057
9/24/2014	18.7615	14.9608	13.7388	26.9565	29.7906	30.2105	33.4939	33.3798	34.1501	35.5539	34.9209	33.3057
9/25/2014	18.6759	14.8926	13.6762	26.8336	29.6548	30.0728	33.3412	33.2276	33.9944	35.5101	34.8778	33.2646
9/26/2014	18.6446	14.8676	13.6532	26.7886	29.605	30.0223	33.2852	33.1718	33.9373	35.5101	34.8778	33.2646
9/29/2014	18.77	14.9677	13.7451	26.9688	29.8042	30.2243	33.5092	33.395	34.1656	35.627	34.9927	33.3741
Average LL	19.43	15.49	14.22	27.91	30.84	31.28	34.68	34.56	35.36	35.84	35.20	33.57
Max LL	20.81	16.60	15.24	29.90	33.05	33.51	37.15	37.03	37.88	38.91	38.22	36.45
Min LL	17.97	14.33	13.16	25.81	28.53	28.93	32.07	31.96	32.70	34.04	33.44	31.89
Spread	2.85	2.27	2.08	4.09	4.52	4.58	5.08	5.06	5.18	4.87	4.79	4.56

Idaho Power/103
Witness: Scott Wright

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Scott Wright

Producer Price Index for Electric Power

October 21, 2014

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

2010 Q1	178.2667
2010 Q2	184.6333
2010 Q3	192.2000
2010 Q4	182.4000
2011 Q1	184.0333
2011 Q2	188.1667
2011 Q3	195.4000
2011 Q4	187.9333
2012 Q1	185.8333
2012 Q2	188.8333
2012 Q3	196.8667
2012 Q4	190.4000
2013 Q1	189.1667
2013 Q2	193.1667
2013 Q3	199.3000
2013 Q4	191.7667
2014 Q1	195.7333
2014 Q2	200.3000
2014 Q3	208.7913
2014 Q4	201.3193
2015 Q1	202.8121
2015 Q2	208.5710
2015 Q3	217.0543
2015 Q4	209.5831
2016 Q1	211.4731
2016 Q2	217.6297
2016 Q3	226.5778
2016 Q4	218.6818
2017 Q1	220.4267
2017 Q2	226.5568
2017 Q3	235.5751
2017 Q4	227.0934
2018 Q1	228.6204
2018 Q2	234.6640
2018 Q3	243.6572
2018 Q4	234.5554
2019 Q1	235.8274
2019 Q2	241.7803
2019 Q3	250.7925
2019 Q4	241.2079
2020 Q1	242.3253
2020 Q2	248.2795
2020 Q3	257.4025
2020 Q4	247.4821

Idaho Power/104
Witness: Scott Wright

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Scott Wright
Idaho Power Company's Forward Price Curves Discounted for Inflation
Used to Re-Price Purchased Power
and Surplus Sales for the October Update

October 21, 2014

IDAHO POWER COMPANY
MidC Forward Price Curves Discounted for Inflation
Used to Re-Price Purchased Power and Surplus Sales for the October Update

