

# McDowell Rackner & Gibson PC



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May 4, 2012

## VIA ELECTRONIC AND U.S. MAIL

PUC Filing Center  
Public Utility Commission of Oregon  
PO Box 2148  
Salem, OR 97308-2148

**Re: UE 233 -- Idaho Power Company's Application for Authority to Increase its Rates and Charges for Electric Service to its Customers in the State of Oregon**

Attention Filing Center:

Enclosed in the above-referenced docket an original and 5 copies of Idaho Power Company's Rebuttal Testimony and Exhibits of John Carstensen. Portions of the Testimony and Exhibits are confidential and will be sent in a separately sealed envelope. Exhibits 1402 and 1403 include confidential spreadsheets which I have included on a CD.

A copy of this filing has been served on all parties to this proceeding as indicated on the attached Certificate of Service.

Please contact me 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 UE 233 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: May 4, 2012

  
\_\_\_\_\_  
Wendy McIndoo  
Office Manager

BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON

DOCKET UE 233

IN THE MATTER OF THE APPLICATION )  
OF IDAHO POWER COMPANY FOR )  
AUTHORITY TO INCREASE ITS RATES )  
AND CHARGES FOR ELECTRIC )  
SERVICE TO ITS CUSTOMERS IN THE )  
STATE OF OREGON. )  
\_\_\_\_\_ )

IDAHO POWER COMPANY  
REBUTTAL TESTIMONY  
OF  
JOHN CARSTENSEN

REDACTED VERSION

May 4, 2012

1 **Q. Please state your name and business address.**

2 A. My name is John Carstensen and my business address is 1221 West Idaho Street,  
3 Boise, Idaho. I am employed by Idaho Power Company ("Idaho Power" or  
4 "Company") as a Project Engineering Leader in the Power Supply department.

5 **Q. Are you the same John Carstensen who previously testified in this docket?**

6 A. Yes. My witness qualifications are set forth in my Supplemental Testimony, Idaho  
7 Power/1300.

8 **Q. What is the purpose of your testimony in this matter?**

9 A. The purpose of my testimony is to reply to the testimony of the Citizens' Utility Board  
10 of Oregon ("CUB") regarding the prudence of the Company's approximately \$8.2  
11 million of incremental investment at Unit 3 of the Jim Bridger power plant ("Jim  
12 Bridger Unit 3") related to the installation of pollution control equipment during 2011  
13 ("the Jim Bridger Unit 3 Scrubber Upgrade Project"). Specifically, this testimony:

- 14 • Describes the ownership and operational responsibility for the Jim Bridger  
15 power plant ("Bridger plant"), and Idaho Power's approval of the pollution  
16 control upgrades made at the plant;
- 17 • Provides analysis demonstrating that the investment in the Jim Bridger Unit 3  
18 Scrubber Upgrade Project at the Bridger plant was the least cost, least risk  
19 alternative; and
- 20 • Responds to specific issues raised in CUB's testimony.

21 **DECISION-MAKING FOR THE BRIDGER PLANT**

22  
23 **Q. Please describe the ownership and operational responsibility for the Bridger  
24 plant.**

25 A. Idaho Power and PacifiCorp are co-owners of the Bridger plant. Idaho Power is the  
26 minority owner with a 33 and 1/3 percent ownership interest. PacifiCorp is the

1 majority owner (66 and 2/3 percent) and the operator of the plant. According to the  
2 Operating Agreement between Idaho Power and PacifiCorp, which is attached  
3 hereto as Idaho Power/1401, as the operator, PacifiCorp is responsible for ensuring  
4 that the plant is run in a prudent and skillful manner consistent with prevailing utility  
5 industry standards and in accordance with all applicable laws and regulations,  
6 including all relevant environmental regulations.

7 **Q. Please describe the decision-making process that takes place before capital**  
8 **investments are made at the Bridger plant.**

9 A. While, as operator, PacifiCorp is responsible for making all decisions required to run  
10 the plant on a day to day basis, before making capital investments in the plant,  
11 PacifiCorp is required to consult with Idaho Power and obtain Idaho Power's consent  
12 prior to moving forward with the investment.

13 **Q. Please describe the process by which Idaho Power considered and provided**  
14 **its consent to invest in the Jim Bridger Unit 3 Scrubber Upgrade Project.**

15 A. Prior to embarking on a course of action, PacifiCorp, as the operator of the plant,  
16 undertook extensive analysis of the pollution control equipment that would be  
17 required to ensure that Jim Bridger Unit 3 operated in compliance with existing  
18 environmental regulations. Then, starting in 2006 and continuing through 2008,  
19 Idaho Power and PacifiCorp had a series of meetings at which PacifiCorp presented  
20 the results of its analyses, including the CH2M HILL study, and at which the parties  
21 discussed environmental regulations that would impact the Bridger plant and  
22 evaluated the options for compliance with those regulations. In addition, in 2008,  
23 Idaho Power and PacifiCorp met jointly with the Wyoming Division of Air Quality  
24 multiple times to discuss the proposed requirements for complying with the Regional  
25 Haze Best Available Retrofit Technology ("RH BART") rules. During discussions that  
26 occurred during the late 2007 to 2008 time period, Idaho Power provided PacifiCorp

1 with its consent to invest in the Jim Bridger Unit 3 Scrubber Upgrade Project.

2 **Q. When did the work on the Jim Bridger Unit 3 Scrubber Upgrade Project begin?**

3 A. After receiving Idaho Power's consent to the Jim Bridger Unit 3 Scrubber Upgrade  
4 Project, PacifiCorp initiated competitive bidding processes for various long lead time  
5 major components as well as engineering, procurement, and construction oversight  
6 ("EPC") services. PacifiCorp executed these contracts in 2008. Construction work  
7 on the Jim Bridger Unit 3 Scrubber Upgrade Project was completed during a planned  
8 outage in 2011.

