IDAHO POWER®
An IDACORP Company

**DONOVAN E. WALKER**
**Lead Counsel**
dwalker@idahopower.com

July 22, 2014

**VIA HAND DELIVERY**

Jean D. Jewell, Secretary
Idaho Public Utilities Commission
472 West Washington Street
Boise, Idaho 83702

Re: Case No. IPC-E-13-22
Update to Wind Integration Rates and Charges – Reply Comments of Idaho Power Company

Dear Ms. Jewell:

Enclosed for filing in the above matter are an original and seven (7) copies of the Reply Comments of Idaho Power Company.

Very truly yours,

Donovan E. Walker

DEW:csb
Enclosures

1221 W. Idaho St. (83702)
P.O. Box 70
Boise, ID 83707

DONOVAN E. WALKER (ISB No. 5921)
JULIA A. HILTON (ISB No. 7740)
Idaho Power Company
1221 West Idaho Street (83702)
P.O. Box 70
Boise, Idaho 83707
Telephone: (208) 388-5317
Facsimile: (208) 388-6936
dwalker@idahopower.com
jhilton@idahopower.com

Attorneys for Idaho Power Company

RECEIVED
2014 JUL 22 PM 3:07
IDAHO PUBLIC
UTILITIES COMMISSION

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

| | |
|---|---|
| IN THE MATTER OF IDAHO POWER COMPANY'S APPLICATION TO UPDATE ITS WIND INTEGRATION RATES AND CHARGES. | CASE NO. IPC-E-13-22<br><br>REPLY COMMENTS OF IDAHO POWER COMPANY |

Idaho Power Company ("Idaho Power" or "Company") respectfully submits the following Reply Comments in response to the comments filed by the Idaho Public Utilities Commission ("Commission") Staff ("Staff"), the American Wind Energy Association ("AWEA"), and Renewable Northwest ("RNW") on July 2, 2014. In these Reply Comments Idaho Power will address objections raised by AWEA and RNW, correct statements from Idaho Power's initial Application relevant to Staff's recommendation, and present Idaho Power's recommendation to implement wind integration charges on an hourly incremental cost basis for every 100 megawatts ("MW") of penetration through an intermittent generation integration charge tariff.

## I. INTRODUCTION

On November 29, 2013, Idaho Power filed its Application with the Commission requesting authorization for Idaho Power to update its wind integration rates and charges consistent with its 2013 Wind Integration Study Report ("2013 Study"). The following parties intervened in the case: Idaho Winds LLC ("Idaho Winds"); Snake River Alliance ("SRA"); Cold Springs Windfarm, LLC ("Cold Springs"); Desert Meadow Windfarm, LLC ("Desert Meadow"); Hammett Hill Windfarm, LLC ("Hammett Hill"); Mainline Windfarm, LLC ("Mainline"); Ryegrass Windfarm, LLC ("Ryegrass"); Two Ponds Windfarm, LLC ("Two Ponds"); Cassia Wind Farm LLC ("Cassia"); Hot Springs Windfarm, LLC ("Hot Springs"); Bennett Creek Windfarm, LLC ("Bennett Creek"); Cassia Gulch Wind Park LLC ("Cassia Gulch"); Tuana Springs Energy, LLC ("Tuana"); High Mesa Energy, LLC ("High Mesa"); Renewable Northwest Project, which has since changed its name to Renewable Northwest ; AWEA; Idaho Wind Partners I, LLC ("Idaho Wind Partners"); Meadow Creek Project Company LLC ("Meadow Creek"); and Rockland Wind Farm, LLC ("Rockland"). The Commission granted intervention to each of the above parties.

On January 31, 2014, Cold Springs, Desert Meadow, Hammett Hill, Mainline, Ryegrass, Two Ponds, Cassia, Hot Springs, Bennett Creek, Cassia Gulch, Tuana, and High Mesa collectively filed a Motion to Dismiss ("Cold Springs Motion to Dismiss"). On February 7, 2014, AWEA and RNW filed comments in support of the Cold Springs Motion to Dismiss; Meadow Creek, Rockland, and Idaho Wind Partners filed to join in the Cold Springs Motion to Dismiss with additional comments; and Idaho Winds filed a separate Motion to Dismiss. On February 21, 2014, Idaho Power filed an Answer to the various motions to dismiss, joinders, and comments.

On April 30, 2014, in Order No. 33030, the Commission denied the Cold Springs Motion to Dismiss and all motions to partially and/or fully dismiss the matter. In Order No. 33030, the Commission clarified that any "Commission approved modifications to Idaho Power's wind integration rate and charges will only apply prospectively – to new contracts as they are entered into by the parties and submitted to the Commission for approval." Order No. 33030, p. 8. The Commission stated that parties had 14 days to withdraw as intervenors if any party believed it no longer had a direct and substantial interest in the proceeding. Rockland, Meadow Creek, Idaho Wind Partners, and SRA withdrew from the case; an Amended Notice of Parties was issued on May 20, 2014.

The remaining parties agreed that modified procedure could effectively process the remainder of the case and set a procedural schedule that included a comment deadline, settlement conference, and reply comment deadline. On July 2, 2014, Staff filed Comments and AWEA and RNW jointly filed Comments on the Company's Application. Idaho Power submits these Reply Comments in response.

On July 9, 2014, the parties met to discuss settlement of the case. The parties were unable to settle the case and desired additional time for discovery and comment due to those discussions. On July 15, 2014, in Order No. 33075, the Commission granted the parties' request for an additional procedural schedule, including deadlines for additional discovery, supplementary comments, and supplementary reply comments.

## II. REPLY COMMENTS

### A. Staff Comments and Recommendations.

Idaho Power appreciates Staff's analysis and recommendations and agrees, in particular, with Staff's recommendations: (1) to accept the results of the Company's 2013 Wind Integration Study; (2) to recover the full incremental cost of integration from

new wind projects; and (3) to implement integration charges as a dollar per megawatt-hour ("MWh") charge rather than as a percentage of avoided cost rates. However, Staff's recommendation with regard to the three tiers that were set forth in Idaho Power's Application as "Method 1" is based upon an incorrect breakout of the tier levels that Idaho Power erroneously reported in its Application. The Company's testimony correctly set forth the tier and cost information; however, it was summarized erroneously in the Application. Idaho Power, with these Reply Comments, will correct the erroneously reported tier levels below. Additionally, given the Commission's decision that existing qualifying facility ("QF") wind contracts will not be affected by any new integration charges that may come about as part of this case, Idaho Power now has a specific recommendation for implementation of wind integration charges—implementation of the incremental wind integration cost quantified at 100 MW increments—that the Company proposes below. Also relevant to Staff's initial comments is a required clarification by the Company as to how the proposed intermittent generation integration charge tariff would be structured and how it would work. The Company clarifies its proposal regarding use of an integration tariff below. The new procedural schedule approved by the Commission on July 15, 2014, will allow the parties to review Idaho Power's proposed implementation of wind integration charges, conduct discovery, if necessary, and submit supplemental comments thereto. Order No. 33075.

