PUBLIC UTILITY COMMISSION
OF
OREGON

UE 167

STAFF SURREBUTTAL TESTIMONY

OF

MAURY GALBRAITH

In the Matter of IDAHO POWER COMPANY'S Application for General Rate Increase in the Company's Oregon Annual Revenues of $4,418, 908, or 17.52 Percent Overall

April 29, 2005

CASE: UE 167
WITNESS: Maury Galbraith

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 300

Surrebuttal Testimony

April 29, 2005

Q. PLEASE STATE YOUR NAME AND POSITION.

A. My name is Maury Galbraith. The Public Utility Commission of Oregon employs me as a Senior Economist.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS PROCEEDING?

A. Yes. My direct testimony was filed as Staff Exhibit/200. My witness qualifications are shown on Staff Exhibit/201.

Introduction and Summary

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony has three purposes. First, I rebut Idaho Power Company's (Idaho Power's) comparison of projected net variable power costs (NVPC) to historic NVPC (*See* Idaho Power Exhibits 201 and 302); and comparison of projected transaction rates to historic transaction rates for wholesale electricity purchases and sales (*See* Idaho Power Exhibit 203). Second, I rebut Idaho Power's forward price curve analysis (*See* Idaho Power Exhibit 305). Finally, I provide the Commission several alternatives for adjusting Idaho Power's normalized NVPC to better reflect spot market electricity prices under normal hydro conditions.

Q. PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS.

A. Staff makes the following findings and recommendations:

- PRIMARY RECOMMENDATION: Staff recommends that the Commission adjust Idaho Power's normalized purchased power expense and surplus sales revenue using the company's April 30, 2004 electricity forward price curves. This adjustment results in an overall decrease in NVPC of $63 million, on a total system basis, and $3.1 million on an Oregon allocated basis.

- SECONDARY RECOMMENDATION: Staff recommends that the Commission require Idaho Power to provide hourly results of projected system operations in its next rate filing.
- ALTERNATIVE RECOMMENDATIONS:
    - If the Commission finds Idaho Power witness Said's lack-of-a-price-range argument persuasive, then the Commission should use Staff's AURORA projection to normalize Idaho Power's test period NVPC. This adjustment results in an overall decrease in NVPC of $23.2 million on a total system basis.
    - If the Commission finds Idaho Power witness Peseau's lack-of-price-shape argument persuasive, then the Commission should use the company's April 30, 2004 on-peak forward prices to re-price test period power purchases and the April 30, 2004 off-peak forward prices to re-price test period surplus sales. This adjustment results in an overall decrease in NVPC of $49.5 million on a total system basis.
    - If the Commission does not want to use forward prices from a single trading day (i.e., April 30, 2004) to adjust Idaho Power's test period NVPC, then the Commission should use the average of the company's on-peak forward prices from January 2, 2004 through April 30, 2004 to re-price test period power purchases, and the average of the company's off-peak forward prices from January 2, 2004 through April 30, 2004 to re-price test period surplus sales. This adjustment results in an overall decrease in NVPC of $35.3 million on a total system basis.

- Finally, if the Commission does not want to use forward market prices to adjust Idaho Power's test period NVPC, then the Commission should adopt the Citizens' Utility Board's (CUB's) proposed NVPC adjustment in this case. This adjustment results in an overall decrease in NVPC of $66.2 million on a total system basis.

Projection v. Forecasting

Q. IDAHO POWER WITNESS SAID HAS REMARKED ON YOUR USE OF THE WORD "PROJECTION" IN YOUR DIRECT TESTIMONY (*SEE* IDAHO POWER EXHIBIT/200, SAID/5), IS YOUR USE OF THIS WORD CAREFULLY CHOSEN?

A. Yes. When discussing modeling it is important to recognize a distinction between a projection and a forecast[1]. A forecast is an attempt to predict what *will* happen. A projection is an attempt to describe what *would* happen, given certain conditions or assumptions.

As I indicated in my direct testimony, Idaho Power uses the AURORA Electric Market Model (AURORA) to project hourly market-clearing electricity prices at various trading hubs located within the area of the Western System Coordination Council (WSCC). See Staff/200, Galbraith/10-13. The AURORA market-clearing electricity prices are numerical elaborations of a set of underlying assumptions. In other words, the AURORA model calculates market-clearing

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[1] *See* Caswell, H., Matrix Population Models, Sinauer, Sunderland, MA, 1989, pp. 19-20; and Keyfitz, N., "On Future Population," Journal of the American Statistical Association, 67:338, 1972.

electricity prices, given a set of assumptions. The market-clearing electricity prices represent what would happen, if the set of assumptions held true.

Idaho Power has used AURORA to project market-clearing electricity prices, and in-turn total system NVPC, for 76 separate set of assumptions, corresponding to the 76 water conditions (i.e., water years 1928 through 2003). Each of the 76 projections share a common set of assumptions, but also has its own unique set of assumptions. For example, each projection assumes the same WSCC load profile, uses the same set of parameters to describe regional generating units and transmission links, and sets the hourly market-clearing electricity price equal to the variable cost of the last generating units needed to meet demand. *See* Staff/200, Galbraith/10. However, each projection also has a unique set of assumptions. For example, each projection uses a unique hydro generation series and a unique natural gas price series. *See* Staff/200, Galbraith/10-11. AURORA indicates what market-clearing electricity prices would be, given current WSCC regional loads, current WSCC generating units, current WSCC transmission capabilities, and given the particular set of hydro generation/ natural gas price inputs.

Q. CAN A PROJECTION BE USED AS A FORECAST?

A. Yes. Whether it is appropriate to use a projection as a forecast depends on the set of assumptions underlying the projection. For a projection to be a good forecast of the future, the underlying set of assumptions must be realistic. For example, using Idaho Power's projection of NVPC, based on water condition 1983 (the highest hydro condition), as a forecast of the company's 2006 NVPC would be inappropriate because the underlying set of assumptions would be unrealistic. Using Idaho Power's projection of NVPC, based on water condition 1967 (the hydro condition most representative of average hydro conditions), as a forecast of 2006 NVPC would be an improvement. However, as Idaho Power has indicated, both the Public Utility Commission of Oregon and the Idaho Public Utilities Commission have traditionally set normalized NVPC based on the mean of the company's NVPC projections (in this case the mean of the 76 NVPC projections corresponding to water conditions 1928 through 2003). See Idaho Power Exhibit/200 Said/2.

Q. DO YOU AGREE WITH MR. SAID'S STATEMENT THAT IDAHO POWER IS NOT FORECASTING, OR PREDICTING, FUTURE NVPC (*SEE* IDAHO POWER/200 SAID/5)?

A. Yes, I agree with Mr. Said, Idaho Power is not forecasting NVPC. Idaho Power is projecting market-clearing electricity prices, and total system NVPC, given current WSCC conditions and 76 separate hydro conditions. It is equally important, however, to note that Idaho Power is not backcasting market-clearing electricity prices, or total system NVPC either.

Q. WHY DO YOU RAISE THE ISSUE OF BACKCASTING?

A. I raise the issue of backcasting because Idaho Power witnesses Said and Peseau devote large portions of their rebuttal testimony to comparing the company's projected NVPC, and projected transaction rates for wholesale electricity sales and purchases, to actual historic NVPC, and actual historic transaction rates. See Idaho Power/200, Said/4-13 and Idaho Power/300, Peseau/6-8. As explained below, these comparisons of projected results to historic results are invalid.

Comparing Projected NVPC to Historic NVPC

Q. WHY ARE THE NVPC COMPARISONS SHOWN IN IDAHO POWER EXHIBIT 201 AND IDAHO POWER EXHIBIT 302 INVALID?

A. The comparisons shown in Idaho Power Exhibit 201 and Idaho Power Exhibit 302 are invalid because the AURORA NVPC projections assume current WSCC loads and resources, whereas the actual NVPC results reflect the WSCC conditions that prevailed, for example, during 2001, during 1990, and during 1983. The purpose of the AURORA projections is not to replicate actual results from 1983-2003, but to project the results that would occur, given the current WSCC loads and resources, and given, for example, 2001 water conditions, 1990 water conditions, and 1983 water conditions.

Q. ARE THE UTILITY LOADS AND GENERATING UNITS THAT COMPRISE THE CURRENT WSCC SIGNIFICANTLY DIFFERENT FROM THE UTILITY LOADS AND GENERATING UNITS THAT COMPRISED THE WSCC IN THE PAST?

A. Yes. There have been significant resource capacity additions in the WSCC since the Western Energy Crisis of 2000-2001. The vast majority of these additions have been natural gas-fired resources. Over this same period of time, natural gas prices have significantly increased and become more volatile. In addition, Northwest natural gas prices now more closely track the prices set in the integrated North American natural gas market. See PacifiCorp's Draft 2004 Integrated Resource Plan (IRP), Chapter 1: Marketplace and Fundamentals for a discussion of these recent developments. PacifiCorp's Draft 2004 IRP can be found on PacifiCorp's web site (www.pacificorp.com).

Q. IS DR. PESEAU'S "COMMON SENSE APPROACH" TO EVALUATING THE POWER COST RECOMMENDATIONS MADE IN THIS PROCEEDING REASONABLE?

A. No. Dr. Peseau's approach is to compare how well alternative power cost recommendations would have, or would not have, recovered the company's actual power supply expense over the past 21 years. See Idaho Power Exhibit/300 Peseau/2-3. As I have already indicated, the purpose of the AURORA projections is not to replicate actual results over the past 21 years.

Q. DR. PESEAU FINDS THAT IDAHO POWER'S PROJECTED POWER COSTS "TRACK WELL" WITH ACTUAL POWER COSTS (*SEE* IDAHO POWER/300 PESEAU/8). IS THIS FINDING INDICATIVE OF THE ACCURACY OF IDAHO POWER'S AURORA MODELING?

A. No. A more important test for the Commission to consider when normalizing Idaho Power's NVPC is whether the sets of assumptions underlying the company's AURORA projections are realistic. As I indicated in my direct testimony, Idaho Power's natural gas price assumptions are not realistic, and therefore the company's projections of market-clearing electricity prices are not reliable for normalizing NVPC. See Staff/200 Galbraith/10-13.

Q. IDAHO POWER WITNESS SAID HAS INDICATED THAT THE COMPANY'S HIGHEST ANNUAL POWER SUPPLY EXPENSE, OVER THE LAST 22 YEARS, EXCEEDS THE COMPANY'S HIGHEST MODELED POWER SUPPLY EXPENSE BY $131.7 MILLION (*SEE* IDAHO POWER/200 SAID/8). IS THIS A MEANINGFUL COMPARISON?

A. No. Over the last 22 years, the company's highest annual power supply expense occurred in 2001 and the second highest annual power supply expense occurred in 2000. *See* Idaho Power Exhibit/201. The extreme annual power supply expenses associated with the Western Energy Crisis of 2000-2001 are not representative of the range of conditions likely to prevail on a going-forward basis.

Q. DO YOU AGREE WITH MR. SAID'S STATEMENT THAT IDAHO POWER'S AURORA MODELING GREATLY UNDERSTATES THE HIGHEST POSSIBLE NVPC, WHILE ONLY MODERATELY UNDERSTATING THE LOWEST POSSIBLE NVPC (*SEE* IDAHO POWER/200 SAID/8)?

A. No. As I indicated in my direct testimony, the projections shown in Idaho Power Exhibit/13 significantly understate market electricity prices and, therefore, undervalue Idaho Power's projected wholesale sales and wholesale purchases. See Staff/200 Galbraith/9. By understating market electricity prices, the company has likely understated both the highest possible and lowest possible NVPC. However, since Idaho Power's resources exceed loads in the test period by more than 100 annual average megawatts (MWa) in 62 of the 76 hydro condition projections (See Staff/200 Galbraith/2-3), the company's AURORA modeling significantly understates the company's normalized NVPC.

<u>Comparing Projected Transaction Rates to Historic Transaction Rates</u>

Q. WHAT IS AN AVERAGE TRANSACTION RATE FOR WHOLESALE PURCHASES AND SALES?

A. An average transaction rate for wholesale purchases is simply a utility's average cost of purchased power. An average transaction rate for wholesale sales is simply a utility's average revenue from power sales. As can be seen from Idaho

Power Exhibit/203, Idaho Power calculates the historic annual average purchase rate by dividing the annual cost of purchased power by the annual quantity of purchased power. The annual average sales rate is calculated by dividing the annual revenue from wholesale power sales by the annual quantity of power sales. As can be seen from Idaho Power Exhibit/303, the company performs the same calculations to derive average transaction rates from the AURORA projections.

Q. ARE COMPARISONS OF IDAHO POWER'S PROJECTED WHOLESALE TRANSACTION RATES TO ACTUAL TRANSACTION RATES OVER THE LAST 12 YEARS VALID?