<u>Line</u>		Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
1	Forward Curve Prices												
2	Relevant Quarter	2016 Q2	2016 Q2	2016 Q2	2016 Q3	2016 Q3	2016 Q3	2016 Q4	2016 Q4	2016 Q4	2017 Q1	2017 Q1	2017 Q1
3	Deflator	2.1763	2.1763	2.1763	2.2658	2.2658	2.2658	2.1868	2.1868	2.1868	2.2043	2.2043	2.2043
4	Water Year	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
5	Relevant Quarter	2015 Q2	2015 Q2	2015 Q2	2015 Q3	2015 Q3	2015 Q3	2015 Q4	2015 Q4	2015 Q4	2016 Q1	2016 Q1	2016 Q1
6	Inflator	2.0857	2.0857	2.0857	2.1705	2.1705	2.1705	2.0958	2.0958	2.0958	2.1147	2.1147	2.1147
7	Average Prices	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
8	MidC HL	30.77	29.96	28.29	41.83	43.56	43.60	41.48	42.62	43.78	42.79	43.47	39.86
9	MidC LL	19.43	15.49	14.22	27.91	30.84	31.28	34.68	34.56	35.36	35.84	35.20	33.57
10	Inflation Adjusted	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
11	MidC HL	29.49	28.71	27.11	40.08	41.73	41.77	39.76	40.85	41.96	41.05	41.71	38.24
12	MidC LL	18.62	14.85	13.63	26.74	29.55	29.96	33.24	33.12	33.89	34.38	33.77	32.21
13	Difference	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
14	MidC HL	1.28	1.25	1.18	1.76	1.83	1.83	1.73	1.77	1.82	1.74	1.77	1.62
15	MidC LL	0.81	0.64	0.59	1.17	1.30	1.31	1.44	1.44	1.47	1.46	1.43	1.36
16	Reallocated Prices	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
17	HL Purchased Power												
18	103.9%	30.64	29.83	28.17	41.64	43.35	43.40	41.31	42.44	43.59	42.65	43.33	39.73
19	LL Purchased Power												
20	107.1%	19.94	15.90	14.60	28.64	31.65	32.09	35.60	35.47	36.29	36.82	36.17	34.49
21	HL Surplus Sales												
22	96.4%	28.43	27.68	26.14	38.63	40.22	40.27	38.32	39.38	40.44	39.58	40.21	36.86
23	LL Surplus Sales												
24	93.4%	17.39	13.87	12.73	24.97	27.60	27.99	31.04	30.94	31.65	32.11	31.54	30.08

Idaho Power/105
Witness: Scott Wright

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Scott Wright

Idaho Power Company's Power Supply Expenses for April 1, 2015 – March 31, 2016
(Multiple Gas Prices – 86 Years of Hydro)

October 21, 2014

IPCO POWER SUPPLY EXPENSES FOR APRIL 1, 2015 -- MARCH 31, 2016 (Multiple Gas Prices/86 Years of Hydro Conditions)
Repriced Using UE 195 Settlement Methodology - October Update
AVERAGE