9 **ANALYSIS SUPPORTING DECISION TO UPGRADE SCRUBBER**

10 **Q. Prior to making the decision to invest in the Jim Bridger Unit 3 Scrubber**  
11 **Upgrade Project, what analysis did Idaho Power review?**

12 A. As noted in my direct testimony, Idaho Power relied on the analysis provided by  
13 PacifiCorp. Specifically, Idaho Power relied on the report provided by CH2M HILL  
14 that concluded that the investments made in the Jim Bridger Unit 3 were the least  
15 cost, least risk alternatives for compliance with applicable environmental  
16 regulations.<sup>1</sup>

17 **Q. Did Idaho Power review or perform any analysis that compared the costs and**  
18 **risks associated with the Jim Bridger Unit 3 Scrubber Upgrade Project to the**  
19 **costs of alternative resources?**

20 A. Not that I can recall. In 2007 and 2008, when the Company gave its approval to  
21 invest in the Jim Bridger Unit 3 Scrubber Upgrade Project, the decision was based  
22 on an implicit assumption that it would be more cost effective to make the required  
23 upgrades than to idle the plant and procure a replacement resource. For this reason,  
24 the Company focused on the least cost option that would allow the plant to continue

25 \_\_\_\_\_  
26 <sup>1</sup> The CH2M HILL report was attached to my Supplemental Testimony as Idaho Power/1301.

1 operating in compliance with the applicable and anticipated environmental  
2 regulations. This was the analysis that was performed by CH2M HILL.

3 **Q. Please explain.**

4 A. In 2007 and 2008 when the decision was made to pursue the Jim Bridger Unit 3  
5 Scrubber Upgrade Project, the Bridger plant was operating at its highest capacity  
6 factor in years and the plant remained one of Idaho Power's lowest cost resources.  
7 We were generally aware of the costs to build and run other types of generating  
8 units—such as a Combined Cycle Combustion Turbine ("CCCT") resource—and  
9 based upon that knowledge, we had no reason to believe that it would be cheaper to  
10 shut Jim Bridger Unit 3 down and purchase a different resource.

11 It is also important to note that in that time period there was a great deal of  
12 uncertainty related to future environmental regulations, including carbon regulation.  
13 Cap-and-trade systems (such as the Waxman-Markey legislation) were being  
14 discussed, as was the possibility of a direct tax on carbon emissions (resulting in a  
15 carbon adder). In either case, it was far from clear whether meaningful regulation  
16 would be put in place and the details and impact of such regulation remained highly  
17 speculative. A review of the Company's last two IRPs illustrates this uncertainty.  
18 These documents were prepared within two years of one another, yet they include  
19 different assumed types of carbon regulation, different assumed costs associated  
20 with carbon regulation, and different assumed effective dates for carbon regulation.

21 Even today there continues to be a great deal of uncertainty surrounding the  
22 possibility of carbon regulation. It is far from clear whether there will be meaningful  
23 carbon regulation in the near future, when that regulation may be enacted, and the  
24 extent and nature of the potential regulation. And this uncertainty translates into risk  
25 associated with pursuing a costly alternative resource in lieu of a relatively small \$8.2  
26 million investment in the Jim Bridger Unit 3 Scrubber Upgrade Project.

1 **Q. When the Company made the decision to invest in the Jim Bridger Unit 3**  
2 **Scrubber Upgrade Project, did you consider the future compliance costs**  
3 **associated with anticipated environmental regulations other than the RH BART**  
4 **rules?**

5 A. Yes. However, as noted above, the level of uncertainty surrounding many possible  
6 regulations meant that they were not necessarily considered unless the Company  
7 was reasonably sure of the future compliance costs and had in fact forecast those  
8 expenditures in its planning process. For example, the 2009 Integrated Resource  
9 Plan ("IRP") included in its planning forecasts, "Plant modifications that are required  
10 to maintain compliance with air-quality standards [that] are projected for the . . .  
11 Bridger plant in 2009, 2015, and 2016."<sup>2</sup>

12 **Q. Subsequent to the decision to invest in the Jim Bridger Unit 3 Scrubber**  
13 **Upgrade Project, has the Company performed any analysis comparing the**  
14 **costs of continued pollution control investments to the costs of a replacement**  
15 **resource?**

16 A. Yes and this analysis, referred to in this testimony as the "2011 IRP Analysis" and  
17 attached as Idaho Power/1402, demonstrates clearly and unambiguously that Idaho  
18 Power was correct when it assumed that investing in alternative resources was not a  
19 reasonable alternative to the pollution control investments made at Jim Bridger Unit  
20 3.

21 **Q. Please describe this 2011 IRP Analysis.**

22 A. The 2011 IRP Analysis was presented to CUB and the Commission as part of the  
23 Company's 2011 IRP docket, LC 53. In response to issues raised by CUB in the IRP  
24 docket, during the Company's September 20, 2011, IRP presentation to the

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25 <sup>2</sup> *Re Idaho Power Company, Docket LC 50, 2009 IRP at 59 (Dec. 29, 2009).*  
26

1 Commission, Idaho Power presented at a high level a range of costs that could  
2 potentially result if certain environmental regulations were implemented.