**1. <u>Correction to Tier Levels and Costs in the Application</u>.**

Pages 5 and 6 of the Application include tables and charts which were intended to be a summary of the 2013 Study results included in Mr. DeVol's testimony. Mr. DeVol's testimony correctly sets forth the costs and the associated MW levels; however,

in drafting the Application, Idaho Power erroneously included incorrect MW levels on page 6, paragraph 10. The dollar amounts are correct, it is only the associated MW levels and tiers that are incorrect. The Application incorrectly indicates three tiers as: 800 MW to 999 MW; 1,000 MW to 1,199 MW; and 1,200 MW and above. From Mr. DeVol's testimony, page 21, lines 9-22, the correct tier levels are: 678 MW to 800 MW; 801 MW to 1,000 MW; and 1,001 MW to 1,200 MW.

Additionally, the labeling that the Company attached to the chart on page 5 of the Application does not correctly communicate the difference between the costs identified by the build-out scenarios from the 2013 Study and the incremental integration cost at different penetration levels. Lastly, the 2013 Wind Integration Study utilized a 2017 test year, and reports all numbers in 2017 dollars. Once again, the dollar amounts are correct, only the MW levels and labels have been clarified. Idaho Power provides the following tables, meant as replacement tables for those that appear on pages 5 and 6 of the Application.

Clarified and replacement table for paragraph 7, page 5 of the Application:

**Average Integration Cost Per MWh**

| Build-out Scenarios | 0-800 MW | 0-1,000 MW | 0-1,200 MW |
|---|---|---|---|
| Integration Cost (2017 dollars) | $6.83 | $10.22 | $14.22 |
| Integration Cost (2014 dollars) | $6.25 | $9.35 | $13.01 |

**Incremental Integration Cost Per MWh**

| Penetration Level | 678-800 MW | 801-1,000 MW | 1,001-1,200 MW |
|---|---|---|---|
| Integration Cost (2017 dollars) | $8.67 | $24.00 | $34.70 |
| Integration Cost (2014 dollars) | $7.93 | $21.96 | $31.76 |

Corrected and replacement table for paragraph 10, page 6 of the Application (still in 2017 dollars):

| | Amount of Wind Online | Integration Charge |
|---|---|---|
| **Tier 1** | 678 MW to 800 MW | $8.67/MWh |
| **Tier 2** | 801 MW to 1,000 MW | $24.00/MWh |
| **Tier 3** | 1,001 MW to 1,200 MW | $34.70/MWh |

The numbers reported above, and reported by the 2013 Study, are 2017 calendar year costs. These numbers are not levelized or averaged numbers. The full stream of yearly cost numbers is set forth in Schedule 87 as described below, and set forth in Attachment 1 hereto.

**2. Proposed Intermittent Generation Integration Charge Tariff.**

Because the initial Application contained multiple options/proposals for the implementation of updated wind integration costs, the Company's proposal to implement an intermittent generation integration charge tariff is somewhat different today, given the Commission's determination that existing integration charges will not be changed. Idaho Power does not propose that integration charges, once contained in a Commission-approved Public Utility Regulatory Policies Act of 1978 ("PURPA") energy sales agreement, be changed during the term of the contract. Idaho Power proposes a new tariff, Schedule 87, Intermittent Generation Integration Charges. This is the same Schedule 87 and proposal that the Company recently submitted for the implementation of solar integration costs in Case No. IPC-E-14-18. The tariff does not provide for modifying or changing the integration cost that is contained in a Commission-approved contract. The tariff, and any change to the integration charge in the future, would only apply to new contracts and obligations entered into subsequent to its approval by the Commission.

Schedule 87 is meant to provide the wind and solar integration charges consistent with the most recent Commission-approved integration study applicable to both wind and solar generation, respectively. The Company has provided a draft of Schedule 87, submitted as Attachment 1 hereto and incorporated herein by this reference, which contains only the proposed incremental integration charges for wind generation based upon the 2013 Study. It also contains a placeholder for the inclusion of the appropriate solar integration charges, once they are determined by the Commission. (The Company submitted the same draft Schedule 87 as Exhibit No. 2 in Case No. IPC-E-14-18 that contains the proposed incremental integration charges for solar generation, and a placeholder for the inclusion of an appropriate wind integration charge.) The charges set forth in Schedule 87 are the amounts to be deducted from avoided cost rates each year, beginning in the year the project comes on-line, based on the nameplate capacity of installed wind generation at the scheduled operation date of the proposed new project. The integration charges set forth in Schedule 87 are formatted to appear in the same format as that used by the Commission to post the published avoided cost rates. Each penetration level (for each 100 MW increment of wind penetration) has its own table clearly identified and set forth in Schedule 87, and discloses both the levelized integration charge as well as the non-levelized stream of integration charge amounts listed by year. Just like published avoided cost rates, the scheduled operation date for the proposed generation project is used as the starting point in the table, and each yearly amount through the term of the proposed contract is set out accordingly. These amounts would be included in the PURPA energy sales agreement for a new project, and would remain as set forth in that agreement for the entire term of the agreement.

**B. Idaho Power's Recommended Implementation of Wind Integration Charges.**

The 2013 Study identified wind integration costs at 800 MW, 1,000 MW, and 1,200 MW. The incremental integration costs at 100 MW increments were determined by first fitting a smooth curve to each of the studied penetration level costs identified in the 2013 Study, from 0 MW to 1,200 MW. Attachment 2 shows the resulting curves (one in 2017 dollars and the other in 2014 dollars) and their respective formulas. The incremental integration costs at each of the 100 MW increment levels of penetration were then determined by using the respective curve's formula to identify the associated costs on the curve. The resulting 100 MW incremental integration costs are shown on the graphs submitted herewith as Attachment 3, both in 2017 and 2014 dollars, and incorporated herein by this reference.

Idaho Power's proposal to implement wind integration costs at 100 MW increments is the same as its proposal to implement solar integration costs at 100 MW increments. Similar to the explanation presented in the testimony of Mr. Youngblood in the solar case, the 2013 Wind Integration Study identified an average integration cost for all wind generation from 0-1,200 MW of $14.22. That means that if the total cost of integrating 1,200 MW of wind were to be spread equally to all 1,200 MW of wind generation, the cost of integration would be $14.22 for each MWh generated. However, if that same cost of integrating 1,200 MW of wind were to be broken up into increments, the incremental integration cost for the first increments would be much lower, while the cost for the later increments increases. In aggregate, the total cost of integrating wind indentified by either method, the average integration cost or the incremental integration cost, is the same. The cost of wind integration increases as the penetration level of wind increases on the system. The 2013 Study identified the discrete cost to integrate

wind generation at three discrete penetration levels. However, if costs are assigned on an incremental basis, then costs are more closely assigned with the cause of those costs, and thus the initial generation is assigned a lower cost than the later generation that shows up when it is more costly to integrate.

Idaho Power proposed that a wind integration charge be established to collect the incremental cost of integration at each 100 MW level of wind generation penetration. Because Idaho Power currently has 678 MW[1] of wind currently operating on its system, the updated wind integration charge starts at the 678 MW to 700 MW penetration level, and increases consistently with the costs of integration identified in the 2013 Study, at every 100 MW of wind nameplate capacity penetration level. This results in proposed wind integration charges, in 2017 dollars, of: $13.10 for 678 MW to 700 MW; $17.00 for 701 MW to 800 MW; $21.35 for 801 MW to 900 MW; $26.16 for 901 MW to 1,000 MW; $31.41 for 1,001 to 1,100 MW; and $37.08 for 1,101 MW to 1,200 MW. These numbers are shown on the graph submitted herewith as page 1 of Attachment 4, and incorporated herein by this reference. Page 2 of Attachment 4 are the same numbers in 2014 dollars.