	April	May	June	July	August	September	October	November	December	January	February	March	Annual
Hydroelectric Generation (MWh)	877,619.0	934,569.6	916,572.2	700,293.3	525,815.1	546,256.7	552,023.8	468,759.2	676,090.4	758,485.7	861,193.1	856,357.8	8,674,036.0
Bridger													
Energy (MWh)	205,912.7	214,679.7	302,141.3	441,125.9	449,676.9	310,051.8	293,377.1	372,611.2	448,779.5	398,848.6	349,407.7	380,148.1	4,166,760.5
Expense (\$ x 1000)	\$ 5,492.3	\$ 5,739.3	\$ 8,005.2	\$ 11,539.6	\$ 11,756.3	\$ 8,146.4	\$ 7,717.2	\$ 9,800.9	\$ 11,729.7	\$ 10,395.4	\$ 9,133.4	\$ 9,928.3	\$ 109,383.9
Boardman													
Energy (MWh)	10,322.4	-	18,427.6	37,749.1	38,399.8	32,680.4	30,396.3	30,676.3	37,707.8	19,799.3	16,690.9	16,822.1	289,672.0
Expense (\$ x 1000)	\$ 282.2	\$ -	\$ 504.3	\$ 1,022.1	\$ 1,038.3	\$ 886.8	\$ 824.8	\$ 831.7	\$ 1,017.9	\$ 582.1	\$ 494.2	\$ 503.3	\$ 7,987.7
Valmy													
Energy (MWh)	1,816.9	5,861.9	20,574.6	76,544.8	66,956.1	34,393.6	29,462.0	29,812.0	58,351.9	29,171.9	27,639.2	12,860.6	393,445.4
Expense (\$ x 1000)	\$ 67.3	\$ 219.7	\$ 749.0	\$ 2,664.8	\$ 2,342.8	\$ 1,212.7	\$ 1,046.9	\$ 1,071.8	\$ 2,036.9	\$ 1,060.9	\$ 1,001.4	\$ 473.0	\$ 13,947.2
Langley Gulch													
Energy (MWh)	54,811.1	64,471.8	117,407.2	171,610.1	172,038.7	145,760.5	131,560.6	64,940.2	70,707.4	39,261.0	40,530.3	41,434.2	1,114,533.2
Expense (\$ x 1000)	\$ 1,505.5	\$ 1,689.0	\$ 3,061.1	\$ 4,641.5	\$ 4,679.0	\$ 4,027.4	\$ 3,741.3	\$ 2,128.0	\$ 2,547.4	\$ 1,439.5	\$ 1,426.0	\$ 1,413.3	\$ 32,299.1
Danskin													
Energy (MWh)	0.9	-	490.1	26,367.1	18,259.1	2,590.9	149.3	2.0	3.6	6.2	4.6	0.5	47,874.3
Expense (\$ x 1000)	\$ 0.0	\$ -	\$ 23.0	\$ 1,208.6	\$ 829.1	\$ 124.2	\$ 6.7	\$ 0.1	\$ 0.2	\$ 0.4	\$ 0.3	\$ 0.0	\$ 2,192.7
Bennett Mountain													
Energy (MWh)	-	-	71.1	8,034.0	3,640.8	95.4	7.6	0.3	0.1	0.6	-	-	11,849.8
Expense (\$ x 1000)	\$ -	\$ -	\$ 3.4	\$ 377.0	\$ 169.0	\$ 4.7	\$ 0.3	\$ 0.0	\$ 0.0	\$ 0.0	\$ -	\$ -	\$ 554.4
Fixed Capacity Charge - Gas Transportation (\$ x 1000)	\$ 737.6	\$ 761.7	\$ 746.6	\$ 780.3	\$ 780.3	\$ 755.6	\$ 761.7	\$ 737.6	\$ 761.7	\$ 761.7	\$ 713.6	\$ 761.7	\$ 9,059.8
Purchased Power (Excluding CSPP)													
Market Energy (MWh)	4,156.0	4,378.2	20,121.6	126,706.3	91,085.0	34,136.4	8,090.4	23,232.9	22,625.8	37,435.8	3,219.9	1,966.7	377,155.0
Elkhorn Wind Energy (MWh)	23,518.2	24,014.7	23,574.3	26,612.0	26,462.2	20,831.4	22,703.6	23,844.0	26,274.9	27,546.2	23,761.2	27,261.8	296,404.6
Neal Hot Springs Energy (MWh)	13,569.7	10,684.5	11,067.6	7,824.1	8,991.1	9,658.6	11,060.4	14,749.6	19,041.5	18,746.8	16,677.7	16,242.3	158,313.9
Raft River Geothermal Energy (MWh)	6,109.5	5,408.3	5,093.9	5,657.0	5,824.0	5,471.0	7,569.9	6,559.2	6,791.4	6,789.2	6,564.6	6,484.3	74,322.2
Total Energy Excl. CSPP (MWh)	47,353.4	44,485.8	59,857.3	166,799.3	132,362.3	70,097.3	49,424.4	68,385.7	74,733.6	90,518.0	50,223.5	51,955.2	906,195.8
Market Expense (\$ x 1000)	\$ 111.4	\$ 108.8	\$ 469.2	\$ 4,686.9	\$ 3,567.6	\$ 1,343.5	\$ 317.7	\$ 928.2	\$ 927.3	\$ 1,518.8	\$ 131.3	\$ 74.5	\$ 14,185.0
Elkhorn Wind Expense (\$ x 1000)	\$ 987.5	\$ 1,008.4	\$ 1,346.8	\$ 1,824.5	\$ 1,814.3	\$ 1,190.1	\$ 1,297.1	\$ 1,634.7	\$ 1,801.4	\$ 1,621.1	\$ 1,398.3	\$ 1,179.1	\$ 17,103.3
