LC58

ITEM NO. 1

PUBLIC UTILITY COMMISSION OF OREGON
STAFF REPORT
PUBLIC MEETING DATE: May 28, 2014

REGULAR X **CONSENT** ____ **EFFECTIVE DATE** **Upon Commission Approval**

DATE: May 20, 2014

RECEIVED
MAY 22 2014
Public Utility Commission of Oregon
Administrative Hearings Division

TO: Public Utility Commission

FROM: Brittany Andrus

THROUGH: Jason Eisdorfer, Maury Galbraith, and Aster Adams

SUBJECT: IDAHO POWER COMPANY: (Docket No. LC 58) Idaho Power Company 2013 Integrated Resource Plan.

STAFF RECOMMENDATION:

Staff recommends the Commission make a final determination on the action item regarding pollution control investment at Jim Bridger Units 3 and 4.

DISCUSSION:

Staff prepared a public meeting memo with a summary of Staff's, the Company's, and parties' positions in this docket for a special public meeting with the Commissioners on March 17, 2014. Staff also prepared a draft order for this docket. At the March meeting, Commissioners agreed with the majority of Staff's recommendations on acknowledgment of action items. The action item that was not agreed upon at the public meeting was the commitment to the installation of selective catalytic reduction (SCR) equipment at Jim Bridger Units 3 and **4**.

Action Items Acknowledged

At the March public meeting, the Commission acknowledged the following action items (Staff revisions shown as strikeout and bold):

2013–2018	Boardman to Hemingway	Ongoing permitting, planning studies, and regulatory filings
2013–	Gateway West	Ongoing permitting, planning studies, and regulatory filings
2013	North Valmy Unit 1	Commit to the installation of dry sorbent injection emission-control technology
~~2016–2017~~ 2014-2017	Demand response	Have demand response capacity available to satisfy deficiencies up to approximately ~~150~~ **170 MW beginning in 2014, and increasing as needed through 2017**
2013-2017	**Energy Efficiency**	**The average demand reduction of the current portfolio of energy efficiency programs for 2013 to 2017 will be 69 aMW**
2013-2017	**Energy Efficiency**	**The incremental energy efficiency savings for 2013 to 2017 will reduce energy loads by 38 aMW**

Staff made specific acknowledgment recommendations only for the resource actions proposed for the next two to four year period, consistent with the IRP guidelines.[1] Staff recommended that the two energy efficiency action items be added, consistent with language in the IRP, and the Company concurred with this recommendation. Idaho Power also agreed to Staff's proposed revision to the demand response action item.

In addition, the Commission supported Staff's comments regarding Idaho Power's proposal to reduce or eliminate funding for the Northwest Energy Efficiency Alliance (NEEA). The Commission provided a strong indication that any decision by the Company to reduce support for NEEA would be viewed negatively.

Action Item Which Requires a Determination

In its memo for the March 17, 2014, public meeting, Staff recommended the Commission acknowledge Idaho Power's investment in SCR pollution controls at Jim Bridger Units 3 and 4. Idaho Power's 2013 IRP contained the following action item:

> 2013, Jim Bridger Units 3 and 4: Commit to the installation of selective catalytic reduction emission-control technology.

In its report, Staff noted that it reviewed Idaho Power's coal study when it was filed with the 2011 IRP Update, Docket No. LC 53. In its final comments in LC 58, Staff explained that while Idaho Power did analyze three scenarios for Jim Bridger Units 3 and 4, Staff expected the Company to consider other alternatives, such as installation of reduced environmental controls in exchange for an early shut down, based on tradeoffs

[1] Order No. 07-047, Appendix A, Guideline 4(n), Plan Components: "An action plan with resource activities the utility intends to undertake over the next two to four years to acquire the identified resources, regardless of whether the activity was acknowledged in a previous IRP . . ."

quantified by tons of emissions and respective changes in capital costs. Staff noted that it analyzed the economics of the SCR capital investment in Jim Bridger Units 3 and 4 under a range of carbon and gas prices. Staff's conclusion based on the results of these analyses was that the SCR investment for these two units is reasonable.