Idaho Power proposes that the incremental cost of wind integration, at 100 MW increments, be implemented and set forth as proposed in Schedule 87, Intermittent Generation Integration Charges, as described above. Because the Company already has 678 MW of wind generation on its system, the first wind integration costs identified are those for the 601 MW to 700 MW of wind penetration.

[1] With the recent inclusion of 50 MW of wind generation from five fully executed PURPA energy sales agreements in its Oregon jurisdiction, Idaho Power's total current wind generation penetration level is 728 MW.

## C. AWEA and RNW Objections.

AWEA and RNW (hereafter, "AWEA") object to the validity of the costs identified by the 2013 Study, and cite two primary objections to the 2013 Study methodology: (1) hour-ahead versus day-ahead wind forecast data and (2) netting the reserve requirements for load and wind. AWEA characterizes the treatment of these issues as Idaho Power taking a step backwards and abandoning utility "best practices" by erroneously using day-ahead forecast data and not netting load and wind reserves because these two items were addressed by using hour-ahead data and netting of reserves in the 2007 Wind Integration Study.

> Alarmingly, it appears that the Company's use of best practices in its wind integration methodology has actually diminished over the past seven years, as many of the errors in the 2013 Study were not made in Idaho Power's 2007 Wind Integration Study . . . Most importantly, Idaho Power's 2013 Study does not incorporate the use of hour-ahead wind forecasts and fails to net the reserve requirements of wind and load; these methodological flaws are described in detail in the following two sections.

AWEA/RNW Comments, p. 4.

Idaho Power did not abandon the use of "best practices" and its understanding of wind integration and its associated costs has not "diminished" over the years since the initial 2007 Study was conducted. In fact, at the time of the 2007 Study, Idaho Power had very little wind generation actually operating on its system (just under 20 MW with only the Fossil Gulch and Horseshoe Bend Wind projects on-line), compared to the 678 MW of wind generation that it successfully integrates onto its system today. It is exactly the experience that Idaho Power has gained over the past seven plus years of actual operations of its system, reliably serving its customers in a least-cost manner as required by its regulatory compact, that specifically informed the Company's conscious

decisions to change to the day-ahead wind forecast and to not net the reserve requirements of load and wind in its 2013 Study. AWEA admittedly advocated for general policy considerations for integration studies on the whole, and from a national perspective. However, it fails to take into account Idaho Power's own specific and real-world operation of its system, the way that costs are incurred and recovered (or not), and the way that the markets function that Idaho Power has access to and participates in. The decisions about how to conduct a proper wind integration study is not a one-size-fits-all, plug-and-play endeavor that is the same for Idaho Power as it is for another utility that may reside inside of an RTO/ISO such as exists in other parts of the country. In addition, the fact that all but 101 MW of the 678 MW of wind on Idaho Power's system is PURPA generation makes a significant difference because the Company does not have the operational flexibility with PURPA generation that it may have (or another utility may have) if its wind generation is non-PURPA. Because the PURPA generation is a designated network resource to serve load on the Company's system, and the Company must accept delivery whenever it is delivered by QF projects, the decisions must be made about the designation/undesignation of Idaho Power's other resources in order to keep the system balanced and reliably serving load. These decisions incur costs. The integration studies attempt to quantify some of these costs.

Idaho Power, in the conduct of the initial 2007 Study, did choose to use hour-ahead forecast data and to net the reserves of load and wind for many of the same reasons that AWEA advocates: that it was held out as "standard" utility best practice in the conduct of an integration study. With little operational experience at that time, the decision to follow that model made sense for the circumstances at that time. However, Idaho Power has gained a large amount of wind generation, and much more experience

integrating that generation onto its system. Consequently when making those decisions for the updated 2013 Study, Idaho Power chose to use day-ahead wind forecast data and to not net load and wind reserves. This was done primarily because it is reflective of actual operations where Idaho Power incurs costs on a day-ahead basis, based upon the day-ahead forecast, as it must to prudently operate its system and reliably serve load. Because of the non-liquidity in hour-ahead and real-time markets that exist in Idaho Power's region and to which Idaho Power has access to, the Company is not able to reliably recover these sunk day-ahead costs as it balances its system to real time.

AWEA's characterization of day-ahead system scheduling as "forecast" is not accurate. Day-ahead scheduling for Idaho Power typically includes actual transactions with third parties, and these transactions obligate the Company and incur costs to provide or accept energy for the next day, and are not merely forecasts. Additionally, day-ahead forecasts for load and day-ahead forecasts for wind are not the same thing as AWEA implies; forecasting wind generation a day ahead is considerably more difficult. AWEA/RNW correctly note in their Comments that wind energy forecast error is greatly reduced as forecast lead time is reduced. AWEA/RNW Comments pp. 5-6. In fact, it is precisely the magnitude and nature of the day-ahead wind forecast error that requires Idaho Power, as an entity having a mandate to reliably serve load, to set aside capacity day ahead to allow response to wind forecast errors.

By comparison, system load is less difficult to forecast a day ahead, and day-ahead load forecast errors are typically less problematic. The National Renewable Energy Laboratory ("NREL") explains in a July 2012 conference paper on a comparison between load and wind forecasting: "Load generally follows a familiar pattern, reaching its peak during the day and into the evening, with a nighttime nadir." *A Comparison of*

*Wind Power and Load Forecasting Error Distributions*, Bri-Mathias Hodge, Anthony Florita, Kirsten Orwig, Debra Lew, Michael Milligan, National Renewable Energy Laboratory, May 2012. NREL also importantly notes that significant day-ahead load forecast errors are often auto correlated, reflecting a tendency for day-ahead load forecast errors to persist in magnitude and direction throughout the day. Because of this tendency, day-ahead load forecast errors are more readily addressed through the hour-by-hour management in real time described by AWEA/RNW in their Comments.

Thus, the challenges in forecasting wind and load for day-ahead unit commitment are considerably different, requiring the system to treat differently the possibility of errors in forecasting these two elements of the load and resource balance. Moreover, the different treatments necessary for load and wind make impractical the netting advocated by AWEA/RNW in the analysis of errors for load and wind.

## III. CONCLUSION

Idaho Power agrees with Staff's recommendations, particularly Staff's recommendations: (1) to accept the results of the Company's 2013 Wind Integration Study; (2) to recover the full incremental cost of integration from new wind projects; and (3) to implement integration charges as a dollar per MWh charge rather than as a percentage of avoided cost rates. Idaho Power respectfully proposes further that a wind integration charge be implemented to recover the full incremental cost of integration at 100 MW increments, and that those charges be set forth in Schedule 87 for intermittent generation integration charges. AWEA/RNW's objections to the study methodology may be fair criticisms of studies in general and from a nationwide perspective, but they are without merit as it pertains to the use of day-ahead forecast data and the netting of reserves for Idaho Power because of the way costs are actually incurred in the

operation of Idaho Power's system on a day-ahead basis, with a very limited ability to recover them as the system balances into real time.