A. No. These comparisons are invalid for the same reasons that the Company's comparisons of projected NVPC to actual NVPC are invalid. These comparisons are invalid because projected transaction rates (derived from Idaho Power Exhibit/13) assume market-clearing electricity prices are based on current WSCC loads and resources, whereas the actual transaction rates (shown in Idaho Power Exhibit/203) reflect the WSCC conditions that prevailed, for example during 2001, and during 1993.

Q. IS AN ANNUAL AVERAGE TRANSACTION RATE EQUIVALENT TO AN ANNUAL AVERAGE MARKET-CLEARING PRICE?

A. No. Market-clearing electricity prices reflect regional supply and demand, and therefore represent region-specific prices. Average wholesale transaction rates reflect a combination of utility supply and demand and regional market-clearing electricity prices, and therefore represent utility-specific rates.

Q. DOES IDAHO POWER WITNESS PESEAU MISTAKE AURORA PROJECTED WHOLESALE TRANSACTION RATES FOR AURORA PROJECTED REGIONAL MARKET-CLEARING ELECTRICITY PRICES?

A. Yes. After indicating that he understands that AURORA operates on a regional basis and calculates market prices by clearing regional supply and demand (*See* Idaho Power/300 Peseau/9), Dr. Peseau proceeds to indicate that the AURORA market prices can be derived from Idaho Power Exhibit/13 (*See* Idaho Power/300 Peseau/10). However, it is impossible to derive AURORA projected market-clearing electricity prices from Idaho Power Exhibit/13. Dr. Peseau has mistaken projected Idaho Power-specific transaction rates for projected region-specific market-clearing electricity prices.

Q. WHERE IN THE TESTIMONY PRESENTED IN THIS PROCEEDING ARE THE COMPANY'S PROJECTED MARKET-CLEARING ELECTRICITY PRICES SHOWN?

A. Idaho Power's projected market-clearing electricity prices for the Mid-Columbia market hub for 5 of the 76 AURORA projections are shown at Staff Exhibit/202. As I indicated in my direct testimony, these prices are from Idaho Power's Response to Staff Data Request No. 232. See Staff Exhibit/200 Galbraith/6-7.

Q. DO IDAHO POWER'S MARKET-CLEARING ELECTRICITY PRICES FOR THE MID-COLUMBIA MARKET HUB, GIVEN THE 1967 HYDRO ASSUMPTIONS, CONSTITUTE A PRICE PROJECTION THAT IS REPRESENTATIVE OF THE PRICES THAT WOULD PREVAIL UNDER AVERAGE HYDRO CONDITIONS?

A. Yes. As I indicated in my direct testimony, the average of the annual hydroelectric generation projected for the 76 hydro conditions is 1,009 MWa. See Staff/200 Galbraith/3. The annual projected hydro generation, given the 1967 hydro condition is 1,035 MWa. Given the 1967 hydro assumptions, Idaho Power's AURORA model projects an average daily Mid-Columbia on-peak price of $23.91 per MWh. See Staff/200 Galbraith/9. Arguably, the 1954 hydro condition (1,013 annual MWa) or the 1963 hydro condition (995 annual MWa) could be more representative of average hydro conditions. In addition, one could argue that projected market-clearing electricity prices, under average hydro conditions, should be calculated as the mean of the electricity prices associated with each of 76 hydro conditions. In Staff Data Response No. 232, Staff requested the hourly market-clearing electricity prices for each of the AURORA simulations shown in Idaho Power Exhibit/13. Idaho Power indicated that providing this data would be burdensome, and Staff agreed to reduce its request to the set of prices provided in Idaho Power Response to Staff Data Request No. 232.

Q. HAS IDAHO POWER PRESENTED, OR DISCUSSED THE DEVELOPMENT OF, THE MARKET-CLEARING ELECTRICITY PRICES IT PROVIDED TO STAFF IN RESPONSE TO DATA REQUEST NO. 232 IN TESTIMONY IN THIS PROCEEDING?

A. No. Idaho Power has not addressed its AURORA model projections of market-clearing electricity prices in either its direct testimony or its rebuttal testimony. As I indicated in my direct testimony, it is unclear how many of the inputs to the AURORA model were developed by Idaho Power and how many were developed by EPIS, Inc. *See* Staff Exhibit/200 Galbraith/10.

Forward Price Curve Analysis

Q. IDAHO POWER WITNESS PESEAU HAS STATED THAT THE RELATIVE CONSISTENCY OF (OR LACK OF A PRONOUNCED INCREASE IN) IDAHO POWER'S FORWARD PRICE CURVES INDICATE THAT THE APRIL 30, 2004 FORWARD PRICE CURVE, USED BY STAFF TO CALCULATE ITS PROPOSED ADJUSTMENT, ALREADY REFLECTED THE MARKET'S EXPECTATION OF POOR HYDRO CONDITIONS FOR 2005. SEE IDAHO POWER EXHIBIT/300 PESEAU/12-13. DO YOU AGREE WITH THIS CONCLUSION?

A. No.

Q. HAS STAFF PERFORMED ITS OWN ANALYSIS OF IDAHO POWER'S FORWARD PRICE CURVES?

A. Yes. Staff Exhibit/302 Galbraith/1-12 shows Idaho Power's forward on-peak and off-peak prices from January 2, 2004 through April 20, 2005, for the Mid-Columbia market hub by 2005 delivery month.[2] The charts for May, June, and July of 2005 show a pronounced increase in forward prices beginning in early 2005. See Staff/302 Galbraith/5-7. For example, the forward on-peak price for power delivery in May 2005 increased from $37.53 per MWh on January 1, 2005 to $55.00 per MWh on April 1, 2005. The forward on-peak price for power delivery in June 2005 increased from $37.13 per MWh to $62.75 per MWh, and the July 2005 price increased from $49.45 per MWh to $71.93 per MWh, over the same time period.

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[2] Staff's forward price curve analysis is based on Idaho Power's Response to Staff Data Request No. 331, which supplemented Idaho Power's Response to Staff Data Request No. 274.

Staff Exhibit/302 Galbraith/13 shows the forward on-peak prices for all delivery months on the same graph. For nearly all of calendar year 2004, the forward on-peak prices for delivery during May, June, and July of 2005 were significantly lower than the prices for delivery during the rest of the months of 2005. In early 2005, the forward on-peak prices for May, June, and July converged on the higher price level associated with the other months. Staff Exhibit/302 Galbraith/14 shows a similar pattern for the forward off-peak prices. This early 2005 convergence is indicative of the electricity market beginning to anticipate poor hydro conditions for the months of May, June, and July of 2005.

Q. DO YOU AGREE WITH IDAHO POWER WITNESS SAID'S ASSERTION THAT THE APRIL 30, 2004 FORWARD PRICES FOR 2005 POWER DELIVERY WERE DROUGHT DRIVEN (SEE IDAHO POWER/200 SAID/13-14)?

A. No.

Alternative Adjustments

Q. MR. SAID HAS CRITICIZED STAFF FOR FAILING TO IDENTIFY A RANGE OF MARKET PRICES CORRESPONDING TO THE RANGE OF HYDRO CONDITIONS WHEN PROPOSING ITS ADJUSTMENT IN THIS CASE (SEE IDAHO POWER/200 SAID/15). IS THIS CRITICISM WARRANTED?

A. No. As I indicated in my direct testimony, Staff asked Idaho Power to re-run the AURORA simulations shown in Idaho Power Exhibit/13 using revised natural gas price inputs. See Staff/200 Galbraith/13. I indicated in my direct testimony that we abandoned this line of inquiry after we began to question the intended purpose of the natural gas price/ hydro condition assumptions. See Staff/200

Galbraith/12. The company carries the burden of justifying these AURORA assumptions.

Q. IF THE COMMISSION FINDS MR. SAID'S LACK-OF-A-PRICE-RANGE ARGUMENT PERSUASIVE, THEN DOES STAFF HAVE AN ALTERNATIVE RECOMMENDATION?

A. Yes. But, let me be clear, Staff does not believe that Idaho Power's deterministic fundamentals-based AURORA modeling is up to the challenge of modeling the complex relationship between northwest hydro conditions and northwest energy prices. *See* Staff/200 Galbraith/13. If the Commission disagrees, then it should use Staff's AURORA projections to normalize Idaho Power's test period NVPC in this case. *See* Staff/302 Galbraith/1. This alternative adjustment would reduce Idaho Power's test period NVPC by $23.2 million on a total company basis.

Staff used the May 28, 2004 settlement of the NYMEX Henry Hub futures contracts, for the 2005 delivery strip, to establish a mid-point, or average, price level for its AURORA natural gas price inputs. Staff's average annual natural gas price at Henry Hub for the 76 hydro conditions is $5.85 per MMBTU. This is comparable to Idaho Power's annual average price of $3.88 per MMBTU. See Staff/200 Galbraith/11. Staff's price range around this mid-point is proportional to Idaho Power's natural gas price range. Staff's annual natural gas prices associated with the best hydro conditions range from $3.46 to 4.50 per MMBTU. Staff's annual natural gas prices associated with the worst hydro conditions range from $6.75 to $7.88 per MMBTU. See Staff/200 Galbraith/11 for Idaho Power's comparable natural gas prices.

Q. DR. PESEAU HAS CRITICIZED STAFF FOR FAILING TO USE SHAPED PRICES WHEN PROPOSING ITS ADJUSTMENT IN THIS CASE (SEE IDAHO POWER/300 PESEAU/17). IS THIS CRITICISM WARRANTED?

A. No. As I indicated in my direct testimony, Staff asked Idaho Power to provide the on-peak and off-beak breakdown of its projected surplus sales. See Staff/200 Galbraith/15-16. In Idaho Power's Response to Staff Data Request No. 244, the company indicated that providing this data would be burdensome, in part, because it was unclear if aggregating the AURORA output into on-peak and off-peak periods could be accomplished given AURORA's hourly sampling methodology. On-peak/ off-peak reporting of results should be an absolute minimum requirement for a production cost model. As I indicated in my direct testimony, the Commission should require Idaho Power to provide hourly results of projected system operations in its next rate filing. See Staff/200 Galbraith/2.

Q. IF THE COMMISSION FINDS DR. PESEAU'S LACK-OF-PRICE-SHAPE ARGUMENT PERSUASIVE, THEN DOES STAFF HAVE AN ALTERNATIVE RECOMMENDATION?

A. Yes. Again, let me be clear, Staff is not persuaded by Dr. Peseau's argument. The company has failed to provide the shape of Idaho Power's projected wholesale purchases and sales. If the Commission decides shaped prices are warranted, then it should use the company's April 30, 2004 on-peak forward prices to re-price the test period power purchases and the April 30, 2004 off-peak forward prices to re-price the test period surplus sales. *See* Staff/302 Galbraith/2. This alternative adjustment would reduce Idaho Power's test period NVPC by $49.5 million on a total company basis.

Q. IF THE COMMISSION DOES NOT WANT TO USE FORWARD PRICES FROM A SINGLE TRADING DAY (I.E., APRIL 30, 2004) TO ADJUST IDAHO POWER'S TEST PERIOD NVPC, THEN DOES STAFF HAVE AN ALTERNATIVE RECOMMENDATION?

A. Yes. If the Commission does not want to use a single trading day's forward prices to adjust Idaho Power's test period NVPC, then it should use the average of the company's on-peak forward prices from January 2, 2004 through April 30, 2004 to re-price the test period power purchases, and the average of the company's off-peak forward prices from January 2, 2004 through April 30, 2004 to re-price the test period surplus sales. *See* Staff/302 Galbraith/3. This alternative adjustment would reduce Idaho Power's test period NVPC by $35.3 million on a total company basis.