3 Idaho Power's 2011 IRP Analysis consisted of a "tipping point" analysis that  
4 compared the costs of continued operation of the Company's coal plants with  
5 anticipated future environmental costs, including costs associated with carbon  
6 regulation, to the costs of an alternative resource. For the purposes of the 2011 IRP  
7 Analysis, the Company selected a CCCT resource as the alternative. The  
8 Company's analysis, which was admittedly very high level and addressed both the  
9 Bridger and North Valmy coal plants together, demonstrated that even with the IRP's  
10 expected case carbon adder and the high estimate of expected pollution control  
11 investments, continued operation of the Company's coal fleet (including Jim Bridger  
12 Unit 3) was still approximately \$120 million per year less than the costs of a  
13 replacement CCCT. Indeed, assuming the high cost environmental compliance case  
14 (in other words the worst case cost scenario) the tipping point—the point where a  
15 CCCT is more cost effective—requires a carbon adder of \$37 per ton before the  
16 CCCT becomes the least cost resource.

17 It is also important to note that the 2011 IRP Analysis provided on September  
18 20, 2011, did not consider the decommissioning costs associated with closing the  
19 coal plants. If these costs are considered, the continued operation of Jim Bridger  
20 Unit 3 becomes even more cost effective versus the acquisition of an alternative  
21 resource.

22 Attached to this testimony as Idaho Power/1402 are the relevant slides from  
23 the September 20, 2011, presentation, as well as Idaho Power's response to a Staff  
24 data request in LC 53 that provides additional discussion of the calculations used to  
25 develop the slides.

26

1 **Q. Earlier you discussed the level of uncertainty surrounding many**  
2 **environmental regulations, including carbon regulations. How did the**  
3 **Company's 2011 IRP analysis account for these uncertainties?**

4 A. By its nature, the tipping point analysis allows the Company to determine the range  
5 of possible environmental regulations and the point at which those regulations tip the  
6 balance in favor of alternative resources in lieu of additional investments in the  
7 Company's coal fleet. However, the Company's 2011 IRP Analysis was high level  
8 and included a great deal of uncertainty because it is simply not known what future  
9 environmental regulations will materialize. This is especially true with respect to  
10 carbon emissions, which have been the subject of extensive speculation for years.  
11 Unfortunately, however, there is no real way to eliminate the uncertainty related to  
12 the cost of future carbon regulation and therefore any analysis is going to include a  
13 great deal of uncertainty. And again, whenever there is uncertainty there is risk.

14 **Q. In light of this uncertainty, do you believe that the Commission can rely on the**  
15 **2011 IRP Analysis presented on September 20, 2011, to determine that the**  
16 **Company's decision to invest in the Jim Bridger Unit 3 Scrubber Upgrade**  
17 **Project was reasonable?**

18 A. Yes. On this point, it is important to keep in mind that the cost difference between  
19 continued operation of the Company's coal plants and the next best alternative is  
20 substantial—\$120 million annually. Thus, while it is true that the 2011 IRP Analysis  
21 includes many assumptions regarding future carbon costs that are not yet known,  
22 those assumptions can change significantly before reaching the "tipping point" where  
23 a replacement resource becomes the least cost, least risk alternative. As a result,  
24 the Commission can rely on the conclusions of the 2011 IRP Analysis as reasonable  
25 and sound.

26

1 **Q. Did the Company provide this information to the parties during discovery in**  
2 **this case?**

3 A. No. However, CUB was present at the September 20, 2011, presentation. And both  
4 CUB and Staff were provided with both the slides used by Idaho Power at the  
5 presentation, as well as, additional analysis setting forth the method used to  
6 determine the estimated environmental compliance costs.<sup>3</sup>

7 **Q. Has the Company since reviewed any additional analysis that demonstrates**  
8 **that the Jim Bridger Unit 3 Scrubber Upgrade Project is still the least cost**  
9 **option?**

10 A. Yes. In the past week, PacifiCorp has provided Idaho Power an analysis, entitled  
11 "CAI Capital Projects Study for Jim Bridger U3 – Dec. 2008,"<sup>4</sup> that it performed in  
12 December of 2008 in which it compared the costs of idling Jim Bridger Unit 3 and  
13 replacing its production with market purchases to the costs of continued operation of  
14 the plant including the planned Jim Bridger Unit 3 Scrubber Upgrade Project.

15 Attached to my testimony as Idaho Power/1403 is PacifiCorp's "CAI Capital  
16 Projects Study for Jim Bridger U3 – Dec. 2008."

17 **Q. How did Idaho Power become aware of this analysis?**

18 A. The Company discovered that the analysis had been performed after reviewing the  
19 testimony of Chad Teply, the Vice President of Resource Development and  
20 Construction for PacifiCorp Energy, which was filed on March 1, 2012, in  
21 PacifiCorp's current Oregon rate case.<sup>5</sup>

22

23 <sup>3</sup> The slides were provided in response to Staff's data request 40 in LC 53 and the underlying  
24 analysis was provided in response to Staff's data request 42. CUB received the documents in  
response to CUB's data request 1 in LC 53.

25 <sup>4</sup> "CAI" is an acronym for PacifiCorp's "Comprehensive Air Initiative."

26 <sup>5</sup> See *Re PacifiCorp*, Docket UE 246, PAC/500, Teply/84-85 (Mar. 1, 2012).

1 **Q. Please describe the analysis.**

2 A. PacifiCorp's evaluation, which was based on its own 2/3 share of the unit, calculated  
3 a present value revenue requirement differential ("PVRR(d)") between the two  
4 options—idling the plant versus installing the scrubber upgrade. To do this,  
5 PacifiCorp subtracted from revenue the fuel, operations and maintenance ("O&M"),  
6 and environmental emissions costs, as well as the on-going and pollution control  
7 capital revenue requirement cost, through the end of the unit's depreciable life. This  
8 analysis was similar to a merchant plant valuation. The revenue was derived using  
9 the September 30, 2008, PacifiCorp official forward price curve at a corresponding  
10 CO<sub>2</sub> price of \$8 per ton beginning in 2013. The results of the evaluation  
11 demonstrated that it was beneficial to customers to invest in emissions control  
12 equipment for Jim Bridger Unit 3 in lieu of idling the unit and replacing the generation  
13 with market power purchases. Indeed, the PVRR(d) was a positive differential of  
14 *[begin confidential]* [REDACTED] *[end confidential]*.