Idaho Power respectfully requests that the Commission approve the updated wind integration costs as identified herein and set forth in the proposed Schedule 87.

DATED at Boise, Idaho, this 22nd day of July 2014.

DONOVAN E. WALKER
Attorney for Idaho Power Company

## CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on the 22nd day of July 2014 I served a true and correct copy of the REPLY COMMENTS OF IDAHO POWER COMPANY upon the following named parties by the method indicated below, and addressed to the following:

**Commission Staff**
Kristine A. Sasser
Deputy Attorney General
Idaho Public Utilities Commission
472 West Washington (83702)
P.O. Box 83720
Boise, Idaho 83720-0074

____Hand Delivered
____U.S. Mail
____Overnight Mail
____FAX
__X__ Email kris.sasser@puc.idaho.gov

**Idaho Winds LLC**
Dean J. Miller
McDEVITT & MILLER LLP
420 West Bannock Street (83702)
P.O. Box 2564-83701
Boise, Idaho 83701

____Hand Delivered
____U.S. Mail
____Overnight Mail
____FAX
__X__ Email joe@mcdevitt-miller.com

Rick Koebbe, President
Idaho Winds LLC
5420 West Wicher Road
Glenns Ferry, Idaho 83623

____Hand Delivered
____U.S. Mail
____Overnight Mail
____FAX
__X__ Email rk@powerworks.com

Bob Eggers, Legal Counsel
Idaho Winds, LLC
15850 Jess Ranch Road
Tracy, California 95377

____Hand Delivered
____U.S. Mail
____Overnight Mail
____FAX
__X__ Email re@powerworks.com

**Cold Springs Windfarm, LLC; Desert Meadow Windfarm, LLC; Hammett Hill Windfarm, LLC; Mainline Windfarm, LLC; Ryegrass Windfarm, LLC; and Two Ponds Windfarm, LLC**
Peter J. Richardson
RICHARDSON ADAMS, PLLC
515 North 27th Street
Boise, Idaho 83702

____Hand Delivered
____U.S. Mail
____Overnight Mail
____FAX
__X__ Email peter@richardsonadams.com

Benjamin G. Huang, Manager
c/o Mountain Air Projects
6000 North Foxtail Way
Glenns Ferry, Idaho 83623

____Hand Delivered
____U.S. Mail
____Overnight Mail
____FAX
__X__ Email bhuang@terna-energy.com

**Cassia Wind Farm LLC; Hot Springs Windfarm, LLC; Bennett Creek Windfarm, LLC; Cassia Gulch Wind Park LLC; Tuana Springs Energy, LLC; and High Mesa Energy, LLC**
Gregory M. Adams
RICHARDSON ADAMS, PLLC
515 North 27th Street
Boise, Idaho 83702

____Hand Delivered
____U.S. Mail
____Overnight Mail
____FAX
__X__ Email greg@richardsonadams.com

Paul Ackerman
Assistant General Counsel
Exelon Business Services Corporation
100 Constellation Way
Baltimore, Maryland 21202

____Hand Delivered
____U.S. Mail
____Overnight Mail
____FAX
__X__ Email paul.ackerman@constellation.com

**American Wind Energy Association and Renewable Northwest Project**
Teresa A. Hill
K&L GATES, LLP
One S.W. Columbia Street, Suite 1900
Portland, Oregon 97258

____Hand Delivered
____U.S. Mail
____Overnight Mail
____FAX
__X__ Email teresa.hill@klgates.com

Dina M. Dubson
Renewable Northwest Project
421 SW 6th Avenue, Suite 1125
Portland, Oregon 97204

____Hand Delivered
____U.S. Mail
____Overnight Mail
____FAX
__X__ Email dina@rnp.org

Christa Bearry

Christa Bearry, Legal Assistant

# BEFORE THE

# IDAHO PUBLIC UTILITIES COMMISSION

# CASE NO. IPC-E-13-22

# IDAHO POWER COMPANY

# ATTACHMENT 1

SCHEDULE 87
INTERMITTENT GENERATION INTEGRATION CHARGES

APPLICABILITY

This schedule is applicable to all qualifying facility ("QF") generators interconnected to the Company that have generation of an intermittent nature, such as wind and solar generation. The initial charges within this schedule are to be assessed to intermittent generation based upon the total nameplate capacity of a specific type of intermittent generation interconnected to Company's system.

PART 1 – WIND INTEGRATION CHARGES

The following tables are applicable to all QF wind generation contracts that come online after *Month Day, Year*:

*Continued on next page*

SCHEDULE 87
INTERMITTENT GENERATION INTEGRATION CHARGES
(Continued)

WIND INTEGRATION CHARGES (Continued)

**601 - 700 MW Wind Capacity Penetration Level**

| LEVELIZED | |
|---|---|
| ON-LINE YEAR | 20 YEAR CONTRACT TERM LEVELIZED RATES |
| 2014 | 15.13 |
| 2015 | 15.58 |
| 2016 | 16.05 |
| 2017 | 16.53 |
| 2018 | 17.03 |
| 2019 | 17.54 |

| NON-LEVELIZED | |
|---|---|
| CONTRACT YEAR | NON-LEVELIZED RATES |
| 2014 | 11.99 |
| 2015 | 12.35 |
| 2016 | 12.72 |
| 2017 | 13.10 |
| 2018 | 13.50 |
| 2019 | 13.90 |
| 2020 | 14.32 |
| 2021 | 14.75 |
| 2022 | 15.19 |
| 2023 | 15.65 |
| 2024 | 16.12 |
| 2025 | 16.60 |
| 2026 | 17.10 |
| 2027 | 17.61 |
| 2028 | 18.14 |
| 2029 | 18.68 |
| 2030 | 19.24 |
| 2031 | 19.82 |
| 2032 | 20.42 |
| 2033 | 21.03 |
| 2034 | 21.66 |
| 2035 | 22.31 |
| 2036 | 22.98 |
| 2037 | 23.67 |
| 2038 | 24.38 |
| 2039 | 25.11 |

SCHEDULE 87
INTERMITTENT GENERATION INTEGRATION CHARGES
(Continued)

WIND INTEGRATION CHARGES (Continued)

**701 - 800 MW Wind Capacity Penetration Level**

| LEVELIZED | |
|---|---|
| ON-LINE YEAR | 20 YEAR CONTRACT TERM LEVELIZED RATES |
| 2014 | 19.62 |
| 2015 | 20.21 |
| 2016 | 20.82 |
| 2017 | 21.44 |
| 2018 | 22.09 |
| 2019 | 22.75 |

| NON-LEVELIZED | |
|---|---|
| CONTRACT YEAR | NON-LEVELIZED RATES |
| 2014 | 15.55 |
| 2015 | 16.02 |
| 2016 | 16.50 |
| 2017 | 17.00 |
| 2018 | 17.51 |
| 2019 | 18.03 |
| 2020 | 18.57 |
| 2021 | 19.13 |
| 2022 | 19.70 |
| 2023 | 20.29 |
| 2024 | 20.90 |
| 2025 | 21.53 |
| 2026 | 22.18 |
| 2027 | 22.84 |
| 2028 | 23.53 |
| 2029 | 24.23 |
| 2030 | 24.96 |
| 2031 | 25.71 |
| 2032 | 26.48 |
| 2033 | 27.27 |
| 2034 | 28.09 |
| 2035 | 28.93 |
| 2036 | 29.80 |
| 2037 | 30.70 |
| 2038 | 31.62 |
| 2039 | 32.57 |