Neal Hot Springs Expense (\$ x 1000)	\$ 1,062.2	\$ 836.4	\$ 1,181.9	\$ 1,002.7	\$ 1,152.2	\$ 1,031.4	\$ 1,181.1	\$ 1,890.2	\$ 2,440.2	\$ 2,048.5	\$ 1,822.4	\$ 1,300.8	\$ 16,950.0
Raft River Geothermal Expense (\$ x 1000)	\$ 278.4	\$ 246.5	\$ 315.8	\$ 420.9	\$ 433.3	\$ 339.2	\$ 469.3	\$ 488.0	\$ 505.3	\$ 429.8	\$ 415.5	\$ 301.7	\$ 4,643.7
Total Expense Excl. CSPP (\$ x 1000)	\$ 2,439.6	\$ 2,200.0	\$ 3,313.7	\$ 7,934.9	\$ 6,967.3	\$ 3,904.2	\$ 3,265.2	\$ 4,941.1	\$ 5,674.1	\$ 5,618.1	\$ 3,767.5	\$ 2,856.1	\$ 52,882.0
Surplus Sales													
Energy (MWh)	337,383.8	274,413.5	230,048.0	23,158.6	16,913.5	66,658.1	131,963.7	74,773.2	111,814.0	140,161.3	317,832.8	354,579.8	2,079,700.2
Revenue Including Transmission Costs (\$ x 1000)	\$ 8,201.3	\$ 6,181.9	\$ 4,862.3	\$ 776.7	\$ 600.7	\$ 2,378.7	\$ 4,699.0	\$ 2,709.1	\$ 4,155.5	\$ 5,156.8	\$ 11,751.6	\$ 12,173.7	\$ 63,647.2
Transmission Costs (\$ x 1000)	\$ 337.4	\$ 274.4	\$ 230.0	\$ 23.2	\$ 16.9	\$ 66.7	\$ 132.0	\$ 74.8	\$ 111.8	\$ 140.2	\$ 317.8	\$ 354.6	\$ 2,079.7
Revenue Excluding Transmission Costs (\$ x 1000)	\$ 7,863.9	\$ 5,907.5	\$ 4,632.3	\$ 753.5	\$ 583.7	\$ 2,312.1	\$ 4,567.0	\$ 2,634.3	\$ 4,043.7	\$ 5,016.6	\$ 11,433.7	\$ 11,819.1	\$ 61,567.5
Net Hedges													
Energy (MWh)	-	-	-	-	-	-	-	-	-	-	-	-	-
Cost(\$ X 1000)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net Power Supply Expenses (\$ x 1000)	\$ 2,660.7	\$ 4,702.2	\$ 11,774.0	\$ 29,415.2	\$ 27,978.4	\$ 16,749.9	\$ 12,797.0	\$ 16,876.9	\$ 19,724.2	\$ 14,841.4	\$ 5,102.7	\$ 4,116.6	\$ 166,739.2
PURPA (\$ x 1000)	\$13,715.06	\$15,802.08	\$17,865.50	\$20,547.91	\$17,690.60	\$14,438.04	\$12,965.47	\$12,926.74	\$12,273.79	\$11,173.01	\$12,344.37	\$11,015.12	\$ 172,757.7
Total Net Power Supply Expenses (\$ x 1000)	\$ 16,375.7	\$ 20,504.3	\$ 29,639.5	\$ 49,963.1	\$ 45,669.0	\$ 31,188.0	\$ 25,762.5	\$ 29,803.7	\$ 31,998.0	\$ 26,014.4	\$ 17,447.1	\$ 15,131.7	\$ 339,496.9
Sales at Customer Level (In 000s MWH)	1,021,475	1,027,715	1,200,248	1,443,007	1,527,416	1,385,154	1,106,348	1,026,179	1,150,844	1,280,412	1,213,909	1,101,751	14,484,458
Hours in Month	720	744	720	744	744	720	744	720	744	744	696	744	8784
Unit Cost / MWH (for PCAM)	\$16.03	\$19.95	\$24.69	\$34.62	\$29.90	\$22.52	\$23.29	\$29.04	\$27.80	\$20.32	\$14.37	\$13.73	\$23.44
Prices Used in Purchased Power & Surplus Sales Above:													
Heavy Load													
Portion of Purchased Power considered HL F	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%	64.25%
Purchased Power HL Price	30.64	29.83	28.17	41.64	43.35	43.40	41.31	42.44	43.59	42.65	43.33	39.73	
Portion of Surplus Sales considered HL Surp	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%	62.70%
Surplus Sales HL Price	28.43	27.68	26.14	38.63	40.22	40.27	38.32	39.38	40.44	39.58	40.21	36.86	
Light Load													
Portion of Purchased Power considered LL F	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%	35.75%
Purchased Power LL Price	19.94	15.90	14.60	28.64	31.65	32.09	35.60	35.47	36.29	36.82	36.17	34.49	
Portion of Surplus Sales considered LL Surp	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%	37.30%
Surplus Sales LL Price	17.39	13.87	12.73	24.97	27.60	27.99	31.04	30.94	31.65	32.11	31.54	30.08	