Q. HAS STAFF REVIEWED THE CITIZENS' UTILITY BOARD'S PROPOSED NVPC ADJUSTMENT IN THIS CASE?

A. Yes. If the Commission decides it does not want to use forward market prices to adjust Idaho Power's test period NVPC, then the Commission should use the Northwest Power and Conservation Council's forecast of average-hydro prices in 2006. See CUB/100 Jenks-Brown/3-4 and CUB/104 Jenks-Brown/1. CUB's adjustment would reduce Idaho Power's test period NVPC by $66.2 million on a total company basis.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

CASE: UE 167
WITNESS: Maury Galbraith

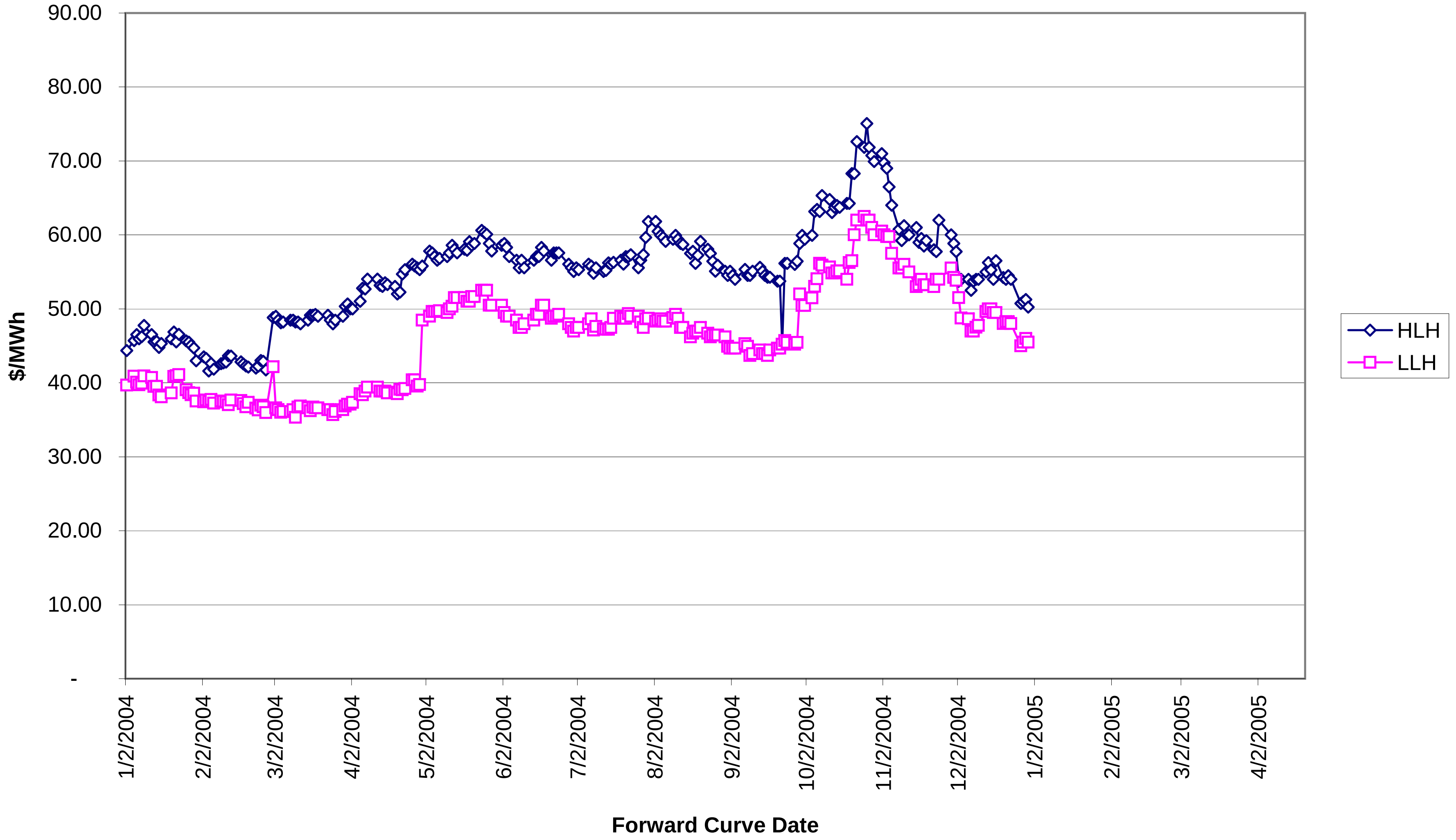
PUBLIC UTILITY COMMISSION OF OREGON

STAFF EXHIBIT 301

Staff's Analysis of Idaho Power's Forward Price Curves

April 29, 2005

Idaho Power Forward Prices
Jan-05, Mid-Columbia Delivery



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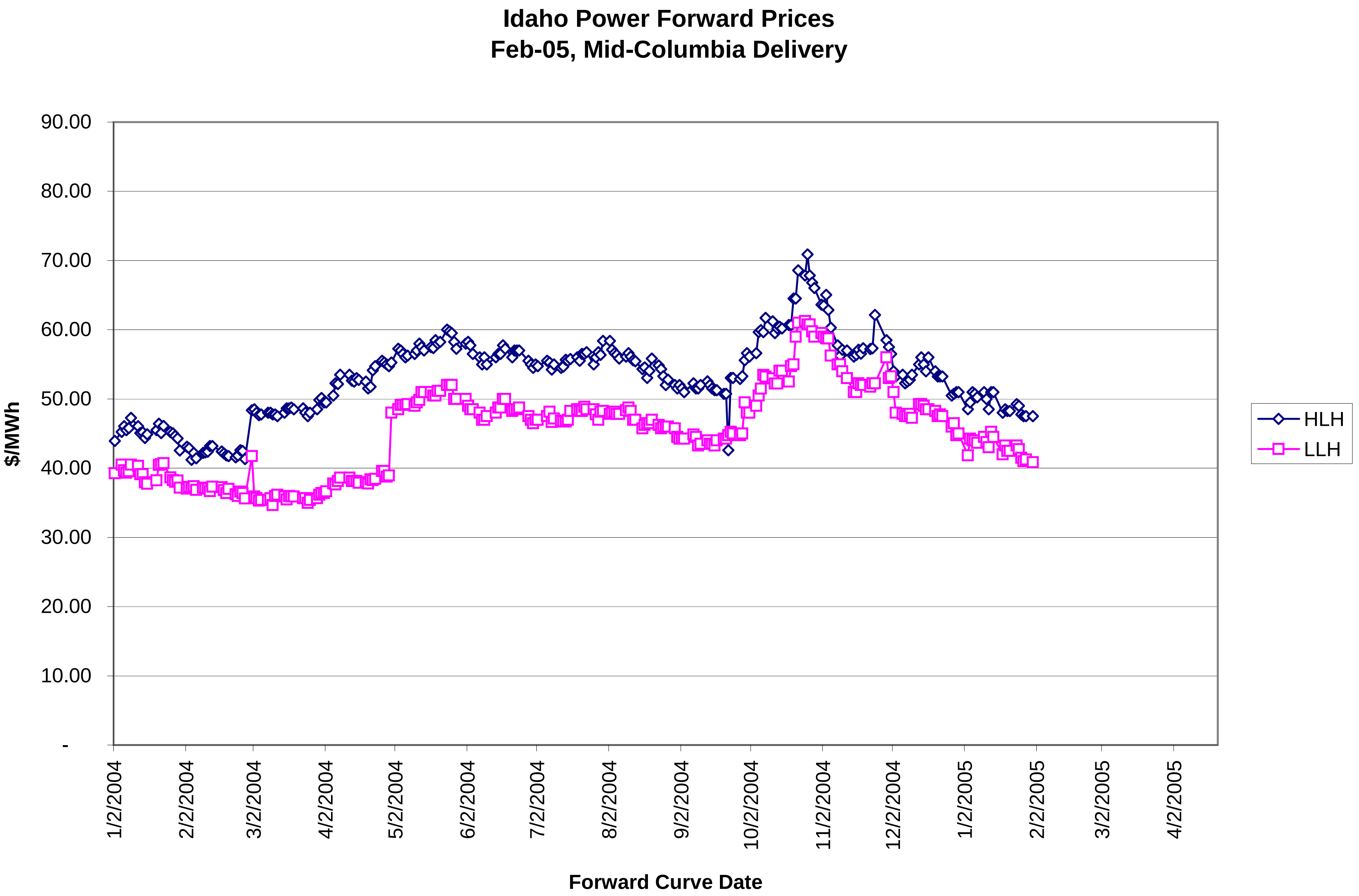
STAFF EXHIBIT 301
GALBRAITH/1



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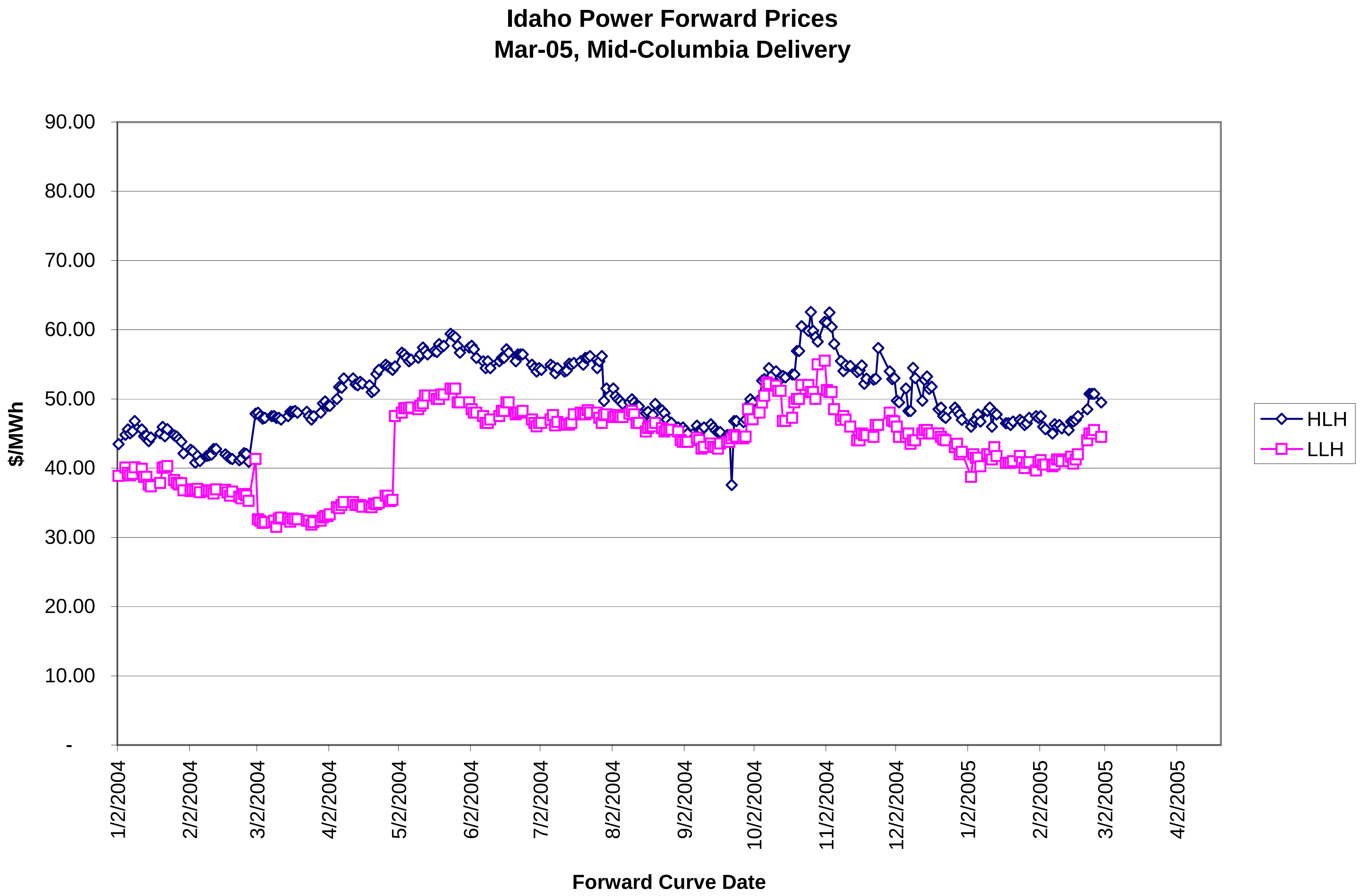
STAFF EXHIBIT 301
GALBRAITH/2