15 **Q. Based upon PacifiCorp's PVRR(d) analysis, can you extrapolate what the**  
16 **results would have been had Idaho Power performed the same analysis for**  
17 **itself?**

18 A. Yes. PacifiCorp's evaluation was based on its 2/3 share of the unit. The equivalent  
19 differential for Idaho Power's 1/3 share would have been *[begin confidential]*  
20 [REDACTED] *[end confidential]*. In other words, when compared to market  
21 purchases, continued operation of the Jim Bridger Unit 3 was the least cost  
22 alternative by a substantial margin. Based on this significant differential, coupled  
23 with the amount of uncertainty surrounding potential environmental regulations  
24 (including carbon regulations), it would have been unreasonable for the Company to  
25 have pursued plant closure rather than investing \$8.2 million in the scrubber  
26 upgrade.

1 **Q. In addition to the analyses provided by PacifiCorp, has any other analysis**  
2 **been performed that demonstrates that the pollution control investments are**  
3 **the least cost, least risk alternative for compliance with current and expected**  
4 **environmental regulations?**

5 A. Yes. Staff's testimony in this phase of the case included a detailed analysis  
6 comparing the costs of the continued operation of Jim Bridger Unit 3 with the costs of  
7 a replacement resource, a CCCT. Staff's analysis is set forth in Staff/1001. This  
8 analysis demonstrates that in order for a CCCT resource to displace the continued  
9 operation of Jim Bridger Unit 3 as the least cost resource, Idaho Power would need  
10 to invest over \$200 million in Jim Bridger Unit 3 before 2018.

11 **Q. Do you agree with the conclusion reached by Staff's analysis?**

12 A. Yes. I believe that the Staff's analysis correctly concludes that the cost of production  
13 of the Company's coal-fired generation resources like Jim Bridger Unit 3 will continue  
14 to be lower than the cost of production of a combined cycle replacement resource.  
15 More importantly, Staff's analysis puts into perspective the large disparity in the  
16 operational costs that exists between Jim Bridger Unit 3 and the next best resource  
17 alternative. That such a large disparity in costs could be derived from a reasonable,  
18 yet relatively simple analysis, further suggests that the detailed analysis CUB claims  
19 the Company should have performed would have been unnecessary.

20 **Q. What conclusions can be drawn from the various analyses that have been**  
21 **performed by Idaho Power, PacifiCorp, and Staff?**

22 A. All of these analyses result in the same conclusion—the pollution control investments  
23 made on Jim Bridger Unit 3 are the least cost resource when compared with the  
24 acquisition of an alternative resource. And notably, the analyses were never close,  
25 which supports my earlier statement that for Idaho Power the possibility of investing  
26

1 in an alternative resource in lieu of the continued operation of Jim Bridger Unit 3 was  
2 simply not a reasonable option.

3 **RESPONSE TO SPECIFIC ISSUES RAISED BY CUB**

4 **Q. CUB's testimony repeatedly references Portland General Electric's ("PGE")**  
5 **decision to close the Boardman coal plant as support for its contention that**  
6 **the Company should have evaluated closure of Jim Bridger Unit 3 prior to**  
7 **making the investment in the scrubber upgrade.<sup>6</sup> Were the analyses that lead**  
8 **to the decision to close Boardman early comparable to the analysis related to**  
9 **a decision to idle Jim Bridger Unit 3?**

10 **A.** No. Important distinctions between Boardman and Jim Bridger Unit 3 make this  
11 comparison inapt. The plants themselves are very different. Boardman is a single  
12 unit plant that does not have the same post combustion pollution controls that the  
13 Bridger plant has. Jim Bridger Unit 3 is one unit within a four unit plant and already,  
14 even before the pollution control equipment at issue here, had extensive emission  
15 control equipment. Thus, the costs to bring Boardman into compliance with  
16 applicable and anticipated environmental regulation were much greater. Indeed,  
17 even CUB's testimony recognized that the expected compliance costs were  
18 substantially greater at Boardman, where CUB testified PGE was facing a "projected  
19 overall cost of new investments and O&M [of] about \$500 million."<sup>7</sup> Here, even  
20 CUB's own testimony states that the expected compliance costs for Jim Bridger Unit  
21 3 are *[begin confidential]* [REDACTED] *[end confidential]*.

22 **Q. CUB's testimony also discusses PacifiCorp's decision to convert its Naughton**  
23 **3 unit to gas to imply that the same type of analysis that was done relative to**

24  
25 <sup>6</sup> CUB/200, Feighner-Jenks/4, 12.

26 <sup>7</sup> CUB/200, Feighner-Jenks/12.

1 that plant should have been done for Jim Bridger Unit 3.<sup>8</sup> Is the decision to  
2 convert Naughton 3 relevant to whether the pollution control investments at  
3 Jim Bridger Unit 3 were prudent?

4 A. No. CUB's testimony on this point relied entirely on excerpts of testimony filed by  
5 PacifiCorp in a case before the Wyoming Public Service Commission. However, in  
6 portions of that testimony not included in CUB's testimony, PacifiCorp testified to the  
7 following:

8 Q. Should the Company's alternative decision regarding  
9 Naughton Unit 3 be considered indicative of the  
10 Company's other near-term major investment decisions  
regarding its other operating coal fueled units?