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Scott Wright
AURORA Developed Results versus Re-priced Methodology

October 21, 2014

COMPARISON OF AURORA DEVELOPED RESULTS VERSUS REPRICED METHODOLOGY

AURORA DEVELOPED RESULTS				REPRICED USING FORWARD MARKET PRICES				DIFFERENCES			
GENERATION				GENERATION				GENERATION			
	A	B		C	D	E	F	G	H		
Line No.	2014 October Update	2015 October Update	Resource Type	2014 October Update	2015 October Update	(B-A)	(D-C)	(C-A)	(D-B)		
1	8,508,188	8,674,036	Hydro (MWh)	8,508,188	8,674,036	165,848	165,848	-	-		
2	5,291,296	4,849,878	Coal (MWh)	5,291,296	4,849,878	(441,418)	(441,418)	-	-		
3	887,042	1,174,257	Natural Gas (MWh)	887,042	1,174,257	287,215	287,215	-	-		
			Purchased Power								
4	1,163,931	906,196	Agreements (MWh)	1,163,931	906,196	(257,736)	(257,736)	-	-		
5	2,208,282	2,269,022	PURPA (MWh)	2,208,282	2,269,022	60,740	60,740	-	-		
6	2,465,858	2,079,700	Surplus Sales (MWh)	2,465,858	2,079,700	(386,158)	(386,158)	-	-		
7	15,592,882	15,793,689	System Load (MWh)	15,592,882	15,793,689	200,807	200,807	-	-		
8	1,780	1,798	System Load (aMW)	1,780	1,798	23	23	-	-		
			NET POWER SUPPLY EXPENSES								
	A	B		C	D	E	F	G	H		
Line No.	2014 October Update	2015 October Update	Resource Type	2014 October Update	2015 October Update	(B-A)	(D-C)	(C-A)	(D-B)		
9	\$ -	\$ -	Hydro (\$ x 1000)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
10	\$ 125,693.3	\$ 131,318.8	Coal (\$ x 1000)	\$ 125,693.3	\$ 131,318.8	\$ 5,625.5	\$ 5,625.5	\$ -	\$ -		
11	\$ 35,849.7	\$ 44,105.9	Natural Gas (\$ x 1000)	\$ 35,849.7	\$ 44,105.9	\$ 8,256.2	\$ 8,256.2	\$ -	\$ -		
			Purchased Power								
12	\$ 62,877.8	\$ 53,676.7	Agreements (\$ x 1000)	\$ 62,806.0	\$ 52,882.0	\$ (9,201.2)	\$ (9,924.0)	\$ (71.9)	\$ (794.7)		
13	\$ 165,947.6	\$ 172,757.7	PURPA (\$ x 1000)	\$ 165,947.6	\$ 172,757.7	\$ 6,810.1	\$ 6,810.1	\$ -	\$ -		
14	\$ (64,233.7)	\$ (56,098.4)	Surplus Sales (\$ x 1000)	\$ (80,685.8)	\$ (61,567.5)	\$ 8,135.3	\$ 19,118.3	\$ (16,452.1)	\$ (5,469.1)		
15	\$ 326,134.8	\$ 345,760.7	Total System (\$ x 1000)	\$ 309,610.8	\$ 339,496.9	\$ 19,625.9	\$ 29,886.1	\$ (16,524.0)	\$ (6,263.8)		

Idaho Power/107
Witness: Scott Wright

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Scott Wright
Idaho Power Company's Rate Spread for October APCU Update