At the March 17, 2014, special public meeting, Renewable Northwest Project and Citizens' Utility Board voiced their opposition to the acknowledgment of the Jim Bridger Units 3 and 4 action item, which they had also stated in written comments.

During that meeting, the Commission noted that the results of PacifiCorp's analysis in Docket No. LC 57 did not clearly indicate that the investment is economic, and asked Staff to compare PacifiCorp's analysis of Bridger Units 3 and 4 to Idaho Power's analysis. A copy of Staff's response is attached as Attachment A to this memo.

PROPOSED COMMISSION MOTION:

The Commission make a final determination on the pollution control investment action item for Jim Bridger Units 3 and 4.

REDACTED
Commissoner Savage's Bench Request Regarding Jim Bridger Analysis in Dockets LC 57 and LC 58.
May 20, 2014

At the conclusion of the March 17, 2014 special public meeting regarding Idaho Power's 2013 Integrated Resource Plan, Commissioner Savage requested a comparison of Staff's analysis of the investments at Jim Bridger units 3 and 4 (JB 3 and 4) in the Idaho Power IRP and Staff's analysis of the same investments in PacifiCorp's 2013 Integrated Resource Plan. This memo provides the Staff response to that request.

The analysis of the JB 3 and 4 selective catalytic reduction (SCR) investment performed for Idaho Power in LC 58 is fundamentally different from the analysis for PacifiCorp in LC 57 for two primary reasons. First, when analyzing the alternative of replacing the units with a combined cycle combustion turbine (CCCT), Idaho Power assumed MW for MW replacement at the same point in time when the units are retired. By contract, PacifiCorp's System Optimizer selected the timing, location, size, and technology of the replacement resource or resources. Second, input assumptions for natural gas prices and CO_2 costs differed. Staff did not require Idaho Power to run a scenario using PacifiCorp's methodology and inputs.

Question 1: Was the methodology used the same?

No. The methodologies used by PacifiCorp and Idaho Power to analyze the SCR investments at JB 3 and 4 were not the same.

Idaho Power Analysis

Idaho Power conducted two sets of analyses. The first set evaluated the scheduled installation of SCR at unit 3 in 2015 and at unit 4 in 2016. The base case present value revenue requirement of installing SCR and operating these units to the end of their useful lives is [redacted] billion. Idaho Power considered two alternative cases. The first alternative case called for shutting down unit 3 at the end of 2015 and unit 4 at the end of 2016 and replacing these units with equivalently sized natural gas-fired CCCTs at the beginning of 2016 and 2017, respectively. The present value revenue requirement for this replacement case is [redacted] billion. The difference in present value revenue requirement (PVRR) between the base case and replacement case is [redacted] million.

The second alternative case called for converting unit 3 to a natural gas-fired unit at the end of 2015 and converting unit 4 to a natural gas-fired unit at the end of 2016. The

present value revenue requirement for this conversion case is [redacted] billion. The difference in PVRR between the base case and conversion case is [redacted] million.

The second set of analyses evaluated the delayed installation of SCR at unit 3 in 2020 and at unit 4 in 2021. The base case present value revenue requirement of installing SCR and operating these units to the end of their useful lives is [redacted] billion. The replacement case called for shutting down unit 3 at the end of 2020 and unit 4 at the end of 2021 and replacing these units with equivalently sized natural gas-fired CCCTs at the beginning of 2021 and 2022, respectively. The present value revenue requirement for this replacement case is [redacted] billion. The difference in PVRR between the base case and replacement case is [redacted] million. The conversion case called for converting unit 3 to a natural gas-fired unit at the end of 2020 and converting unit 4 to a natural gas-fired unit at the end of 2021. The present value revenue requirement for this conversion case is [redacted] billion. The difference in PVRR between the base case and conversion case is [redacted] million.