SCHEDULE 87
INTERMITTENT GENERATION INTEGRATION CHARGES
(Continued)

WIND INTEGRATION CHARGES (Continued)

**801 - 900 MW Wind Capacity Penetration Level**

| LEVELIZED | |
|---|---|
| ON-LINE YEAR | 20 YEAR CONTRACT TERM LEVELIZED RATES |
| 2014 | 24.65 |
| 2015 | 25.39 |
| 2016 | 26.16 |
| 2017 | 26.94 |
| 2018 | 27.75 |
| 2019 | 28.58 |

| NON-LEVELIZED | |
|---|---|
| CONTRACT YEAR | NON-LEVELIZED RATES |
| 2014 | 19.54 |
| 2015 | 20.13 |
| 2016 | 20.73 |
| 2017 | 21.35 |
| 2018 | 21.99 |
| 2019 | 22.65 |
| 2020 | 23.33 |
| 2021 | 24.03 |
| 2022 | 24.75 |
| 2023 | 25.50 |
| 2024 | 26.26 |
| 2025 | 27.05 |
| 2026 | 27.86 |
| 2027 | 28.70 |
| 2028 | 29.56 |
| 2029 | 30.44 |
| 2030 | 31.36 |
| 2031 | 32.30 |
| 2032 | 33.27 |
| 2033 | 34.26 |
| 2034 | 35.29 |
| 2035 | 36.35 |
| 2036 | 37.44 |
| 2037 | 38.56 |
| 2038 | 39.72 |
| 2039 | 40.91 |

SCHEDULE 87
INTERMITTENT GENERATION INTEGRATION CHARGES
(Continued)

WIND INTEGRATION CHARGES (Continued)

**901 - 1000 MW Wind Capacity Penetration Level**

| LEVELIZED | |
|---|---|
| ON-LINE YEAR | 20 YEAR CONTRACT TERM LEVELIZED RATES |
| 2014 | 30.21 |
| 2015 | 31.11 |
| 2016 | 32.04 |
| 2017 | 33.01 |
| 2018 | 34.00 |
| 2019 | 35.02 |

| NON-LEVELIZED | |
|---|---|
| CONTRACT YEAR | NON-LEVELIZED RATES |
| 2014 | 23.94 |
| 2015 | 24.66 |
| 2016 | 25.40 |
| 2017 | 26.16 |
| 2018 | 26.94 |
| 2019 | 27.75 |
| 2020 | 28.59 |
| 2021 | 29.44 |
| 2022 | 30.33 |
| 2023 | 31.24 |
| 2024 | 32.17 |
| 2025 | 33.14 |
| 2026 | 34.13 |
| 2027 | 35.16 |
| 2028 | 36.21 |
| 2029 | 37.30 |
| 2030 | 38.42 |
| 2031 | 39.57 |
| 2032 | 40.76 |
| 2033 | 41.98 |
| 2034 | 43.24 |
| 2035 | 44.54 |
| 2036 | 45.87 |
| 2037 | 47.25 |
| 2038 | 48.66 |
| 2039 | 50.12 |

SCHEDULE 87
INTERMITTENT GENERATION INTEGRATION CHARGES
(Continued)

WIND INTEGRATION CHARGES (Continued)

**1001 - 1100 MW Wind Capacity Penetration Level**

| LEVELIZED | |
|---|---|
| ON-LINE YEAR | 20 YEAR CONTRACT TERM LEVELIZED RATES |
| 2014 | 36.26 |
| 2015 | 37.35 |
| 2016 | 38.47 |
| 2017 | 39.63 |
| 2018 | 40.81 |
| 2019 | 42.04 |

| NON-LEVELIZED | |
|---|---|
| CONTRACT YEAR | NON-LEVELIZED RATES |
| 2014 | 28.74 |
| 2015 | 29.60 |
| 2016 | 30.49 |
| 2017 | 31.41 |
| 2018 | 32.35 |
| 2019 | 33.32 |
| 2020 | 34.32 |
| 2021 | 35.35 |
| 2022 | 36.41 |
| 2023 | 37.50 |
| 2024 | 38.63 |
| 2025 | 39.78 |
| 2026 | 40.98 |
| 2027 | 42.21 |
| 2028 | 43.47 |
| 2029 | 44.78 |
| 2030 | 46.12 |
| 2031 | 47.51 |
| 2032 | 48.93 |
| 2033 | 50.40 |
| 2034 | 51.91 |
| 2035 | 53.47 |
| 2036 | 55.07 |
| 2037 | 56.72 |
| 2038 | 58.43 |
| 2039 | 60.18 |

SCHEDULE 87
INTERMITTENT GENERATION INTEGRATION CHARGES
(Continued)

WIND INTEGRATION CHARGES (Continued)

**1101 - 1200 MW Wind Capacity Penetration Level**

| LEVELIZED | |
|---|---|
| ON-LINE YEAR | 20 YEAR CONTRACT TERM LEVELIZED RATES |
| 2014 | 42.81 |
| 2015 | 44.10 |
| 2016 | 45.42 |
| 2017 | 46.78 |
| 2018 | 48.19 |
| 2019 | 49.63 |

| NON-LEVELIZED | |
|---|---|
| CONTRACT YEAR | NON-LEVELIZED RATES |
| 2014 | 33.93 |
| 2015 | 34.95 |
| 2016 | 36.00 |
| 2017 | 37.08 |
| 2018 | 38.19 |
| 2019 | 39.34 |
| 2020 | 40.52 |
| 2021 | 41.73 |
| 2022 | 42.98 |
| 2023 | 44.27 |
| 2024 | 45.60 |
| 2025 | 46.97 |
| 2026 | 48.38 |
| 2027 | 49.83 |
| 2028 | 51.33 |
| 2029 | 52.87 |
| 2030 | 54.45 |
| 2031 | 56.09 |
| 2032 | 57.77 |
| 2033 | 59.50 |
| 2034 | 61.29 |
| 2035 | 63.12 |
| 2036 | 65.02 |
| 2037 | 66.97 |
| 2038 | 68.98 |
| 2039 | 71.05 |

SCHEDULE 87
INTERMITTENT GENERATION INTEGRATION CHARGES
(Continued)

PART 2 – SOLAR INTEGRATION CHARGES

The following tables are applicable to all QF solar generation contracts that come online after *Month, Day, Year*:

*Intentionally Left Blank*

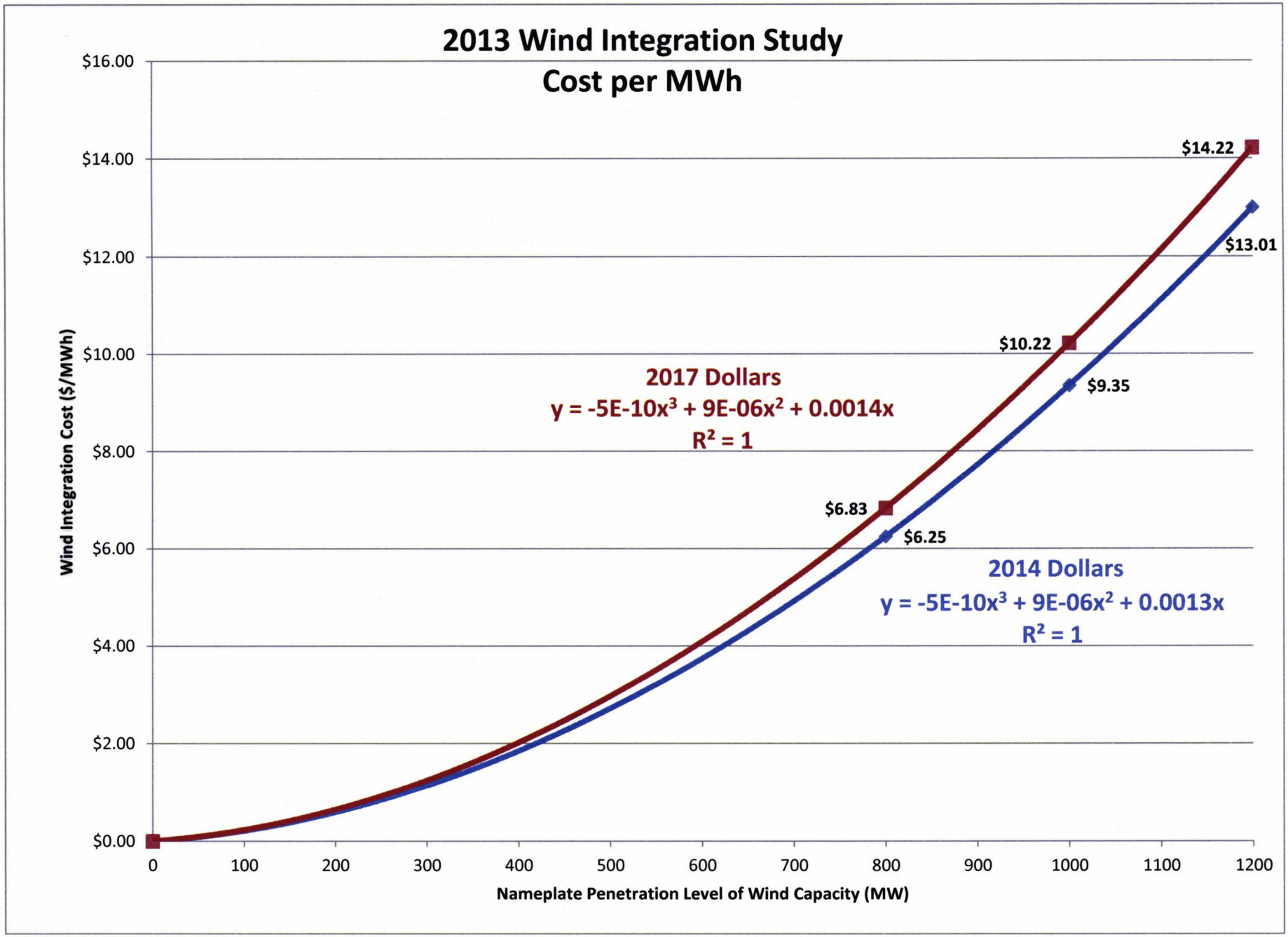
# BEFORE THE

# IDAHO PUBLIC UTILITIES COMMISSION

# CASE NO. IPC-E-13-22

# IDAHO POWER COMPANY

# ATTACHMENT 2


2013 Wind Integration Study
Cost per MWh
Wind Integration Cost ($/MWh)
$16.00
$14.00
$12.00
$10.00
$8.00
$6.00
$4.00
$2.00
$0.00
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
Nameplate Penetration Level of Wind Capacity (MW)
$14.22
$13.01
$10.22
$9.35
$6.83
$6.25
2017 Dollars
y = -5E-10x³ + 9E-06x² + 0.0014x
R² = 1
2014 Dollars
y = -5E-10x³ + 9E-06x² + 0.0013x
R² = 1