October 21, 2014

Idaho Power Company
Rate Spread Exhibit for October Update APCU

General Rate Case (UE 233): Marginal Cost-of-Service Study and Stipulated Revenue Spread														
2011 Test Period														
Line	Description	(A) TOTAL SYSTEM	(B) RESIDENTIAL (1)	(C) GEN SRV (7)	(D) GEN SRV SECONDARY (9-S)	(E) GEN SRV PRIMARY (9-P)	(F) GEN SRV TRANS (9-T)	(G) AREA LIGHTING (15)	(H) LG POWER PRIMARY (19-P)	(I) LG POWER TRANS (19-T)	(J) IRRIGATION SECONDARY (24-S)	(K) UNMETERED GEN SERVICE (40)	(L) MUNICIPAL ST LIGHT (41)	(M) TRAFFIC CONTROL (42)
1	Normalized Sales (kWh)	650,158,581	198,842,419	17,842,896	114,256,218	15,099,088	2,832,509	483,936	179,189,047	74,155,867	46,649,265	12,900	778,108	16,328
2	Current Revenue	\$39,873,591	\$15,355,932	\$1,559,400	\$6,975,915	\$798,102	\$154,997	\$112,462	\$8,213,065	\$3,123,393	\$3,454,271	\$972	\$123,851	\$1,231
3														
4	Demand Related Marginal Cost													
5	Generation - Staff Adj.	\$11,049,450	\$4,082,443	\$268,043	\$1,671,178	\$207,813	\$35,425	\$625	\$1,790,415	\$1,483,718	\$1,508,400	\$158	\$1,035	\$200
6	Transmission - Staff Adj.	\$12,432,118	\$4,593,297	\$301,584	\$1,880,300	\$233,817	\$39,858	\$703	\$2,014,458	\$1,669,382	\$1,697,153	\$177	\$1,165	\$225
7	Distribution	\$6,945,625	\$3,215,110	\$181,233	\$1,319,947	\$100,783	\$0	\$5,738	\$798,946	\$0	\$1,314,267	\$161	\$9,350	\$89
8														
9	Energy Related Marginal Cost													
10	Generation	\$28,547,004	\$8,940,577	\$802,452	\$5,140,232	\$649,911	\$117,743	\$21,383	\$7,662,010	\$3,097,424	\$2,079,568	\$570	\$34,414	\$722
11	Transmission - Staff Adj.	\$4,144,040	\$1,297,863	\$116,488	\$746,184	\$94,345	\$17,092	\$3,104	\$1,112,259	\$449,639	\$301,881	\$83	\$4,996	\$105
12														
13	Simple-Summed Energy-Related and Demand-Related Marginal Costs													
14	Generation Marginal Costs - Staff Adj.	\$39,596,454	\$13,023,020	\$1,070,495	\$6,811,410	\$857,724	\$153,168	\$22,008	\$9,452,425	\$4,581,142	\$3,587,968	\$728	\$35,449	\$922
15	Transmission Marginal Costs - Staff Adj.	\$16,576,157	\$5,891,160	\$418,072	\$2,626,484	\$328,162	\$56,950	\$3,807	\$3,126,717	\$2,119,021	\$1,999,034	\$260	\$6,160	\$330
16														
17	Customer Related Marginal Cost	\$2,805,903	\$1,967,110	\$385,570	\$177,410	\$6,719	\$1,390	\$0	\$15,208	\$2,535	\$246,967	\$228	\$1,892	\$873
18														
19	Total Functionalized Revenue Requirement													
20	Generation - Staff Adj.	\$25,202,690	\$8,289,003	\$681,357	\$4,335,384	\$545,931	\$97,490	\$14,008	\$6,016,360	\$2,915,844	\$2,283,701	\$463	\$22,563	\$587
21														
22	Transmission	\$4,272,366	\$1,518,397	\$107,755	\$676,954	\$84,581	\$14,678	\$981	\$805,885	\$546,160	\$515,234	\$67	\$1,588	\$85
23														
24	Distribution													
25	Demand-Related	\$8,930,530	\$4,133,917	\$233,025	\$1,697,158	\$129,585	\$0	\$7,378	\$1,027,267	\$0	\$1,689,855	\$207	\$12,022	\$114
26	Customer-Related													
27	Allocated	\$2,859,472	\$2,004,665	\$392,931	\$180,797	\$6,847	\$1,417	\$0	\$15,498	\$2,583	\$251,682	\$232	\$1,928	\$890
28	Direct Assignment	\$419,424	\$188,447	\$34,356	\$12,375	\$69	\$14	\$78,778	\$83	\$14	\$21,953	\$42	\$83,209	\$83
29														
30	Total: Staff-Adjusted Allocation	\$41,684,482	\$16,134,429	\$1,449,425	\$6,902,669	\$767,013	\$113,599	\$101,145	\$7,865,094	\$3,464,601	\$4,762,425	\$1,011	\$121,310	\$1,759
31	Revenue Deficiency - Staff Adj. Allocation	\$1,810,890	\$778,497	(\$109,975)	(\$73,246)	(\$31,089)	(\$41,398)	(\$11,317)	(\$347,971)	\$341,208	\$1,308,154	\$39	(\$2,541)	\$528