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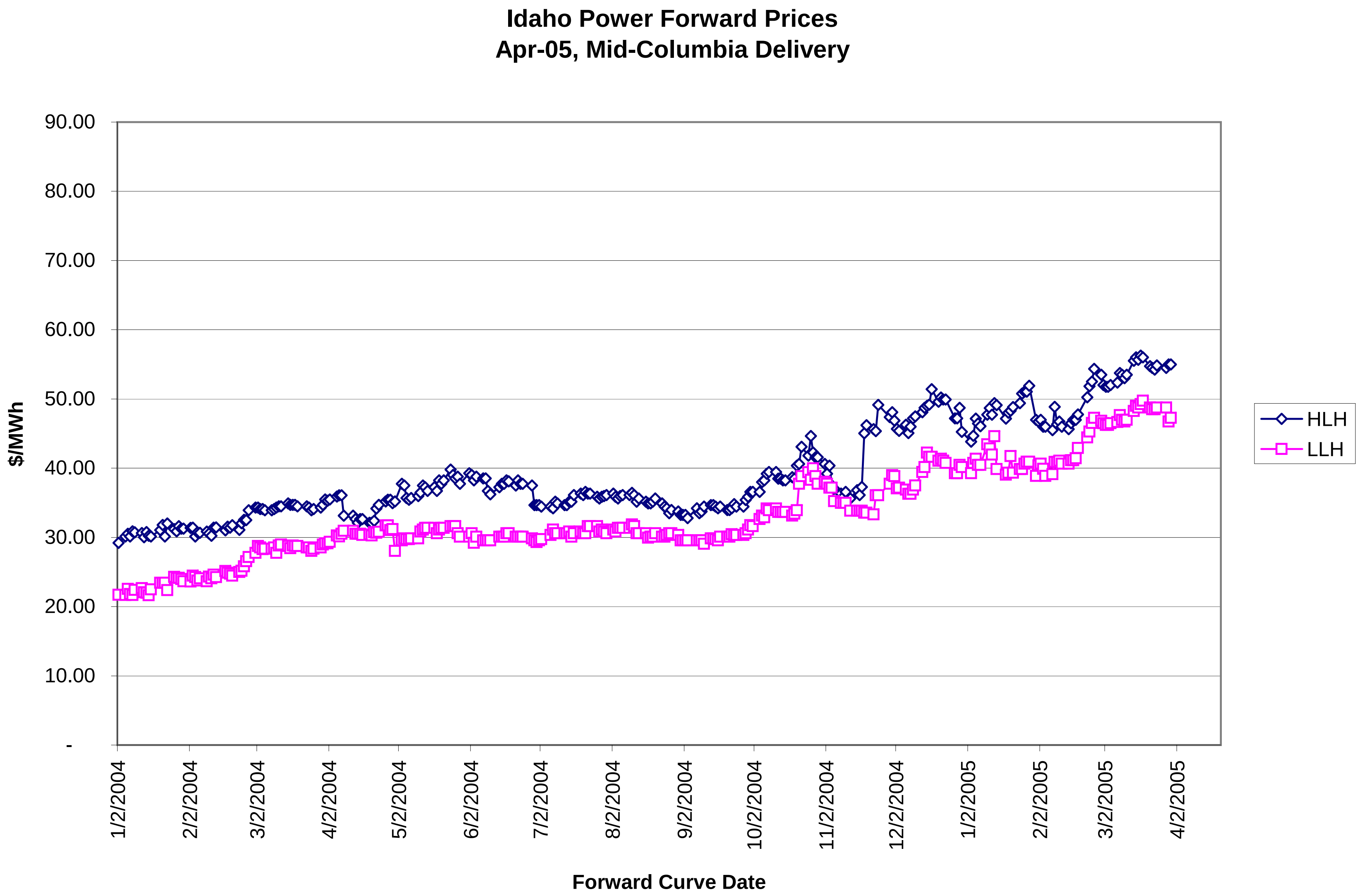
STAFF EXHIBIT 301
GALBRAITH/3



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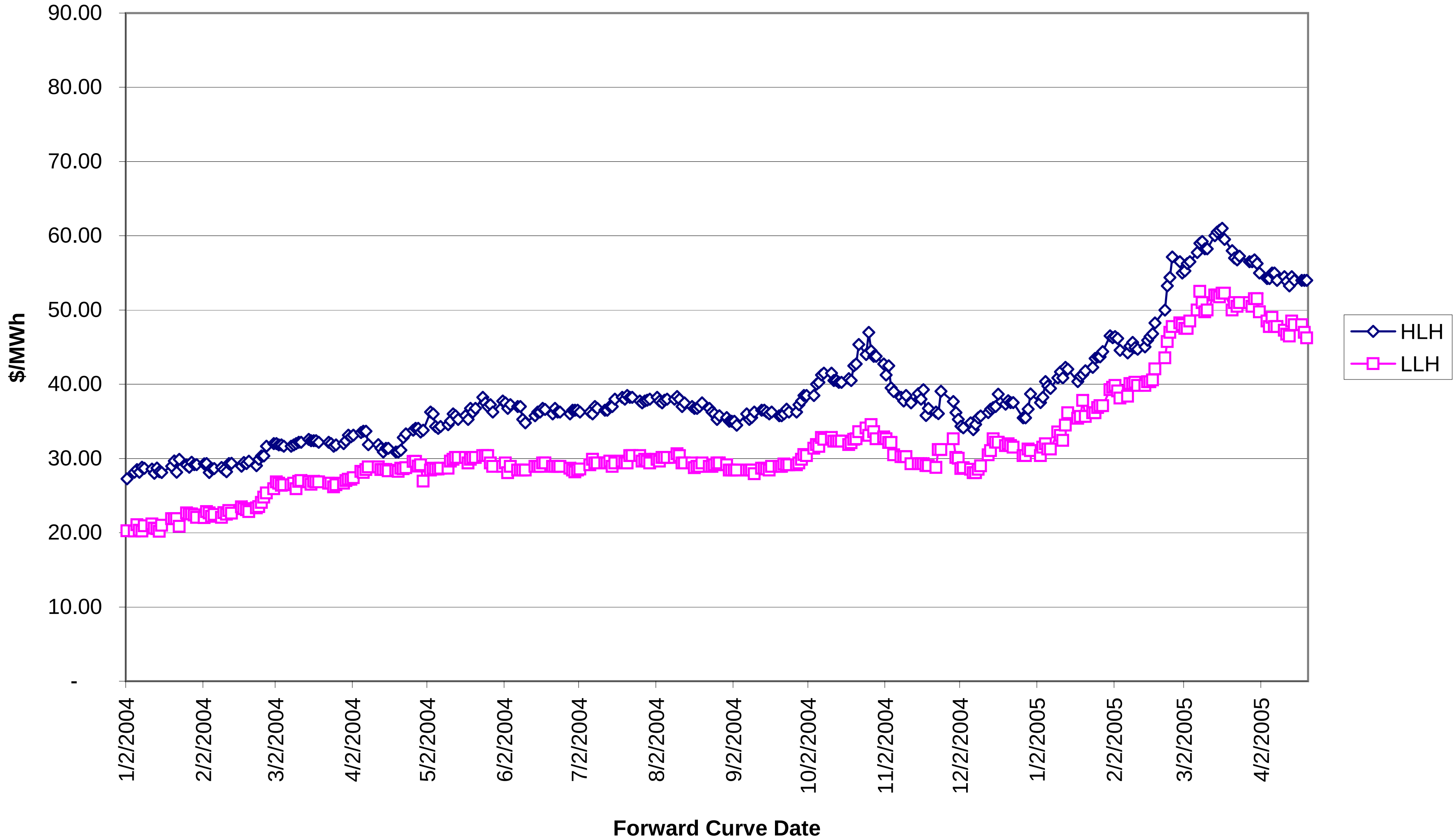
STAFF EXHIBIT 301
GALBRAITH/4

Idaho Power Forward Prices
May-05, Mid-Columbia Delivery



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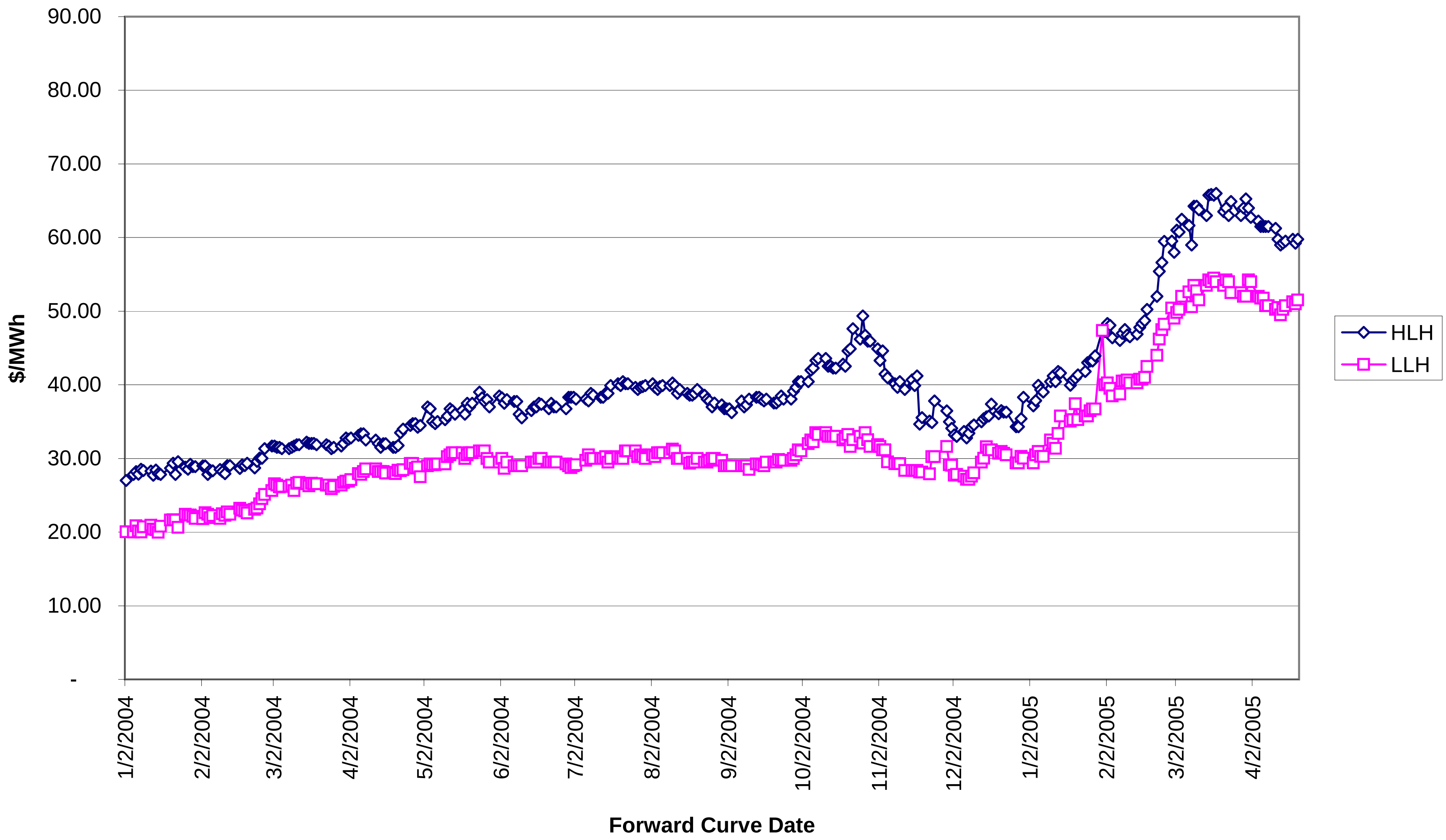
STAFF EXHIBIT 301
GALBRAITH/5

Idaho Power Forward Prices
Jun-05, Mid-Columbia Delivery



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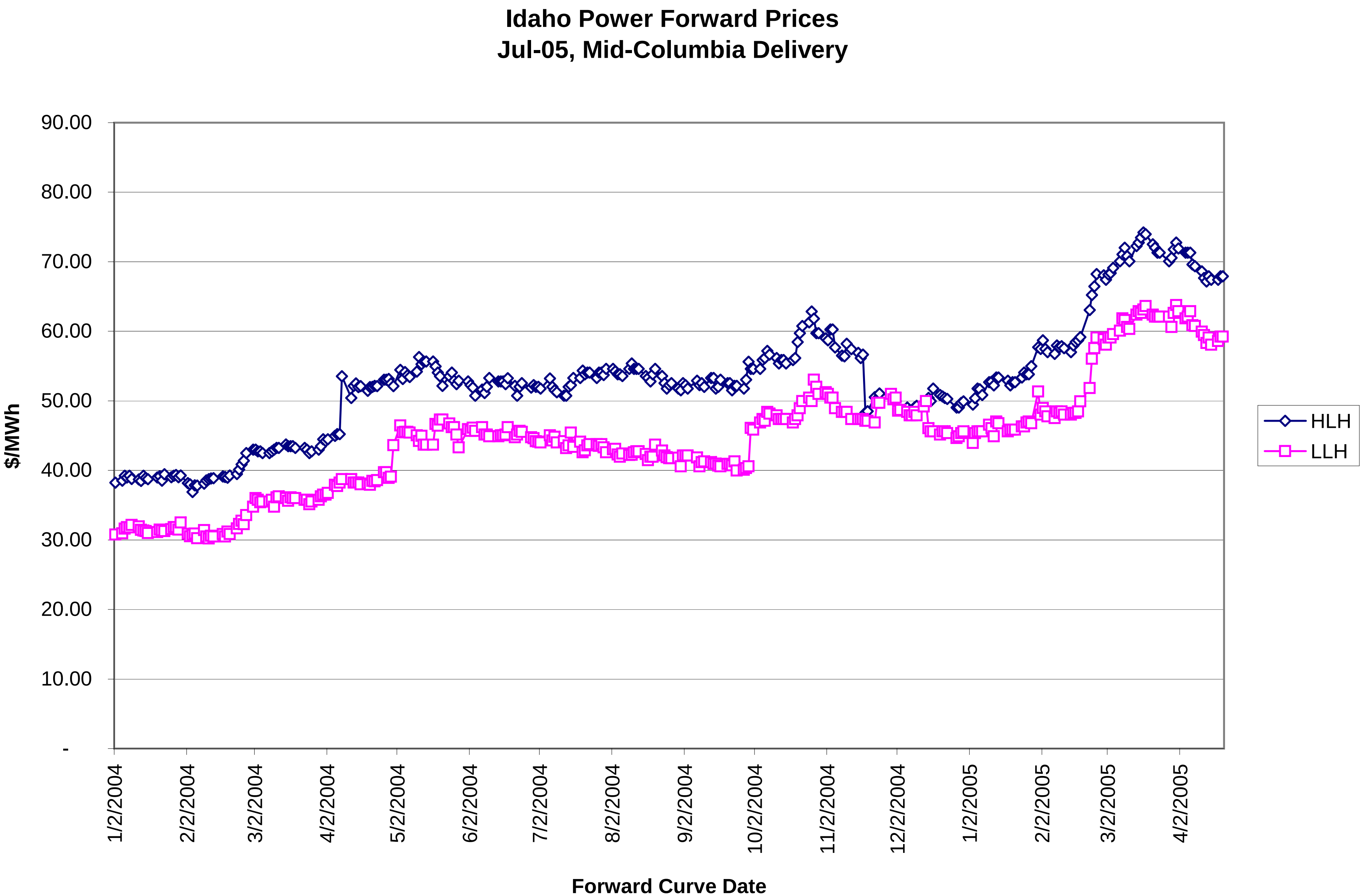
STAFF EXHIBIT 301
GALBRAITH/6



