

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

LC 68

In the Matter of
IDAHO POWER COMPANY,
2017 Integrated Resource Plan

RENEWABLE ENERGY COALITION'S
COMMENTS

I. INTRODUCTION

These comments are submitted on behalf of the Renewable Energy Coalition (“REC”) in the matter of Idaho Power Company’s (“Idaho Power”) 2017 Integrated Resource Plan (“IRP”). The main focus of these comments is on Idaho Power’s proposal to use the Energy Information Administration’s (“EIA”) High Oil and Gas Resource and Technology Case as its natural gas price forecast, which projects a low natural gas price over the planning horizon.¹ Idaho Power uses data from the EIA’s 2016 Annual Energy Outlook (“AEO”), which will be referenced throughout these comments.

The EIA’s High Oil and Gas Resource and Technology Case is not an appropriate measure for Idaho Power’s natural gas price forecast because it fails to account for uncertainty and is unlikely to result in the least cost and least risk long-term resource plan. That projection is based on an extreme set of uncertain circumstances that does not take into account possible upward price potential that has historically proved possible in the natural gas industry. Further, Idaho Power’s reliance on Intercontinental Exchange (“ICE”) settled futures contracts for the

¹ EIA’s characterization of its forecasts is confusing because the “High Oil and Gas Resource and Technology Case” means *low* gas prices, while the “Low Oil and Gas Resource and Technology Case” means *high* gas prices.

sale of natural gas is misplaced because ICE futures contracts only represent real trades for a couple of years and do not account for long-term market trends, industry changes, and price projections. As discussed below, Idaho Power should not be allowed to use such a low natural gas price forecast in its IRP because it misstates real potential impacts in the natural gas industry and sends inaccurate signals regarding which resources are least cost and least risk. Finally, while Idaho Power is relying upon a different gas forecast for determining the appropriate level of cost effective conservation, should Idaho Power be allowed to use the EIA's High Oil and Gas Resource and Technology Case for its IRP and other purposes, then Idaho Power would underinvest in conservation, and set avoided cost rates below forecasted energy and capacity costs.

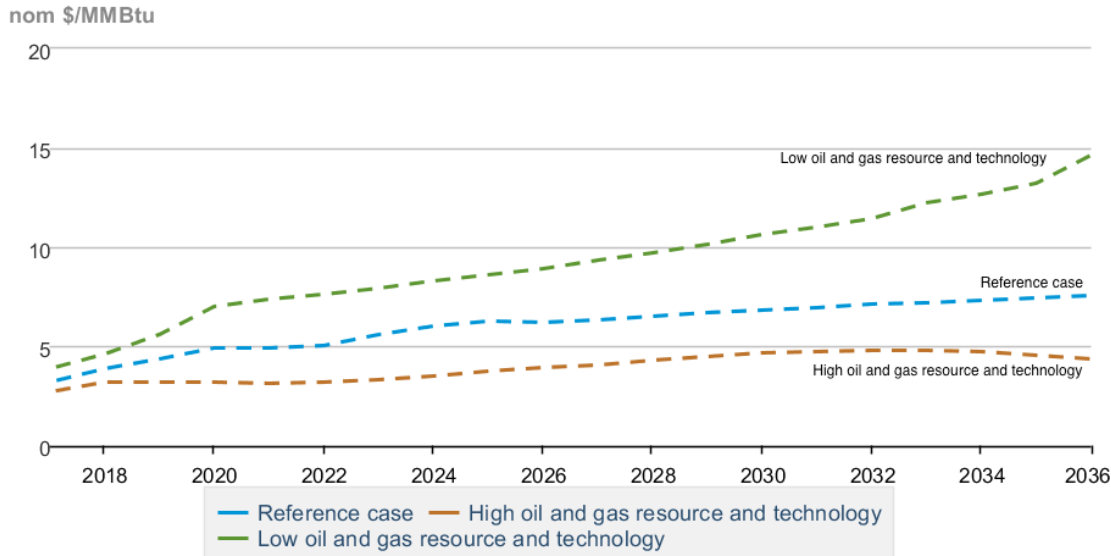
II. COMMENTS

A. **The EIA's High Oil and Gas Resource and Technology Case Represents an Extreme Set of Uncertain Circumstances on One End of the Spectrum**

Idaho Power's natural gas price forecast relies on future discoveries of a larger resource base, higher rates of recovery, and greater technological improvement than business-as-usual, and it does not account for possible downsides in the natural gas industry such as lower rates of recovery, fewer technological advances, or carbon regulation. The EIA analyzes a number of different future natural gas price scenarios in its Annual Energy Outlook. As it pertains to this discussion, there is the "Reference" case, the "High Oil and Gas Resource and Technology" case, and the "Low Oil and Gas Resource and Technology" case. Please refer to the EIA's Natural Gas: Henry Hub Spot Price graph included herein as "Figure 1."

Figure 1

Natural Gas: Henry Hub Spot Price



 Source: U.S. Energy Information Administration

The Reference Case is “a business-as-usual estimate given known market, demographic, and technological trends.”² Idaho Power began using the EIA in its 2013 IRP as the basis for the natural gas price forecast.³ In both the 2013 and 2015 IRPs, Idaho Power used the Reference Case as its price forecast.⁴ As Figure 1 illustrates, the EIA’s 2016 Reference Case represents a middle-of-the-road estimate with rates gradually increasing to approximately \$7.50/MMBtu.