32	% Increase Required by Staff Adj. Alloc. Approach	4.54%	5.07%	-7.05%	-1.05%	-3.90%	-26.71%	-10.06%	-4.24%	10.92%	37.87%	4.02%	-2.05%	42.91%
33	\$ Increase Recommended per Stipulation	\$1,810,890	\$862,348	\$44,153	\$197,517	\$22,598	\$0	\$0	\$232,545	\$212,777	\$235,318	\$44	\$3,507	\$84
34	% Increase Recommended per Stipulation	4.54%	5.62%	2.83%	2.83%	2.83%	0.00%	0.00%	2.83%	6.81%	6.81%	4.56%	2.83%	6.81%
35	Average Rate Given Stipulation (\$/kWh)	0.0641	0.0816	0.0899	0.0628	0.0544	0.0547	0.2324	0.0471	0.0450	0.0791	0.0788	0.1637	0.0805
36	Final Revenue Allocation	\$41,684,481	\$16,218,280	\$1,603,553	\$7,173,432	\$820,700	\$154,997	\$112,462	\$8,445,610	\$3,336,170	\$3,689,589	\$1,016	\$127,358	\$1,315
37														
38	Spread Floors and Ceilings:													
39	No increase for those warranting a decrease greater than 8%													
40	2.83% increase for those warranting a decrease less than 8%													
41	No increase greater than one-and-one-half times the average increase													
42	2012 October Update APCU (UE 242): Baseline Revenue Requirement Spread and Rates Development Employing the UE 233 Test Period Figures													
	2012 October Update APCU Cost of Service (UE 242)	\$1,298,993	\$427,230	\$35,118	\$223,454	\$28,138	\$5,025	\$722	\$310,094	\$150,288	\$117,706	\$24	\$1,163	\$30
43	2013 October Update APCU (UE 257): Baseline Revenue Requirement Spread and Rates Development Employing the UE 233 Test Period Figures													
	2013 October Update APCU Cost of Service (UE 257)	\$2,298,531	\$755,972	\$62,141	\$395,395	\$49,790	\$8,891	\$1,278	\$548,703	\$265,930	\$208,278	\$42	\$2,058	\$54
44	2014 October Update APCU (UE 279): Baseline Revenue Requirement Spread and Rates Development Employing the UE 233 Test Period Figures													
	2014 October Update APCU Cost of Service (UE 279)	-\$837,437	-\$275,428	-\$22,640	-\$144,056	-\$18,140	-\$3,239	-\$465	-\$199,912	-\$96,888	-\$75,883	-\$15	-\$750	-\$19
45	2015 October Update APCU: Baseline Revenue Requirement Spread and Rates Development Employing the UE 233 Test Period Figures													
	2015 October Update APCU Cost of Service (Allocator -- Line 14)	\$1,058,618	\$348,173	\$28,620	\$182,104	\$22,931	\$4,095	\$588	\$252,712	\$122,478	\$95,925	\$19	\$948	\$25
46	% Increase Required Due to APCU (Proposed) (Line 45/Line 36)	2.54%	2.15%	1.78%	2.54%	2.79%	2.64%	0.52%	2.99%	3.67%	2.60%	1.91%	0.74%	1.87%
47	Proposed Combined Revenue Spread (Line 36 + Line 42 + Line 43 + Line 44 + Line 45)	\$45,503,185	\$17,474,227	\$1,706,792	\$7,830,328	\$903,419	\$169,769	\$114,584	\$9,357,208	\$3,777,978	\$4,035,614	\$1,086	\$130,776	\$1,404
48	Loss-Adjusted 2011 Normalized Sales (kWh)	650,158,581	198,842,419	17,842,896	114,256,218	15,099,088	2,832,509	483,936	179,189,047	74,155,867	46,649,265	12,900	778,108	16,328
49	2015 October Update APCU Incremental Rate given 2011 Test Period Sales (Mills per kWh) (1000*(Line 45/Line 48))	1.628	1.751	1.604	1.594	1.519	1.446	1.216	1.410	1.652	2.056	1.508	1.218	1.510
50	APCU Incremental Rate for 2015 October Update (Mills per kWh) (Line 48*(Column A:(Line 48/Line 51)))	1.620	1.824	1.535	1.549	1.309	1.666	1.285	1.441	1.457	2.104	2.212	1.069	1.173
51	Loss-Adjusted 2015-2016 Normalized Sales (kWh)	653,468,079	190,842,496	18,644,047	117,543,152	17,522,277	2,457,786	457,839	175,402,607	84,090,071	45,591,275	8,791	886,721	21,017
52	Projected October Update APCU 2015-2016 Revenues (Line 50 * Line 51)	\$1,058,618	\$348,173	\$28,620	\$182,104	\$22,931	\$4,095	\$588	\$252,712	\$122,478	\$95,925	\$19	\$948	\$25