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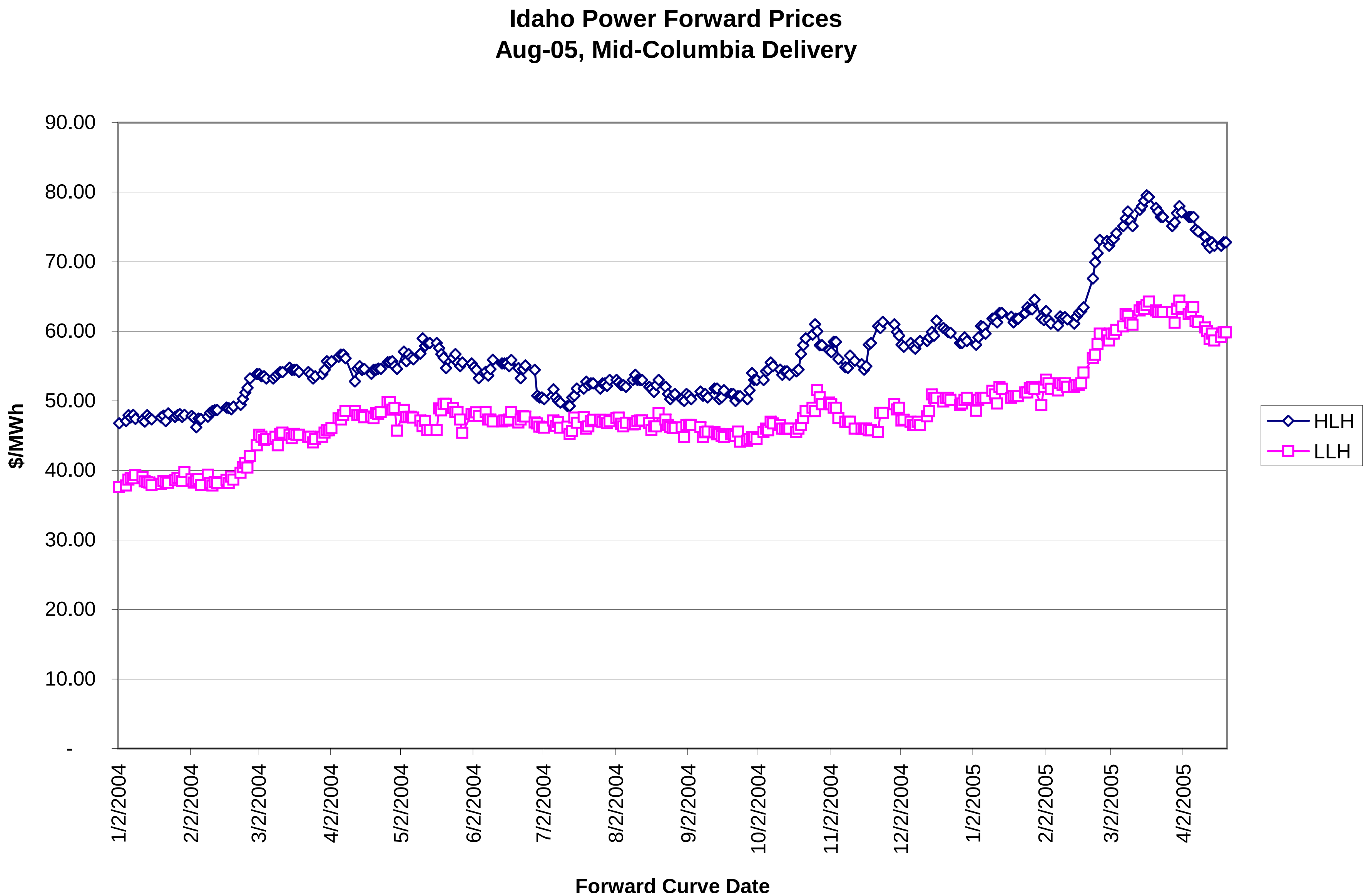
GALBRAITH/7



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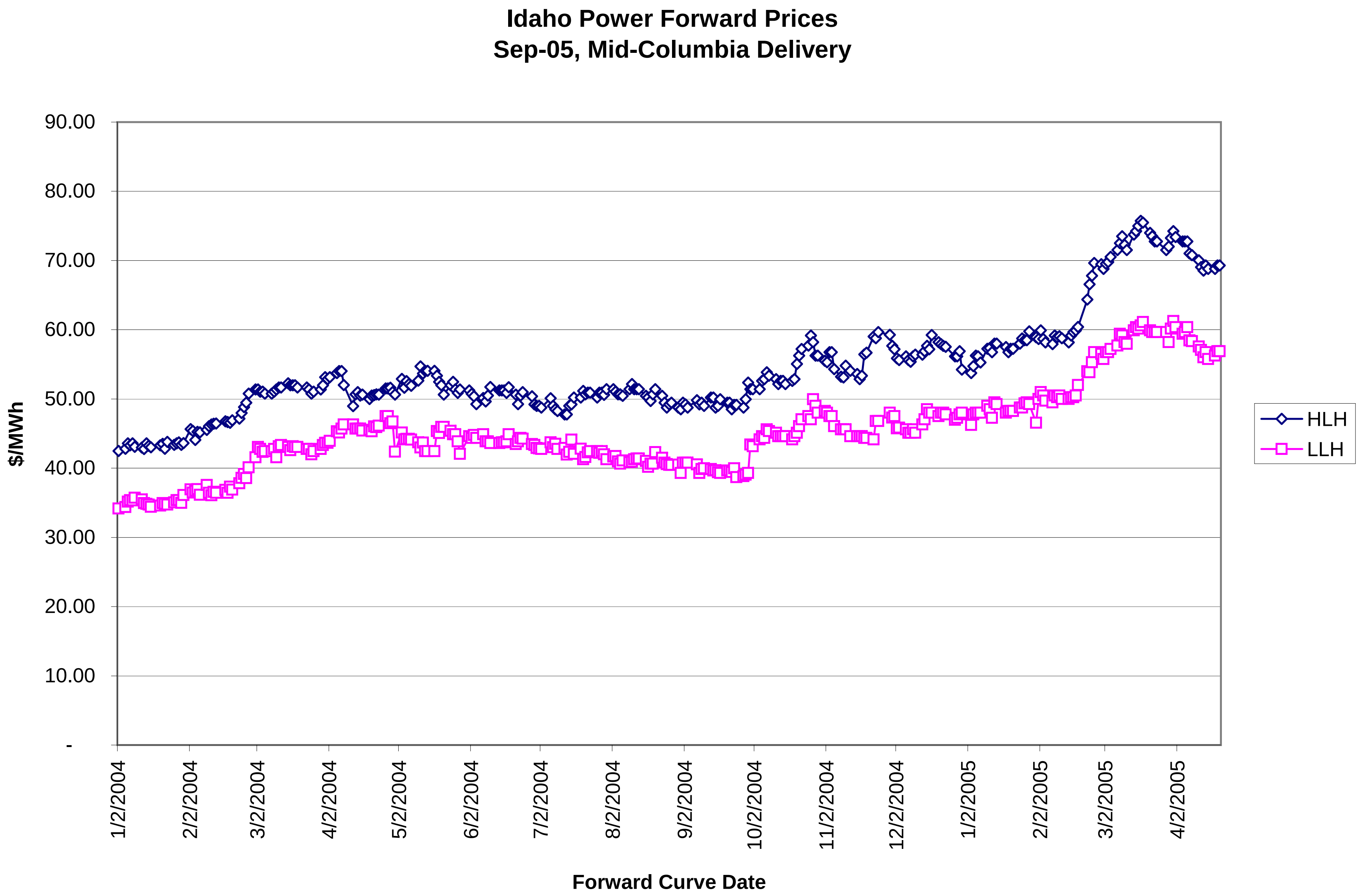
STAFF EXHIBIT 301
GALBRAITH/8


Idaho Power Forward Prices
Sep-05, Mid-Columbia Delivery
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
-
$/MWh
1/2/2004
2/2/2004
3/2/2004
4/2/2004
5/2/2004
6/2/2004
7/2/2004
8/2/2004
9/2/2004
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Forward Curve Date
HLH
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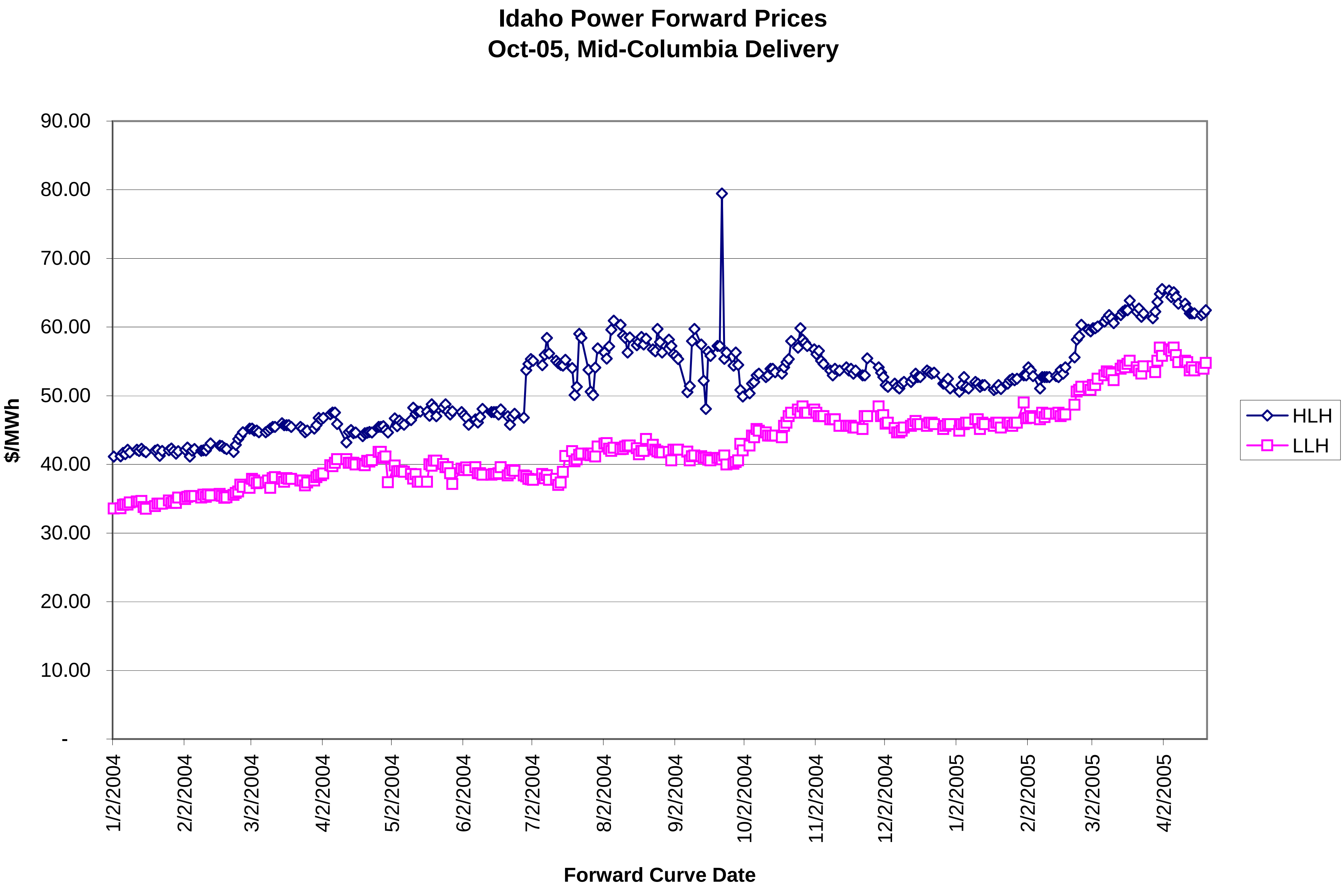