PacifiCorp Analysis

PacifiCorp conducted two sets of analyses. The first set evaluated the scheduled installation of SCR at unit 3 in 2015 and at unit 4 in 2016. The base case present value revenue requirement of installing SCR and operating these units to the end of their useful lives is [redacted] billion. PacifiCorp considered one alternative case. The alternative case called for a series of major resource actions relative to the base case resource portfolio:

1. Converting unit 3 to a natural gas-fired unit at the end of 2015 and converting unit 4 to a natural gas-fired unit at the end of 2016.
2. Delaying the shutdown of 387 MW Cholla unit 1 from the end of 2024 to the end of 2025.
3. Delaying the 661 MW natural gas-fired CCCT scheduled for the beginning of 2024 to the beginning of 2025.
4. Delaying the 181 MW natural gas-fired single cycle combustion turbine (SCCT) scheduled for the beginning of 2027 to the beginning of 2028.
5. Replacing the 423 MW natural gas-fired CCCT scheduled for the beginning of 2028 with a 181 MW natural gas-fired SCCT at the beginning of 2029, a 181 MW natural gas-fired CCCT at the beginning of 2030, and a 411 MW natural gas-fired CCCT at the beginning of 2032.

The present value revenue requirement for this conversion case is [redacted] billion. The difference in PVRR between the base case and this conversion case is [redacted] million.

PacifiCorp conducted similar gas conversion analyses in its Certificate of Public Convenience and Necessity (CPCN) cases in Wyoming and Utah using variations in natural gas and carbon dioxide prices. The base case difference in PVRR was [redacted] million. The differences in PVRR ranged from [redacted] million to [redacted] million across the eight sensitivity cases.

The second set of analyses evaluated early shutdown of unit 3 in 2020 and unit 4 in 2021. The base case present value revenue requirement of installing SCR and operating these units to the end of their useful lives is [redacted] billion. PacifiCorp considered one alternative case. The alternative case called for a series of major resource actions relative to the base case resource portfolio:

1. Advancing the 661 MW natural gas-fired CCCT scheduled for the beginning of 2024 to the beginning of 2022.
2. Delaying the shutdown of 387 MW Cholla unit 1 from the end of 2024 to the end of 2025.
3. Advancing the 181 MW natural gas-fired SCCT scheduled for the beginning of 2027 to the beginning of 2025.
4. Advancing the 423 MW natural gas-fired CCCT scheduled for the beginning of 2028 to the beginning of 2025.
5. Advancing the 661 MW natural gas-fired CCCT scheduled for the beginning of 2024 to the beginning of 2025.
6. Adding a 181 MW natural gas-fired SCCT in 2028.
7. Replacing the 661 MW natural gas-fired CCCT scheduled for the beginning of 2030 with an 822 MW natural gas-fired CCCT.

The present value revenue requirement for this early shutdown case is [redacted] billion. The difference in PVRR between the base case and this shutdown case is [redacted] million. In addition to the two analyses described above, for PacifiCorp Staff also requested additional analyses using a later retirement date and lower gas prices.

Comparison

A comparison or reconciliation of the results from the Idaho Power and PacifiCorp analyses is difficult. The Idaho Power analysis isolates the impact of the primary resource decision. For example the difference between installing SCR and operating the Bridger units to the end of their useful lives and replacing the units with equivalently sized natural gas-fired CCCTs. The Idaho Power analysis does not consider secondary portfolio impacts; all other changes are assumed to be held constant. The PacifiCorp analysis considers both the primary impact and the secondary impacts that spread

throughout the 20-year planning period. Staff was unable to determine how much each change to the resource portfolio contributed to the overall difference in PVRR.

Question 2: Did Staff coordinate across the two IRPs?

Yes, Staff coordinated across IRPs on analyses and results associated with Bridger 3 and 4.

Question 3: Did Staff have PacifiCorp and Idaho Power run the exact same scenario?

No, Staff did not have Idaho Power run the exact same scenarios that we had PacifiCorp run.

Question 4: What were the differences in the tools, inputs and results?

Tables 1 and 2 show the results of the Idaho Power and PacifiCorp analyses of the investments at JB 3 and 4 using base case carbon and gas prices.[1] Because of the differences in the analysis described in the Staff Response to Question 1, the results are not directly comparable.

Table 1. Results of Idaho Power Analysis of Investments at Jim Bridger Units 3 and 4.

	PVRR (in Billion $)	PVRR Difference (in Million $)
Scheduled SCR Installation 2015/2016		
Base Case	[redacted]	
Conversion Case		
Replacement Case		
Delayed SCR Installation 2020/2021		
Base Case	[redacted]	
Conversion Case		
Replacement Case		

[1] The results of the additional model runs requested by Staff of PacifiCorp are not shown in Table 2.