11 A. No. The economic analysis for Naughton Unit 3 is case  
12 specific and the results of which should not be considered to  
13 be representative of anticipated results for other near-term  
major investments decisions for the Company's other  
operating coal fueled units [including Jim Bridger Unit 3].<sup>9</sup>

14 Notably, while the results of the economic analysis were specific to Naughton Unit 3,  
15 the same methodology used to reach the decision to convert Naughton Unit 3  
16 supports the continued utilization of Jim Bridger Unit 3.<sup>10</sup>

17 Q. CUB also testifies that the CH2M HILL analysis was incomplete because it  
18 failed to account for future carbon regulation or the full requirements of  
19 BART.<sup>11</sup> Do you agree with CUB's criticisms?

20  
21 <sup>8</sup> CUB/200, Feighner-Jenks/5.

22 <sup>9</sup> See Rebuttal Testimony of Chad A. Teply on behalf of Rocky Mountain Power, Wyoming  
PUC, April 2012 page 5, ll. 8-14, available at:  
23 [http://www.rockymountainpower.net/content/dam/rocky\\_mountain\\_power/doc/About\\_Us/Rates\\_and\\_Regulation/Wyoming/Regulatory\\_Filings/Docket\\_20000\\_400\\_EA\\_11/04-09-12\\_Rebuttal\\_Testimony\\_and\\_Exhibits/Chad\\_A\\_Teply/2\\_Chad\\_A\\_Teply.pdf](http://www.rockymountainpower.net/content/dam/rocky_mountain_power/doc/About_Us/Rates_and_Regulation/Wyoming/Regulatory_Filings/Docket_20000_400_EA_11/04-09-12_Rebuttal_Testimony_and_Exhibits/Chad_A_Teply/2_Chad_A_Teply.pdf).

24 <sup>10</sup> See *Re PacifiCorp*, Docket LC 52, 2011 Integrated Resource Plan Update at Redacted  
25 Appendix A at 86-90 (Mar. 30, 2012).

26 <sup>11</sup> CUB/200, Feighner-Jenks/6-8.

1 A. No. While CUB is correct that the scope of the CH2M HILL analysis was limited,  
2 CUB mischaracterizes how the CH2M HILL study was utilized by the Company.  
3 Once the Company determined that the least cost option was investment in  
4 additional pollution control equipment in order to comply with applicable  
5 environmental regulations, the CH2M HILL study determined what technology was  
6 the least cost to achieve environmental compliance. The Company did not rely on  
7 the CH2M HILL analysis to determine the reasonableness of future pollution control  
8 investments that would address other anticipated environmental regulations. Rather,  
9 the other studies discussed above analyzed the cost effectiveness of alternative  
10 resource decisions based upon full BART compliance and anticipated carbon  
11 regulation.

12 **Q. CUB also testified that the CH2M HILL study concluded that Selective Catalytic**  
13 **Reduction (“SCR”) was not a cost-effective investment and yet the Company is**  
14 **pursuing this investment anyway. Is CUB’s concern relevant in this**  
15 **proceeding?**

16 A. No. The costs associated with the SCR installation are not at issue in this case. In  
17 this case, the costs of the scrubber upgrade only are at issue. Therefore, the  
18 prudence of the Company’s decision with respect to SCR will be an issue in a future  
19 filing.

20 **Q. Has the Company agreed to perform the analysis CUB believes is necessary to**  
21 **demonstrate the prudence of coal plant investments?**

22 A. Yes. As part of the 2011 IRP, the Company has committed to performing the unit-by-  
23 unit analysis CUB requested in both the 2011 IRP docket and here. In fact, the  
24 Company’s has already taken preliminary steps to begin the study and anticipates  
25 that it will be completed later this year. Upon completion the study will be filed as  
26 part of the Company’s IRP update. The Company believes that the results of this

1 study will be meaningful in large part because there is now more certainty  
2 surrounding the impact of known and anticipated environmental regulations. On the  
3 other hand, had the Company performed this same study at the time it was deciding  
4 to move forward with the Jim Bridger Unit 3 Scrubber Upgrade Project the results of  
5 the study would have been inherently more speculative because of the substantial  
6 uncertainty surrounding potential environmental regulations and the associated  
7 compliance costs.

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

9 **A. Yes.**

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Idaho Power/1401  
Witness: John Carstensen

**BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON**

**IDAHO POWER COMPANY**

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Exhibit Accompanying Rebuttal Testimony of John Carstensen  
Operating Agreement

**REDACTED**

May 4, 2012

**This Exhibit is CONFIDENTIAL**

**You must have signed the  
Protective Order in this docket  
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**BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON**

**IDAHO POWER COMPANY**

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Exhibit Accompanying Rebuttal Testimony of John Carstensen  
2011 IRP Analysis