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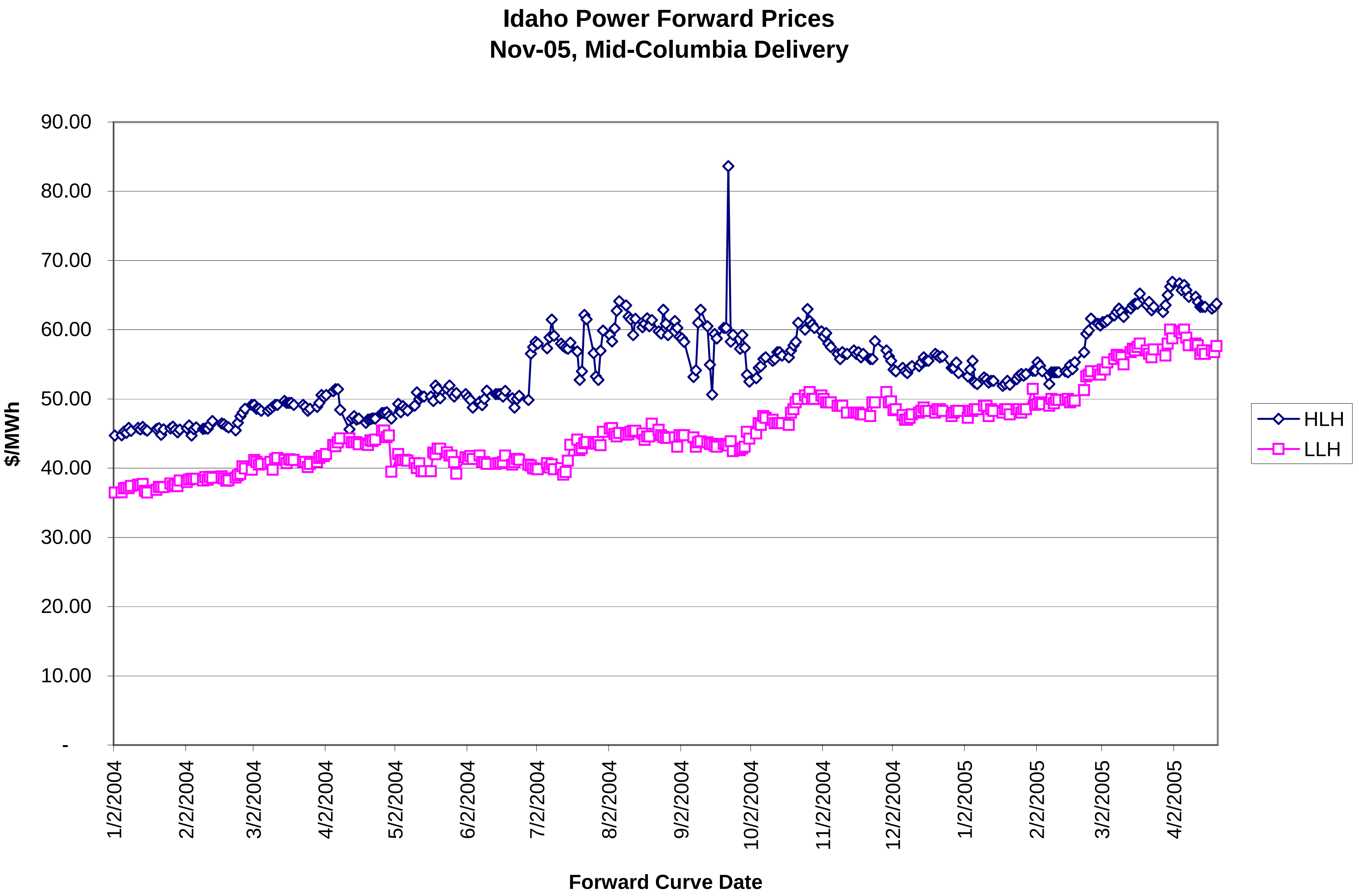
STAFF EXHIBIT 301
GALBRAITH/10



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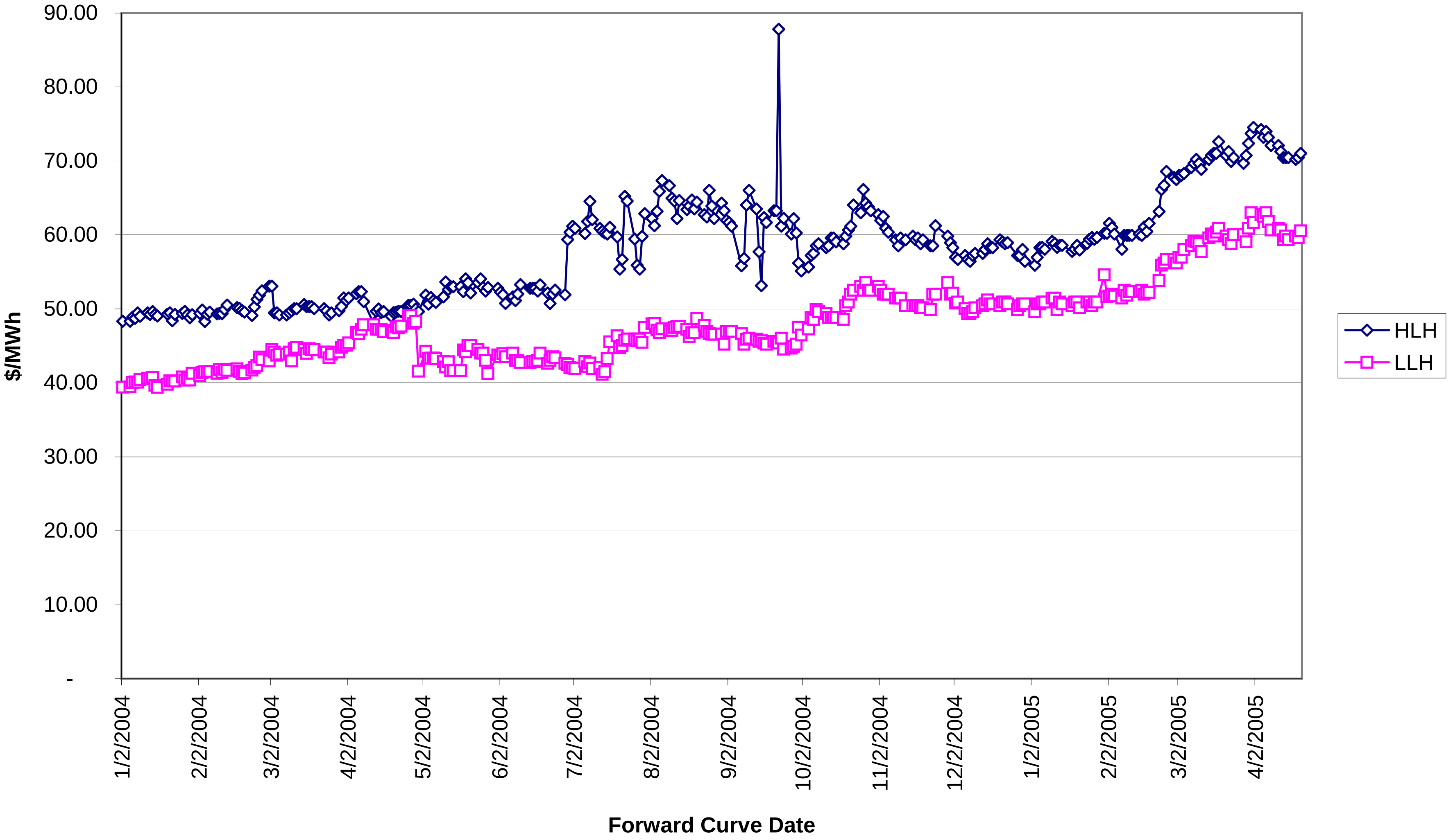
STAFF EXHIBIT 301
GALBRAITH/11

Idaho Power Forward Prices
Dec-05, Mid-Columbia



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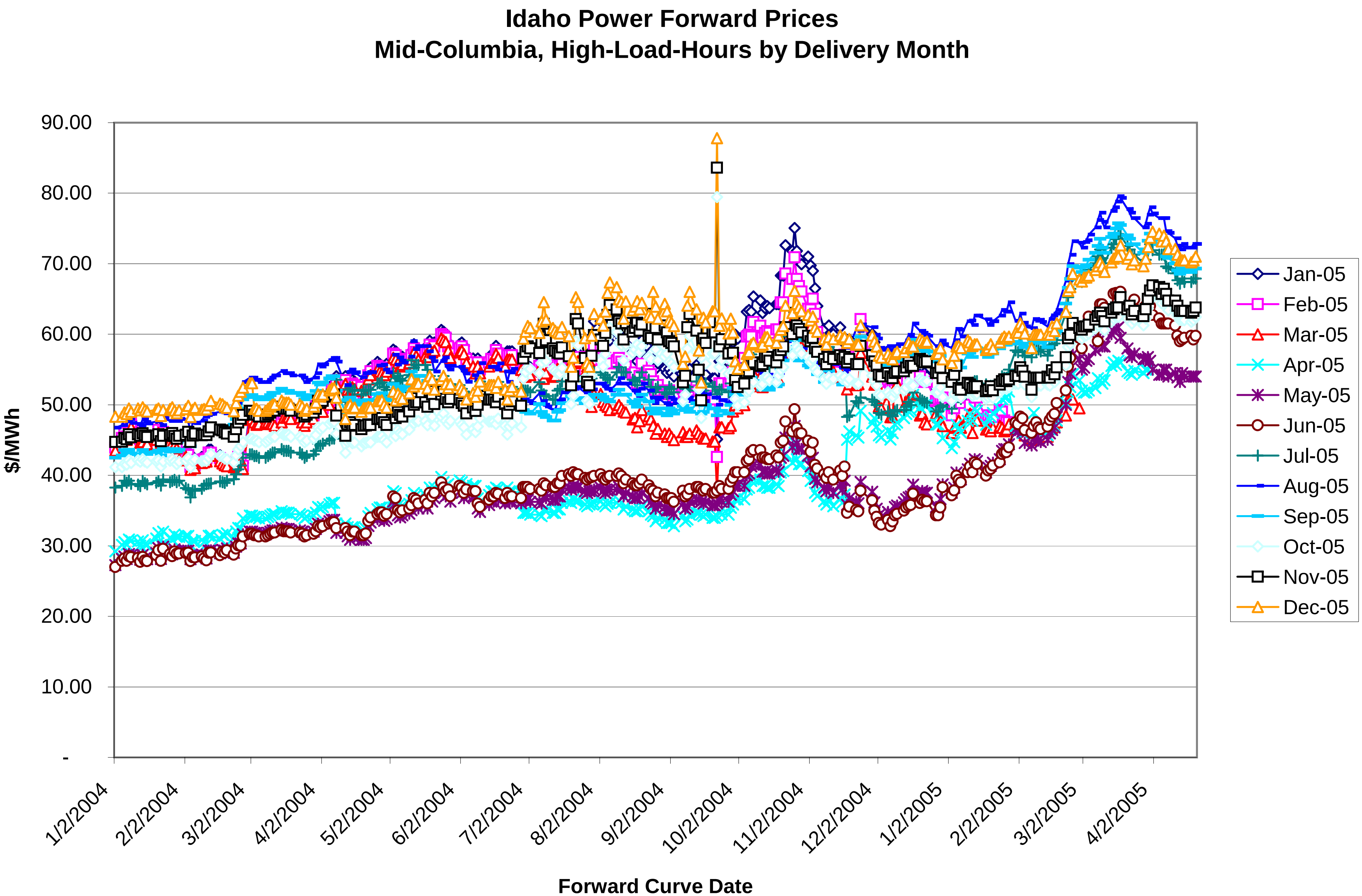
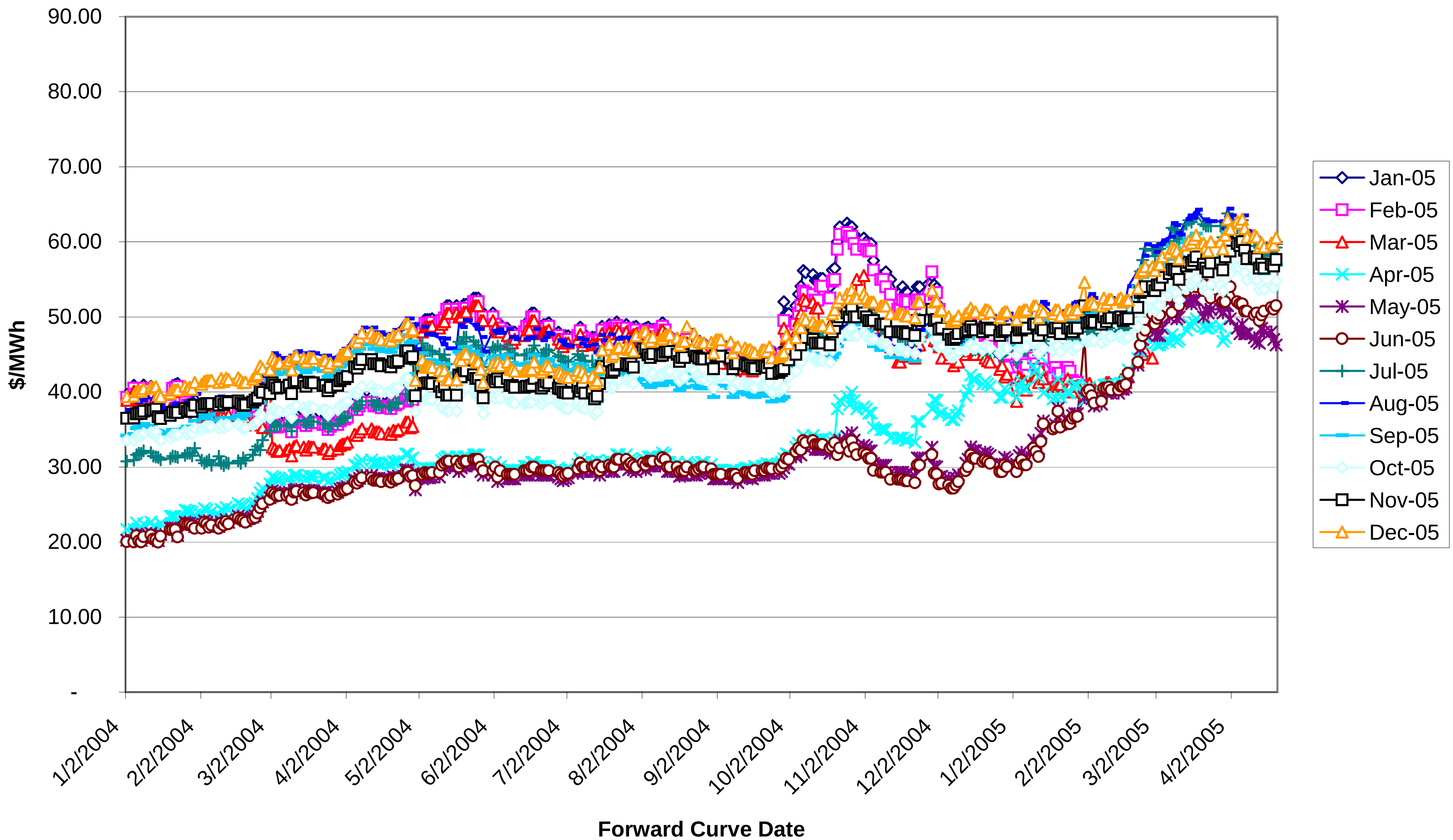
STAFF EXHIBIT 301
GALBRAITH/12