Table 2. Results of PacifiCorp Analysis of Investments at Jim Bridger Units 3 and 4

	PVRR (in Billion $)	PVRR Difference (in Million $)
Scheduled SCR Installation 2015/2016		
Base Case	[redacted]	[redacted]
Conversion Case		
Early Retirement 2020/2021		
Base Case		
Replacement Case		

Two other key differences between the Idaho Power analysis and the PacifiCorp analysis are differences in input assumptions for natural gas prices and carbon dioxide regulation prices. Figure 1 shows a comparison of the natural gas prices used in each company's analysis. Figure 2 shows a comparison of the carbon dioxide regulation prices used in each company's analysis.

Figure 1. Idaho Power and PacifiCorp Natural Gas Price Forecasts

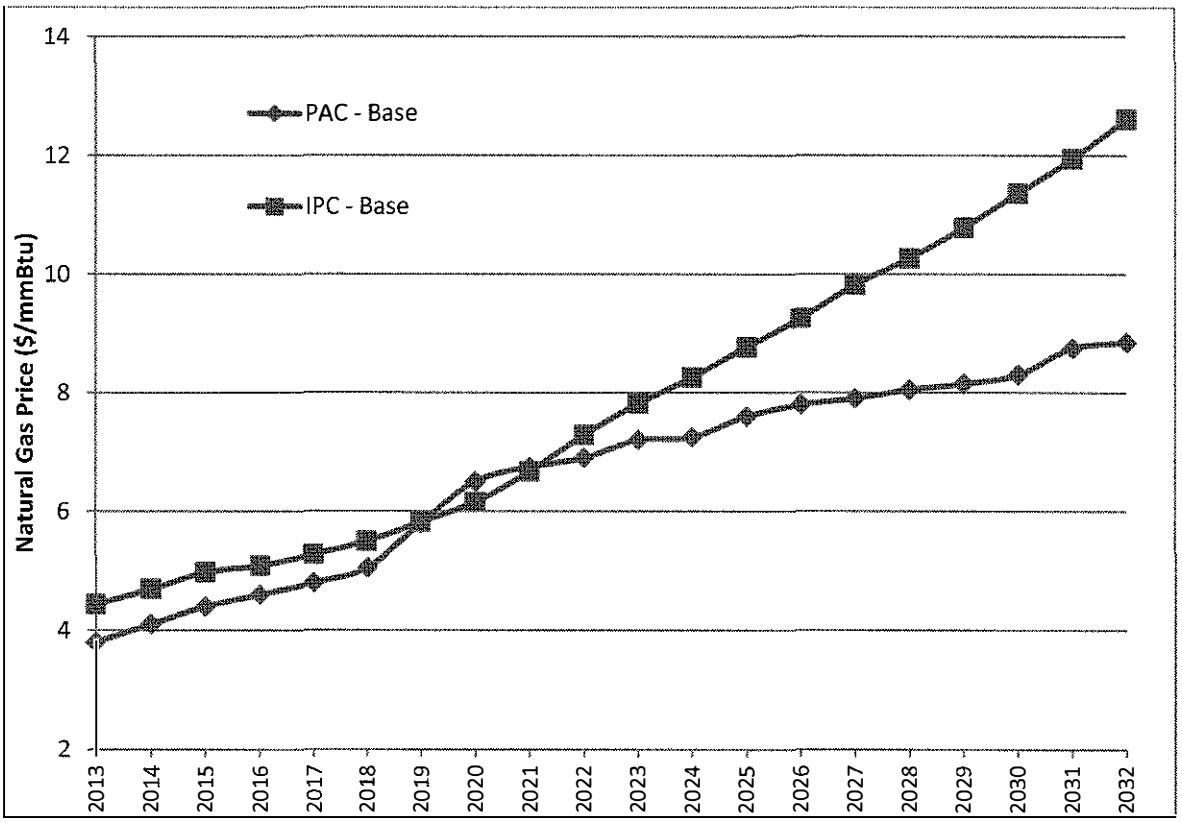

Figure 2. Idaho Power and PacifiCorp CO_2 Regulation Price Forecasts