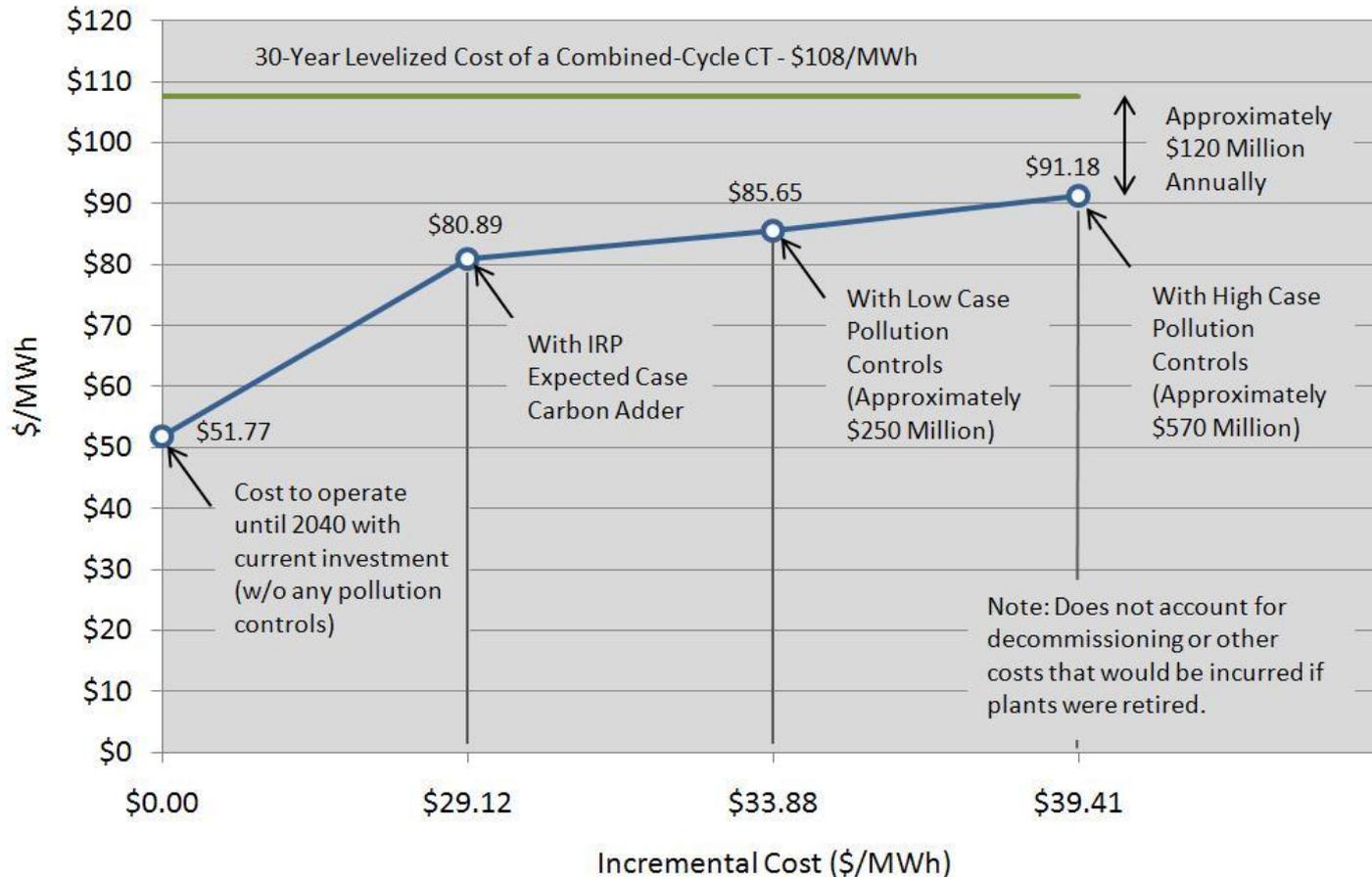
**REDACTED**

May 4, 2012

# Environmental Compliance

## Cost Analysis/Comparison

Estimated range of Idaho Power's share of the environmental compliance costs for the Jim Bridger and Valmy plants, and the corresponding impact on production costs