Idaho Power Forward Prices
Mid-Columbia, High-Load-Hours by Delivery Month
$/MWh
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
-
1/2/2004
2/2/2004
3/2/2004
4/2/2004
5/2/2004
6/2/2004
7/2/2004
8/2/2004
9/2/2004
10/2/2004
11/2/2004
12/2/2004
1/2/2005
2/2/2005
3/2/2005
4/2/2005
Forward Curve Date
Jan-05
Feb-05
Mar-05
Apr-05
May-05
Jun-05
Jul-05
Aug-05
Sep-05
Oct-05
Nov-05
Dec-05

Idaho Power Forward Prices
Mid-Columbia, Light-Load-Hours by Delivery Month



CASE: UE 167
WITNESS: Maury Galbraith

PUBLIC UTILITY COMMISSION
OF
OREGON

STAFF EXHIBIT 302

Staff's Alternative Adjustments

April 29, 2005

Staff Alternative Adjustment to Idaho Power Exhibit No. 13
Power Supply Expenses Normalized Using Staff's AURORA Projections (See Idaho Power's Response to Staff Data Request No. 254)

	January	February	March	April	May	June	July	August	September	October	November	December	Annual
1 Hydroelectric Generation (mwh)	796,255.3	833,175.1	816,823.8	850,883.6	859,105.0	858,139.1	759,975.8	726,750.0	675,877.0	541,436.8	456,092.1	662,563.0	8,837,076.6
2 Bridger													
3 Energy (mwh)	445,870.3	392,178.9	451,127.8	402,472.8	337,077.5	340,235.2	456,289.4	455,727.1	442,577.1	457,353.1	442,602.0	457,326.8	5,080,838.4
4 Cost ($ x 1000)	$5,683.7	$4,999.3	$5,750.8	$5,130.5	$4,296.9	$4,337.2	$5,816.6	$5,809.4	$5,641.8	$5,830.1	$5,642.1	$5,829.8	$64,768.1
5 Boardman													
6 Energy (mwh)	36,658.8	32,103.5	37,355.9	34,869.2	31,868.9	0.0	38,335.3	38,697.8	37,544.6	38,803.9	37,558.1	38,801.6	402,597.7
7 Cost ($ x 1000)	$485.6	$425.3	$494.8	$461.9	$422.2	$0.0	$507.8	$512.6	$497.3	$514.0	$497.5	$514.0	$5,333.0
8 Valmy													
9 Energy (mwh)	163,192.5	146,893.0	79,395.9	116,298.8	157,214.7	150,571.1	163,252.3	163,196.0	157,986.1	163,248.3	157,986.1	163,252.3	1,782,487.0
10 Cost ($ x 1000)	$2,399.0	$2,159.4	$1,167.2	$1,709.6	$2,311.1	$2,213.5	$2,399.9	$2,399.0	$2,322.5	$2,399.8	$2,322.5	$2,399.9	$26,203.3
11 Danskin													
12 Energy (mwh)	3.7	21.8	2.7	21.0	239.3	231.8	519.2	236.0	0.6	23.2	4.6	6.4	1,310.1
13 Cost ($ x 1000)	$0.3	$1.6	$0.2	$1.1	$15.2	$16.0	$37.1	$16.2	$0.0	$1.4	$0.3	$0.4	$89.9
14 Fixed Capacity Charge - Gas Transportation ($ x 1000)	$272.0	$256.8	$272.0	$264.4	$272.0	$264.4	$272.0	$272.0	$264.4	$272.0	$264.4	$272.0	$3,218.4
15 Total Cost	$272.3	$258.4	$272.2	$265.5	$287.2	$280.4	$309.1	$288.2	$264.4	$273.4	$264.7	$272.4	$3,308.3
16 Purchased Power (Excluding CSPP)													
17 Market Energy (mwh)	10,681.8	2,373.1	2,151.3	871.5	18,000.4	40,048.4	45,486.5	32,059.6	12,398.6	1,008.0	19,752.0	25,329.1	210,160.1
18 Contract Energy (mwh)	0.0	0.0	0.0	0.0	0.0	32,400.0	33,480.0	33,480.0	0.0	0.0	0.0	0.0	99,360.0
19 Total Energy Excl. CSPP (mwh)	10,681.8	2,373.1	2,151.3	871.5	18,000.4	72,448.4	78,966.5	65,539.6	12,398.6	1,008.0	19,752.0	25,329.1	309,520.1
20 Market Cost ($ x 1000)	$581.7	$132.6	$115.0	$39.2	$924.4	$2,221.9	$2,737.4	$1,963.4	$696.7	$53.4	$896.7	$1,301.5	$11,664.1
21 Contract Cost ($ x 1000)	$0.0	$0.0	$0.0	$0.0	$0.0	$1,400.0	$1,500.0	$1,500.0	$0.0	$0.0	$0.0	$0.0	$4,400.0
22 Total Cost Excl. CSPP ($ x 1000)	$581.7	$132.6	$115.0	$39.2	$924.4	$3,621.9	$4,237.4	$3,463.4	$696.7	$53.4	$896.7	$1,301.5	$16,064.1
23 Surplus Sales													
24 Energy (mwh)	283,951.7	409,637.5	396,802.0	491,952.4	356,106.2	259,609.7	107,513.8	123,597.0	230,650.8	216,271.4	73,034.5	163,688.6	3,112,815.8
25 Revenue Including Transmission Costs ($ x 1000)	$8,609.9	$11,404.6	$12,002.6	$13,651.6	$9,945.3	$6,726.8	$3,550.2	$5,007.9	$8,567.9	$7,532.9	$2,159.5	$5,141.6	$94,300.9
26 Transmission Costs ($ x 1000)	$284.0	$409.6	$396.8	$492.0	$356.1	$259.6	$107.5	$123.6	$230.7	$216.3	$73.0	$163.7	$3,112.8
27 Revenue Excluding Transmission Costs ($ x 1000)	$8,325.9	$10,995.0	$11,605.8	$13,159.7	$9,589.2	$6,467.2	$3,442.7	$4,884.3	$8,337.3	$7,316.7	$2,086.5	$4,977.9	$91,188.1
28 Net Power Supply Costs ($ x 1000)	$1,096.4	-$3,020.0	-$3,805.8	-$5,552.9	-$1,347.4	$3,985.7	$9,828.0	$7,588.4	$1,085.4	$1,754.1	$7,537.0	$5,339.7	$24,488.7
29 Idaho Power Exhibit 13 Net Power Supply Costs ($ x 1000)	$3,318.8	$35.3	($441.5)	($1,786.6)	$1,176.5	$4,992.8	$9,944.2	$8,473.1	$3,489.8	$4,053.1	$7,906.2	$6,526.5	$47,688.1
30 Total Staff Adjustment ($ x 1000)	($2,222.4)	($3,055.4)	($3,364.3)	($3,766.3)	($2,523.9)	($1,007.1)	($116.1)	($884.7)	($2,404.3)	($2,299.0)	($369.2)	($1,186.8)	($23,199.4)

Staff Alternative Adjustment to Idaho Power Exhibit No. 13
Power Supply Expenses Normalized Using Idaho Power's Forward Price Curves from April 30, 2004 (On-peak Prices for Purchases, Off-peak Prices for Sales)