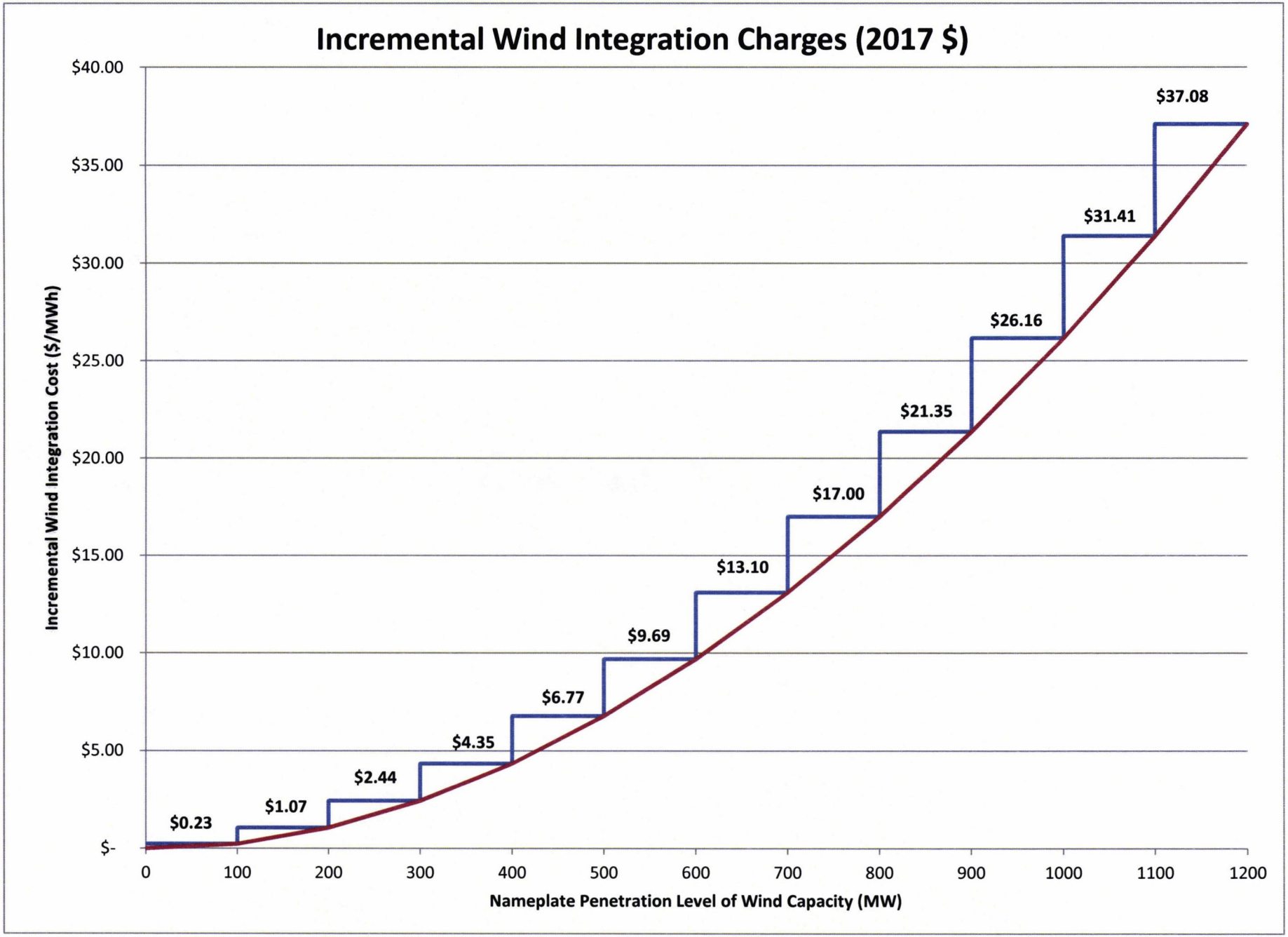
# BEFORE THE

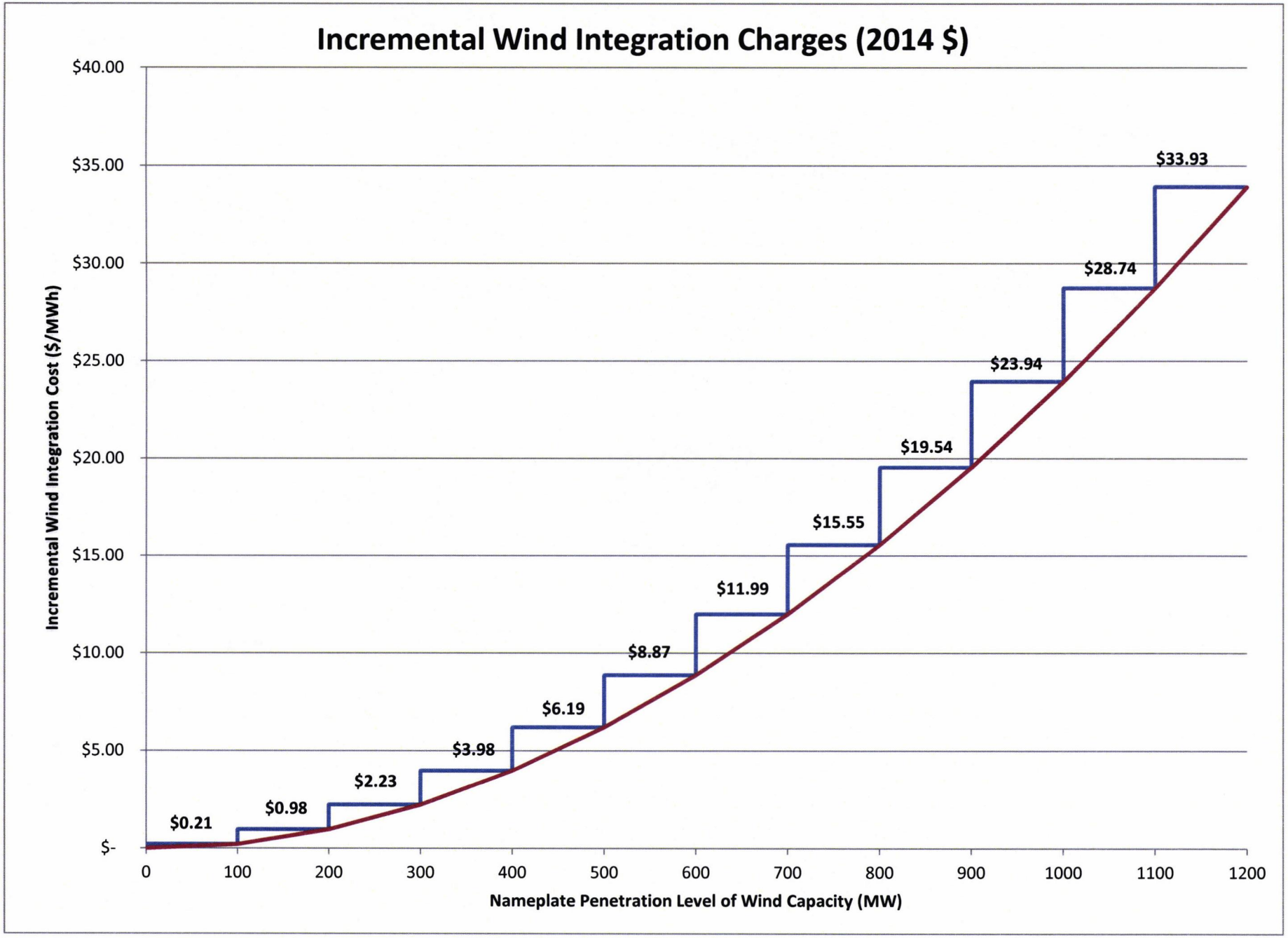
# IDAHO PUBLIC UTILITIES COMMISSION

# CASE NO. IPC-E-13-22

# IDAHO POWER COMPANY

# ATTACHMENT 3


Incremental Wind Integration Charges (2017 $)
Incremental Wind Integration Cost ($/MWh)
$40.00
$35.00
$30.00
$25.00
$20.00
$15.00
$10.00
$5.00
$-
$0.23
$1.07
$2.44
$4.35
$6.77
$9.69
$13.10
$17.00
$21.35
$26.16
$31.41
$37.08
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
Nameplate Penetration Level of Wind Capacity (MW)


Incremental Wind Integration Charges (2014 $)
Incremental Wind Integration Cost ($/MWh)
$40.00
$35.00
$30.00
$25.00
$20.00
$15.00
$10.00
$5.00
$-
$0.21
$0.98
$2.23
$3.98
$6.19
$8.87
$11.99
$15.55
$19.54
$23.94
$28.74
$33.93
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
Nameplate Penetration Level of Wind Capacity (MW)