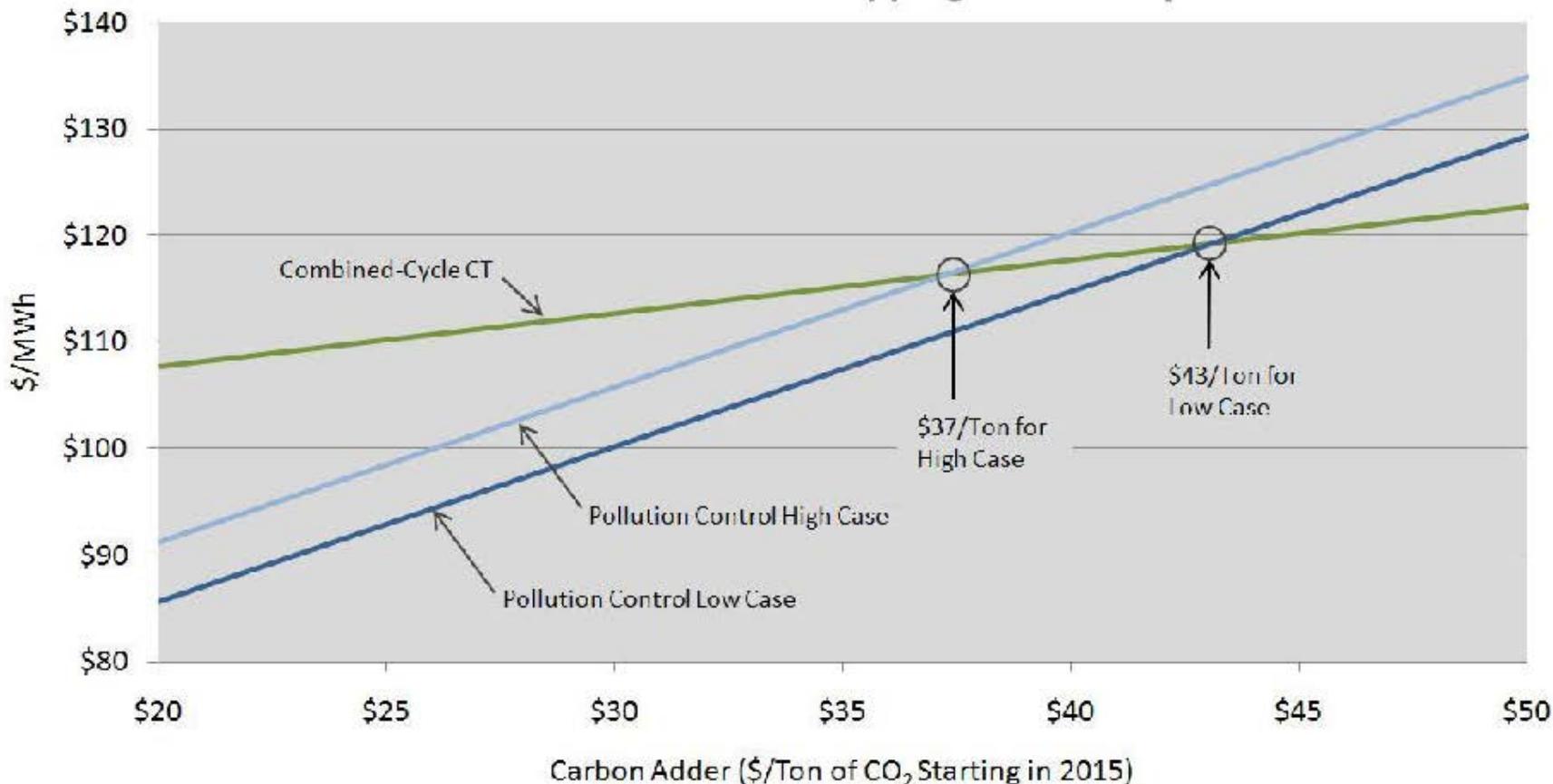


Forecasted amounts included in this presentation were derived solely for purposes of providing an estimate of environmental compliance expenses in the context of the 2011 IRP and are subject to a number of conditions and uncertainties. Actual expenses could deviate materially from the amounts set forth herein. The figures in this worksheet should not be construed as confirming, altering, or updating any environmental compliance cost estimates set-forth in any other report prepared by Idaho Power Company, including its current and future reports filed with the Securities and Exchange Commission.

# Environmental Compliance

## Carbon Adder Tipping Point Analysis

Pollution Control Cost Tipping Point Analysis

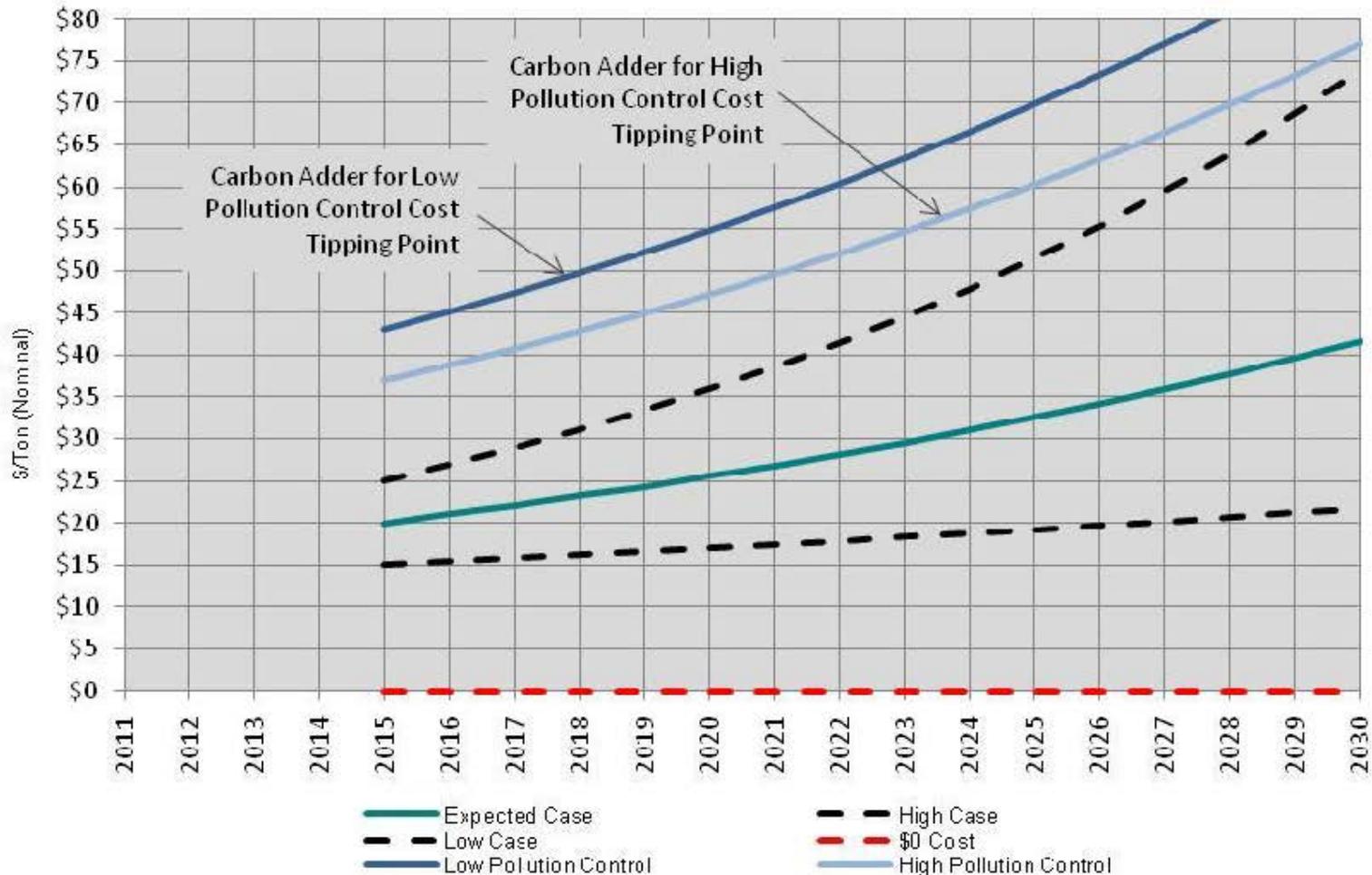


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# Environmental Compliance

## Carbon Adder Tipping Point Analysis



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October 17, 2011

Subject: Docket No. LC 53  
Idaho Power Company's **Supplemental** Response to Staff's Data Request 42