	January	February	March	April	May	June	July	August	September	October	November	December	Annual
1 Hydroelectric Generation (mwh)	796,221.1	832,943.3	817,100.1	850,869.7	859,088.5	858,151.1	759,935.6	726,751.7	675,876.1	541,432.4	456,092.1	662,560.9	8,837,022.5
2 Bridger													
3 Energy (mwh)	438,772.7	378,579.5	442,661.3	391,177.1	327,570.9	326,888.8	455,772.4	455,868.7	441,499.2	456,599.6	441,577.7	456,158.0	5,013,126.0
4 Cost ($ x 1000)	$5,593.3	$4,826.0	$5,642.8	$4,986.5	$4,175.7	$4,167.0	$5,810.0	$5,811.2	$5,628.0	$5,820.5	$5,629.0	$5,814.9	$63,904.9
5 Boardman													
6 Energy (mwh)	35,892.5	31,118.0	36,441.9	32,832.6	29,961.8	0.0	38,327.3	38,725.3	37,546.0	38,791.7	37,544.3	38,754.2	395,935.6
7 Cost ($ x 1000)	$475.4	$412.2	$482.7	$434.9	$396.9	$0.0	$507.7	$513.0	$497.4	$513.9	$497.3	$513.4	$5,244.7
8 Valmy													
9 Energy (mwh)	162,669.0	145,085.8	78,685.9	114,741.2	151,563.5	148,155.1	163,064.5	163,062.4	157,894.3	162,805.5	157,745.1	163,173.8	1,768,646.1
10 Cost ($ x 1000)	$2,391.3	$2,132.8	$1,156.7	$1,686.7	$2,228.0	$2,177.9	$2,397.1	$2,397.1	$2,321.1	$2,393.3	$2,318.9	$2,398.7	$25,999.8
11 Danskin													
12 Energy (mwh)	10.1	13.8	35.6	8.5	137.6	238.7	149.3	166.9	11.0	5.7	7.0	20.3	804.6
13 Cost ($ x 1000)	$0.5	$0.7	$1.4	$0.4	$6.6	$11.3	$7.6	$8.0	$0.4	$0.3	$0.3	$0.8	$38.1
14 Fixed Capacity Charge - Gas Transportation ($ x 1000)	$272.0	$256.8	$272.0	$264.4	$272.0	$264.4	$272.0	$272.0	$264.4	$272.0	$264.4	$272.0	$3,218.4
15 Total Cost	$272.5	$257.5	$273.4	$264.8	$278.6	$275.7	$279.6	$280.0	$264.8	$272.3	$264.7	$272.8	$3,256.5
16 Forward Price Curve (HLH $/MWh)	**55.80**	**55.25**	**54.70**	**35.19**	**33.81**	**34.50**	**52.11**	**54.59**	**50.62**	**44.66**	**47.14**	**49.63**	**$47.33**
17 Forward Price Curve (LLH $/MWh)	**48.48**	**48.00**	**47.52**	**28.05**	**26.95**	**27.50**	**43.63**	**45.71**	**42.38**	**37.40**	**39.47**	**41.55**	**$39.72**
18 Purchased Power (Excluding CSPP)													
19 Market Energy (mwh)	10,978.3	2,425.5	2,126.6	976.7	18,390.4	40,600.1	44,999.7	31,717.5	12,398.6	1,019.0	19,820.4	25,362.5	210,815.2
20 Contract Energy (mwh)	0.0	0.0	0.0	0.0	0.0	32,400.0	33,480.0	33,480.0	0.0	0.0	0.0	0.0	99,360.0
21 Total Energy Excl. CSPP (mwh)	10,978.3	2,425.5	2,126.6	976.7	18,390.4	73,000.1	78,479.7	65,197.5	12,398.6	1,019.0	19,820.4	25,362.5	310,175.2
22 Market Cost ($ x 1000)	**$612.6**	**$134.0**	**$116.3**	**$34.4**	**$621.8**	**$1,400.7**	**$2,344.9**	**$1,731.5**	**$627.6**	**$45.5**	**$934.3**	**$1,258.7**	**$9,862.4**
23 Contract Cost ($ x 1000)	$0.0	$0.0	$0.0	$0.0	$0.0	$1,400.0	$1,500.0	$1,500.0	$0.0	$0.0	$0.0	$0.0	$4,400.0
24 Total Cost Excl. CSPP ($ x 1000)	**$612.6**	**$134.0**	**$116.3**	**$34.4**	**$621.8**	**$2,800.7**	**$3,844.9**	**$3,231.5**	**$627.6**	**$45.5**	**$934.3**	**$1,258.7**	**$14,262.4**
25 Surplus Sales													
26 Energy (mwh)	275,833.0	393,058.0	386,996.0	477,141.2	339,313.2	244,417.9	105,904.1	123,223.1	229,492.0	215,052.0	71,826.3	162,439.0	$3,024,695.7
27 Revenue Including Transmission Costs ($ x 1000)	**$13,372.4**	**$18,866.8**	**$18,390.1**	**$13,383.8**	**$9,144.5**	**$6,721.5**	**$4,620.6**	**$5,632.5**	**$9,725.9**	**$8,042.9**	**$2,835.0**	**$6,749.3**	**$117,485.3**
28 Transmission Costs ($ x 1000)	$275.8	$393.1	$387.0	$477.1	$339.3	$244.4	$105.9	$123.2	$229.5	$215.1	$71.8	$162.4	$3,024.7
29 Revenue Excluding Transmission Costs ($ x 1000)	**$13,096.5**	**$18,473.7**	**$18,003.1**	**$12,906.7**	**$8,805.2**	**$6,477.1**	**$4,514.7**	**$5,509.3**	**$9,496.4**	**$7,827.9**	**$2,763.2**	**$6,586.9**	**$114,460.6**
30 Net Power Supply Costs ($ x 1000)	**($3,751.5)**	**($10,711.3)**	**($10,331.1)**	**($5,499.3)**	**($1,104.2)**	**$2,944.3**	**$8,324.6**	**$6,723.4**	**($157.5)**	**$1,217.6**	**$6,881.2**	**$3,671.6**	**-$1,792.2**
31 Idaho Power Exhibt 13 Net Power Supply Costs ($ x 1000)	$3,318.8	$35.3	($441.5)	($1,786.6)	$1,176.5	$4,992.8	$9,944.2	$8,473.1	$3,489.8	$4,053.1	$7,906.2	$6,526.5	$47,688.1
32 Total Staff Adjustment ($ x 1000)	($7,070.3)	($10,746.6)	($9,889.5)	($3,712.7)	($2,280.7)	($2,048.5)	($1,619.6)	($1,749.7)	($3,647.3)	($2,835.6)	($1,025.0)	($2,854.9)	($49,480.4)

Staff Alternative Adjustment to Idaho Power Exhibit No. 13

Power Supply Expenses Normalized Using Average of Idaho Power's Forward Price Curves from January 2, 2004 through April 30, 2004 (On-peak Prices for Purchases, Off-peak Prices for Sales)

	January	February	March	April	May	June	July	August	September	October	November	December	Annual
1 Hydroelectric Generation (mwh)	796,221.1	832,943.3	817,100.1	850,869.7	859,088.5	858,151.1	759,935.6	726,751.7	675,876.1	541,432.4	456,092.1	662,560.9	8,837,022.5
2 Bridger													
3 Energy (mwh)	438,772.7	378,579.5	442,661.3	391,177.1	327,570.9	326,888.8	455,772.4	455,868.7	441,499.2	456,599.6	441,577.7	456,158.0	5,013,126.0
4 Cost ($ x 1000)	$5,593.3	$4,826.0	$5,642.8	$4,986.5	$4,175.7	$4,167.0	$5,810.0	$5,811.2	$5,628.0	$5,820.5	$5,629.0	$5,814.9	$63,904.9
5 Boardman													
6 Energy (mwh)	35,892.5	31,118.0	36,441.9	32,832.6	29,961.8	0.0	38,327.3	38,725.3	37,546.0	38,791.7	37,544.3	38,754.2	395,935.6
7 Cost ($ x 1000)	$475.4	$412.2	$482.7	$434.9	$396.9	$0.0	$507.7	$513.0	$497.4	$513.9	$497.3	$513.4	$5,244.7
8 Valmy													
9 Energy (mwh)	162,669.0	145,085.8	78,685.9	114,741.2	151,563.5	148,155.1	163,064.5	163,062.4	157,894.3	162,805.5	157,745.1	163,173.8	1,768,646.1
10 Cost ($ x 1000)	$2,391.3	$2,132.8	$1,156.7	$1,686.7	$2,228.0	$2,177.9	$2,397.1	$2,397.1	$2,321.1	$2,393.3	$2,318.9	$2,398.7	$25,999.8
11 Danskin													
12 Energy (mwh)	10.1	13.8	35.6	8.5	137.6	238.7	149.3	166.9	11.0	5.7	7.0	20.3	804.6
13 Cost ($ x 1000)	$0.5	$0.7	$1.4	$0.4	$6.6	$11.3	$7.6	$8.0	$0.4	$0.3	$0.3	$0.8	$38.1
14 Fixed Capacity Charge - Gas Transportation ($ x 1000)	$272.0	$256.8	$272.0	$264.4	$272.0	$264.4	$272.0	$272.0	$264.4	$272.0	$264.4	$272.0	$3,218.4
15 Total Cost	$272.5	$257.5	$273.4	$264.8	$278.6	$275.7	$279.6	$280.0	$264.8	$272.3	$264.7	$272.8	$3,256.5
16 Average Forward Price Curve (HLH $/MWh)	**47.80**	**47.33**	**46.85**	**32.74**	**30.74**	**30.62**	**43.05**	**51.55**	**48.37**	**43.84**	**47.30**	**49.89**	**$43.34**
17 Average Forward Price Curve (LLH $/MWh)	**38.19**	**37.62**	**35.75**	**26.74**	**24.97**	**24.73**	**34.38**	**42.73**	**40.33**	**36.98**	**40.18**	**43.38**	**$35.50**
18 Purchased Power (Excluding CSPP)													
19 Market Energy (mwh)	10,978.3	2,425.5	2,126.6	976.7	18,390.4	40,600.1	44,999.7	31,717.5	12,398.6	1,019.0	19,820.4	25,362.5	210,815.2
20 Contract Energy (mwh)	0.0	0.0	0.0	0.0	0.0	32,400.0	33,480.0	33,480.0	0.0	0.0	0.0	0.0	99,360.0
21 Total Energy Excl. CSPP (mwh)	10,978.3	2,425.5	2,126.6	976.7	18,390.4	73,000.1	78,479.7	65,197.5	12,398.6	1,019.0	19,820.4	25,362.5	310,175.2
22 Market Cost ($ x 1000)	**$524.8**	**$114.8**	**$99.6**	**$32.0**	**$565.3**	**$1,243.1**	**$1,937.0**	**$1,634.9**	**$599.7**	**$44.7**	**$937.5**	**$1,265.4**	**$8,998.8**
23 Contract Cost ($ x 1000)	$0.0	$0.0	$0.0	$0.0	$0.0	$1,400.0	$1,500.0	$1,500.0	$0.0	$0.0	$0.0	$0.0	$4,400.0
24 Total Cost Excl. CSPP ($ x 1000)	**$524.8**	**$114.8**	**$99.6**	**$32.0**	**$565.3**	**$2,643.1**	**$3,437.0**	**$3,134.9**	**$599.7**	**$44.7**	**$937.5**	**$1,265.4**	**$13,398.8**
25 Surplus Sales													
26 Energy (mwh)	275,833.0	393,058.0	386,996.0	477,141.2	339,313.2	244,417.9	105,904.1	123,223.1	229,492.0	215,052.0	71,826.3	162,439.0	$3,024,695.7
27 Revenue Including Transmission Costs ($ x 1000)	**$10,533.3**	**$14,787.9**	**$13,836.6**	**$12,760.4**	**$8,472.6**	**$6,043.3**	**$3,641.0**	**$5,265.3**	**$9,255.7**	**$7,951.6**	**$2,885.7**	**$7,046.1**	**$102,479.6**
28 Transmission Costs ($ x 1000)	$275.8	$393.1	$387.0	$477.1	$339.3	$244.4	$105.9	$123.2	$229.5	$215.1	$71.8	$162.4	$3,024.7
29 Revenue Excluding Transmission Costs ($ x 1000)	**$10,257.4**	**$14,394.9**	**$13,449.6**	**$12,283.3**	**$8,133.3**	**$5,798.9**	**$3,535.1**	**$5,142.0**	**$9,026.2**	**$7,736.5**	**$2,813.9**	**$6,883.7**	**$99,454.9**
30 Net Power Supply Costs ($ x 1000)	**($1,000.2)**	**($6,651.6)**	**($5,794.3)**	**($4,878.3)**	**($488.8)**	**$3,464.9**	**$8,896.3**	**$6,994.1**	**$284.8**	**$1,308.1**	**$6,833.6**	**$3,381.5**	**$12,350.0**
31 Idaho Power Exhibt 13 Net Power Supply Costs ($ x 1000)	$3,318.8	$35.3	($441.5)	($1,786.6)	$1,176.5	$4,992.8	$9,944.2	$8,473.1	$3,489.8	$4,053.1	$7,906.2	$6,526.5	$47,688.1
32 Total Staff Adjustment ($ x 1000)	($4,319.0)	($6,687.0)	($5,352.8)	($3,091.7)	($1,665.3)	($1,527.9)	($1,047.9)	($1,479.0)	($3,205.0)	($2,745.1)	($1,072.6)	($3,145.0)	($35,338.2)

UE 167
Service List (Parties)

RATES & REGULATORY AFFAIRS PORTLAND GENERAL ELECTRIC RATES & REGULATORY AFFAIRS 121 SW SALMON STREET, 1WTC0702 PORTLAND OR 97204 pge.opuc.filings@pgn.com	STEPHANIE S ANDRUS DEPARTMENT OF JUSTICE REGULATED UTILITY & BUSINESS SECTION 1162 COURT ST NE SALEM OR 97301-4096 stephanie.andrus@state.or.us
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CERTIFICATE OF SERVICE

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I certify that I have this day served the foregoing document upon all parties of record in this proceeding by delivering a copy in person or by mailing a copy properly addressed with first class postage prepaid, or by electronic mail pursuant to OAR 860-13-0070, to all parties or attorneys of parties.

Dated at Salem, Oregon, this 29th day of April, 2005.

Judy Ogilvie

Judy Ogilvie
Public Utility Commission
Regulatory Operations
PO Box 2148
Salem, Oregon 97308-2148
Telephone: (503) 378-5763