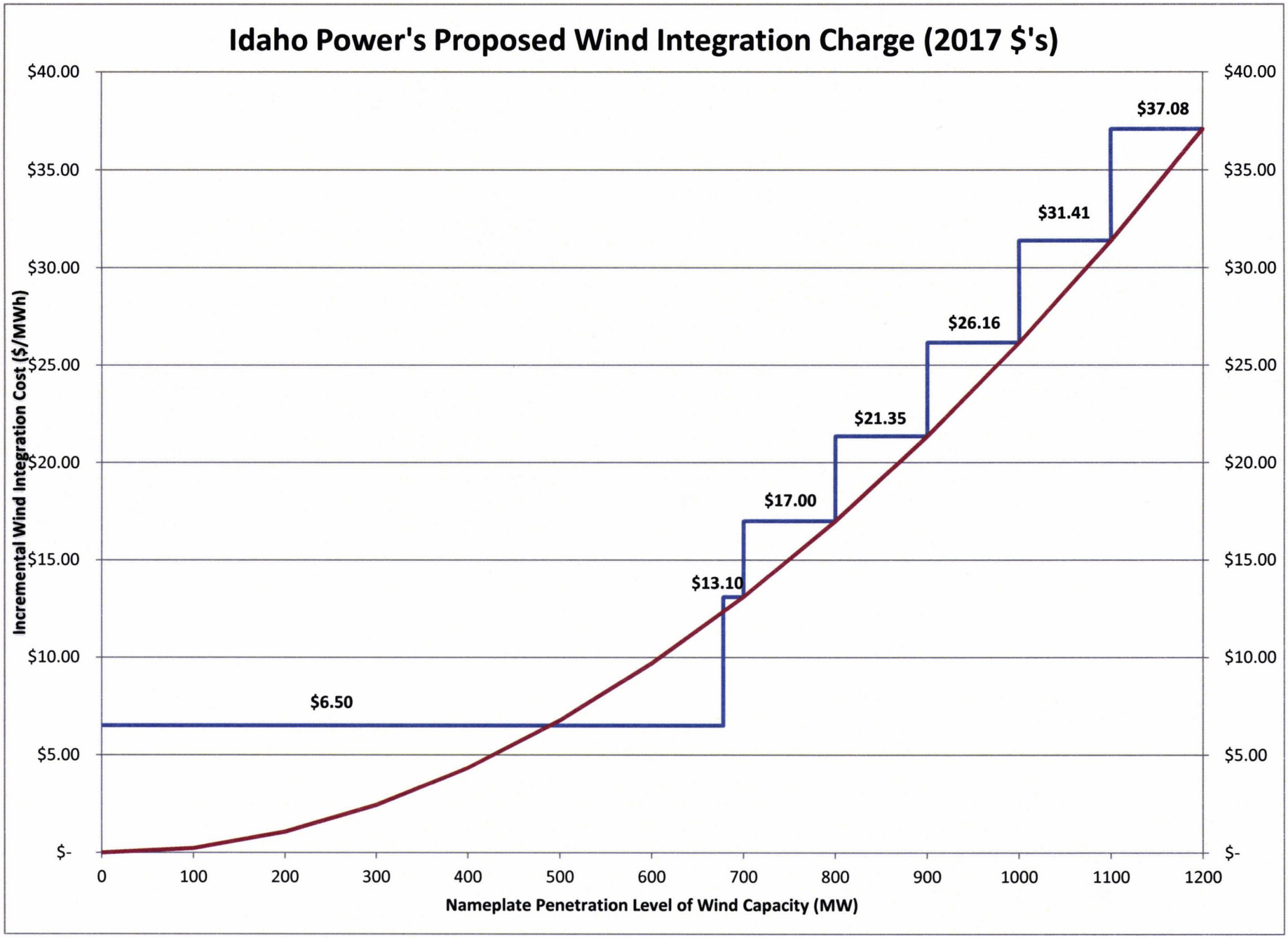
# BEFORE THE

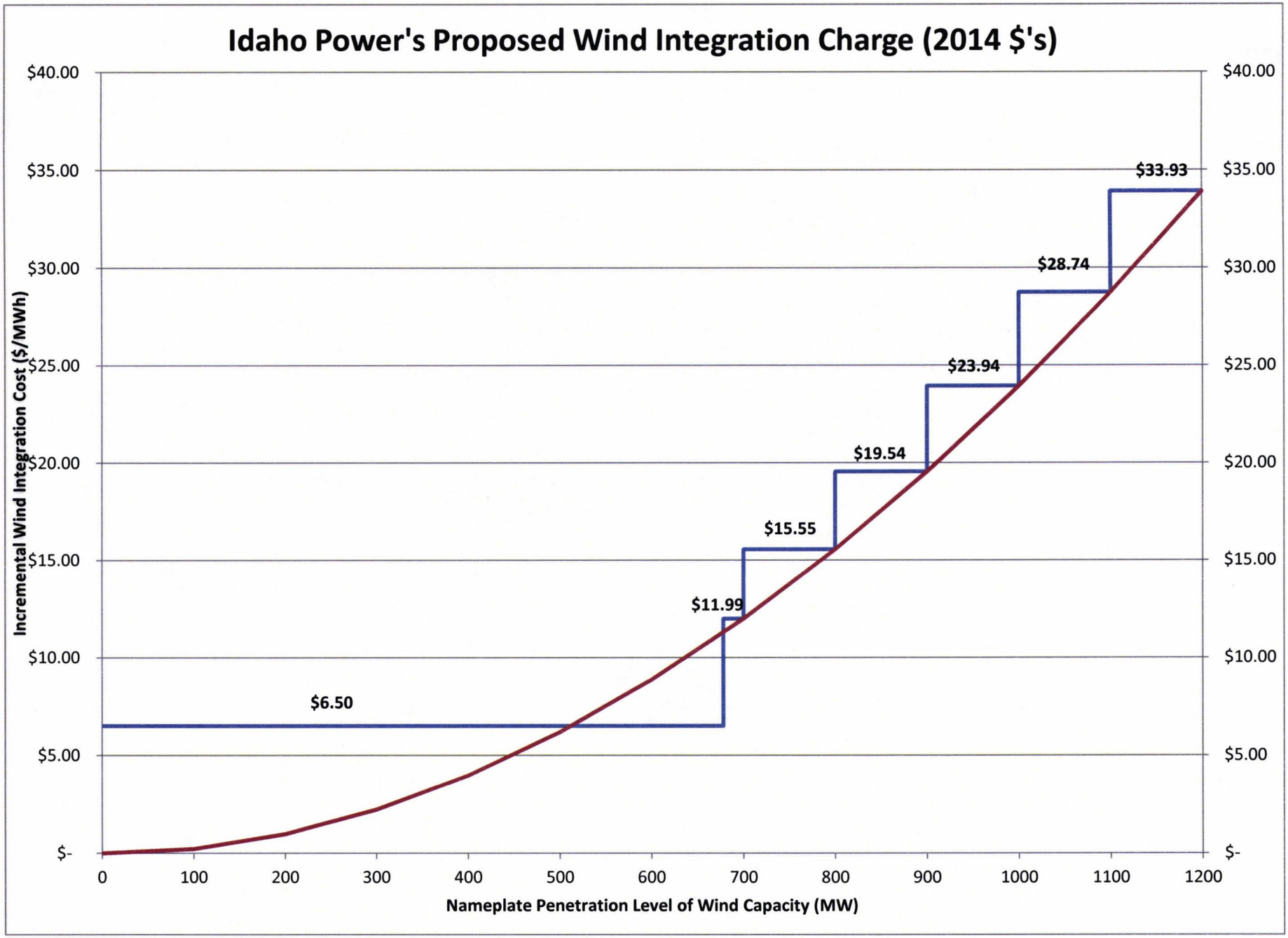
# IDAHO PUBLIC UTILITIES COMMISSION

# CASE NO. IPC-E-13-22

# IDAHO POWER COMPANY

# ATTACHMENT 4


Idaho Power's Proposed Wind Integration Charge (2017 $'s)
Incremental Wind Integration Cost ($/MWh)
Nameplate Penetration Level of Wind Capacity (MW)
$40.00
$35.00
$30.00
$25.00
$20.00
$15.00
$10.00
$5.00
$-
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
$6.50
$13.10
$17.00
$21.35
$26.16
$31.41
$37.08


Idaho Power's Proposed Wind Integration Charge (2014 $'s)
Incremental Wind Integration Cost ($/MWh)
$40.00
$35.00
$30.00
$25.00
$20.00
$15.00
$10.00
$5.00
$-
$6.50
$11.99
$15.55
$19.54
$23.94
$28.74
$33.93
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
Nameplate Penetration Level of Wind Capacity (MW)