**STAFF'S DATA REQUEST NO. 42:**

Regarding the September 20, 2011 presentation made to the Commission, please provide for the slide titled "Environmental Compliance Cost Analysis/Comparison" the breakdown of Idaho Power's share of estimated environmental compliance cost for each of the Bridger and Valmy units. In the breakdown, please include line items for each environmental compliance project, and the estimated year of each project. Please also identify Idaho Power's percentage responsibility of the environmental compliance costs assumed in the analysis.

**IDAHO POWER COMPANY'S SUPPLEMENTAL RESPONSE TO STAFF'S DATA REQUEST NO. 42:**

Please see the confidential Excel file provided on the confidential CD for additional details on estimates of potential environmental compliance costs.

Please note the estimates in the Excel file provided imply a significant amount of precision that does not exist. Rather than round numbers to fewer significant digits, Idaho Power Company ("Idaho Power") is providing this file in its original format. Although Idaho Power is providing this information at Staff's request, the Company does not believe it is the best way to estimate future environmental costs because of the amount of uncertainty in the costs and the timing of the expenses.

**The attachment being provided in response to this Request is confidential and will be provided separately in accordance with Protective Order No. 11-327.**

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Idaho Power/1403  
Witness: John Carstensen

**BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON**

**IDAHO POWER COMPANY**

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Exhibit Accompanying Rebuttal Testimony of John Carstensen  
CAI Capital Projects Study for Jim Bridger U3 – Dec. 2008

**REDACTED**

May 4, 2012

1 October 2002 Sargent and Lundy completed a coal fleet-wide Multi-Pollutant  
2 Control Report; in January 2005 Sargent and Lundy completed the NO<sub>x</sub> Emission  
3 Reduction Technologies Study; and in February of 2007 CH2M Hill completed  
4 the BART Analysis for Jim Bridger Units 1 through 4.

5 The basis of the Multi-Pollutant Control Report and the NO<sub>x</sub> Emission  
6 Reduction Technologies Study were described earlier in my testimony.

7 The NO<sub>x</sub> Emission Reduction Technologies Study compared 16 emission  
8 control technologies, status of the technology development, performance,  
9 approximate initial capital costs, and approximate fixed and variable operational  
10 and maintenance costs.

11 The BART Analysis for Jim Bridger Units 1 through 4 was conducted for  
12 criteria pollutants NO<sub>x</sub>, PM<sub>10</sub> and SO<sub>2</sub>. In completing this BART Analysis,  
13 technology alternatives were investigated and potential reductions in emissions  
14 were quantified. The BART Analysis for Jim Bridger Units 1 through 4 was  
15 considered in the state of Wyoming's BART determination, permit requirements,  
16 and SIP discussed above.

17 **Q. Has the Company evaluated whether the least-cost alternative, accounting**  
18 **for risk and uncertainty, to comply with environmental requirements was to**  
19 **invest in the emissions control equipment described in this testimony or to**  
20 **idle Jim Bridger Unit 3?**

21 **A.** Yes. Prior to executing the EPC contract for the project in December 2008, the  
22 Company evaluated whether the least-cost alternative, accounting for risk and  
23 uncertainty, to comply with environmental requirements was to complete the

1 scrubber project versus idling Jim Bridger Unit 3 in 2008 and replacing the  
 2 generation with market power purchases. The evaluation calculated a PVRR(d)  
 3 between the two options by subtracting fuel, O&M, environmental emissions cost,  
 4 and on-going and CAI capital revenue requirement cost from revenue, similar to a  
 5 merchant plant valuation, through the end of the unit's depreciable life. The  
 6 revenue was derived using the September 30, 2008 PacifiCorp official forward  
 7 price curve at a corresponding CO<sub>2</sub> price of \$8 per ton beginning in 2013. The  
 8 results of the evaluation demonstrated that it was beneficial to customers to invest  
 9 in emissions control equipment for Jim Bridger Unit 3 in lieu of idling the facility  
 10 and replacing the generation with market power purchases. The resulting  
 11 PVRR(d) was a positive differential of [REDACTED].

12 **Q. Has the Company evaluated the impact of the environmental projects**  
 13 **included in this case on the bus bar cost of Jim Bridger Unit 3?**

14 A. Yes. The Jim Bridger Unit 3 bus bar costs before and after installation of  
 15 environmental projects included in this case, in 2010 dollars and with comparable  
 16 CO<sub>2</sub> price impacts (2021 CO<sub>2</sub> cost de-escalated to 2010), are represented in the  
 17 following table:

Bus Bar Cost Before Installation of Environmental Projects (\$/MWh)	Bus Bar Cost Contribution of Environmental Projects (\$/MWh)	Bus Bar Cost After Installation of Environmental Projects (\$/MWh)	Incremental CO <sub>2</sub> Price Revenue Requirement (\$/MWh)	Bus Bar Cost After Installation of Environmental Projects and with CO <sub>2</sub> Price (\$/MWh)
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

**Pages 3-4 of of this Exhibit are**

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**The Excel spreadsheet attached to this Exhibit is**

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**The document is voluminous and will be  
provided electronically only on a separate CD**