Notes:

1 2015 October Update APCU Revenues = (\$1.62)/MWh x 653,468,079 MWhs = \$ 1,058,618 (Line 52, Column A)
2 (\$1.62) = \$23.44 (2015 October Update) - \$21.82 (2014 October APCU Rate)

Idaho Power/108
Witness: Scott Wright

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

IDAHO POWER COMPANY

Exhibit Accompanying Testimony of Scott Wright
Idaho Power Company's Current Billed Revenue to
Proposed Billed Revenue

October 21, 2014

Idaho Power Company
Calculation of Revenue Impact
State of Oregon
2015 APCU October Update Filing
Effective June 1, 2015

Summary of Revenue Impact
Current Billed Revenue to Proposed Billed Revenue ⁽¹⁾

Line No	Tariff Description	Rate Sch. No.	Average Number of Customers ⁽²⁾	Normalized Energy (kWh) ⁽²⁾	Current Billed Revenue	Mills Per kWh	Total Adjustments to Billed Revenue	Proposed Total Billed Revenue	Mills Per kWh	Percent Change Billed to Billed Revenue
<u>Uniform Tariff Rates:</u>										
1	Residential Service	1	13,735	190,842,496	\$19,344,344	101.36	\$348,097	\$19,692,441	103.19	1.80%
2	Small General Service	7	2,472	18,644,047	\$1,981,495	106.28	\$28,619	\$2,010,114	107.82	1.44%
3	Large General Service	9	951	137,523,215	\$10,798,116	78.52	\$209,106	\$11,007,221	80.04	1.94%
4	Dusk to Dawn Lighting	15	0	457,839	\$113,261	247.38	\$588	\$113,849	248.67	0.52%
5	Large Power Service	19	6	259,492,678	\$16,283,109	62.75	\$375,274	\$16,658,384	64.20	2.30%
6	Agricultural Irrigation Service	24	1,697	45,591,275	\$4,539,834	99.58	\$95,924	\$4,635,758	101.68	2.11%
7	Unmetered General Service	40	2	8,791	\$853	97.02	\$19	\$872	99.23	2.28%
8	Street Lighting	41	24	886,721	\$143,413	161.73	\$950	\$144,363	162.81	0.66%
9	Traffic Control Lighting	42	7	21,017	\$2,012	95.74	\$25	\$2,037	96.91	1.23%
10	Total Uniform Tariffs		18,894	653,468,079	\$53,206,438	81.42	\$1,058,602	\$54,265,040	83.04	1.99%
12	Total Oregon Retail Sales		18,894	653,468,079	\$53,206,438	81.42	\$1,058,602	\$54,265,040	83.04	1.99%

⁽¹⁾ Current Billed to Proposed Bill Revenues Reflect the October Update and the current March Forecast (unchanged)

⁽²⁾ Updated April 2015 - March 2016 Test Year