The High Oil and Gas Resource and Technology Case represents a “larger resource base and more rapid improvement in production technologies” than the Reference Case.⁵ Specifically, this case includes 50% higher estimated ultimate recovery as well as recovery of

² EIA, 2016 Annual Energy Outlook report, at MT-1 (available at: [https://www.eia.gov/outlooks/aeo/pdf/0383\(2016\).pdf](https://www.eia.gov/outlooks/aeo/pdf/0383(2016).pdf)) (hereafter referred to as 2016 AEO).

³ Attachment A (Idaho Power’s Response to REC’s Data Request No. 1.2).

⁴ See Idaho Power’s 2015 IRP at 85; see also Idaho Power’s 2013 IRP at 62.

⁵ 2016 AEO at ES-6.

additional unidentified resources, 50% higher rates of technological improvement, and 50% higher rates of technically recoverable undiscovered resources in Alaska and offshore.⁶ As illustrated in Figure 1 above, this case results in the lowest projected natural gas prices staying below \$5/MMBtu over the entire planning horizon.

On the other hand, the Low Oil and Gas Resource and Technology Case represents the other end of the spectrum. Specifically, this case includes 50% lower rates of technological improvement, and 50% lower rates of technically recoverable undiscovered resources in Alaska and offshore.⁷ Figure 1 illustrates that this case has the highest natural gas prices over the planning horizon with rates reaching nearly \$15/MMBtu.

Idaho Power recognizes that it has selected an extremely low natural gas price forecast because it only modeled possible higher natural gas prices in its sensitivity analysis and only adjusted prices upward in its stochastic risk analysis to capture the upward risk in natural gas prices.⁸ Idaho Power determined that “testing sensitivities lower than the [EIA High Oil and Gas Resource and Technology] Planning Case forecast was not informative.”⁹ It is not reasonable to use a natural gas price forecast that represents an extreme set of circumstances on one end of the spectrum. The forecast should be based on the EIA’s Reference Case as that is the most prudent projection, representing business-as-usual developments and accounting for both the possibilities of greater-than-average conditions and less-than-average conditions in the industry.

⁶ 2016 AEO, at E-11.

⁷ 2016 AEO, at E-11.

⁸ See Idaho Power’s 2017 IRP, at 112 & 114 (hereafter referred to as 2017 IRP); See also Attachment A (Idaho Power’s Response to Staff’s Data Request No. 32 & 33).

⁹ Attachment A (Idaho Power’s Response to Staff’s Data Request No. 32).

B. Downward Trends in Natural Gas Prices and Current Contracts for Future Natural Gas Prices Should Not be the Sole Basis for Projecting Long-Term Prices

Because natural gas prices have a historical tendency to fluctuate widely and current futures contracts are based on near-term expectations, they should not be the sole basis for projecting long-term natural gas prices. Idaho Power's exclusive reliance upon low natural gas price forecast for its long-term plan is flawed because: 1) it is unrealistic to assume that there will not be large price swings over a long-term period; 2) Idaho Power's graphs fail to accurately predict future conditions by using nominal dollars and overstating future price projections; and 3) recent low actual gas prices are neither reflective of the likely long-term gas prices nor the expected volatility in natural gas markets. In the end, if Idaho Power is allowed to use the High Oil and Gas Resource and Technology Case, then its IRP will not take into account the likely upward price volatility that has historically occurred and is very likely to occur again in the natural gas industry. This is inconsistent with the IRP guidelines in which "[t]he primary goal must be the selection of a portfolio of resources with the best combination of expected costs and associated risks and uncertainties for the utility and its customers."¹⁰

First, Idaho Power relies on recent downward trends in prices to conclude that prices will continue to be low in the future.¹¹ In Figure 7.4 in its 2017 IRP, Idaho Power illustrates the downward trend from 2009 to 2016, but ignores the much higher price points between 2000 and 2008.¹² Idaho Power's Figure 7.4 illustrates that natural gas prices have historically seen large price swings.

¹⁰ Re Commission Investigation into Integrated Resource Planning, Docket No. UM 1056, Order No. 07-002 at 5 (Jan. 8, 2007).

¹¹ See 2017 IRP at 84.

¹² See 2017 IRP at 84, Figure 7.4.

In its 2016 Annual Energy Outlook, the EIA analyzed average annual Henry Hub natural gas spot prices in five cases as compared to historic natural gas prices.¹³ As shown below in the EIA’s Figure MT-42, the five projections offer a range of outcomes with the Reference Case in the middle, the High Oil and Gas Resource and Technology Case at the low-price end, and the Low Oil and Gas Resource and Technology Case close to the high prices seen in the 2000 to 2008 period. The EIA also examined the impact of various outcomes under the Clean Power Plan, including a scenario where there is no Clean Power Plan.¹⁴ Other uncertainties in the natural gas market include economic growth, demographics, demand, the price and demand of other resources (such as oil), advancements in technology, new discoveries of resources, and the effect of various policies.¹⁵ Specifically here in Oregon, there is uncertainty about whether the utilities will be subject to a “cap and invest” program going forward. The highly uncertain price of natural gas tends towards using a more moderate price forecast taking into account some of the upward price potential, such as the EIA’s Reference Case. This is consistent with the mandate of the IRP guidelines, which is to consider (rather than ignore) the risk and uncertainty associated with fuel prices.¹⁶

¹³ 2016 AEO, at MT-23, Figure MT-42 (reproduced herein as Figure 2).

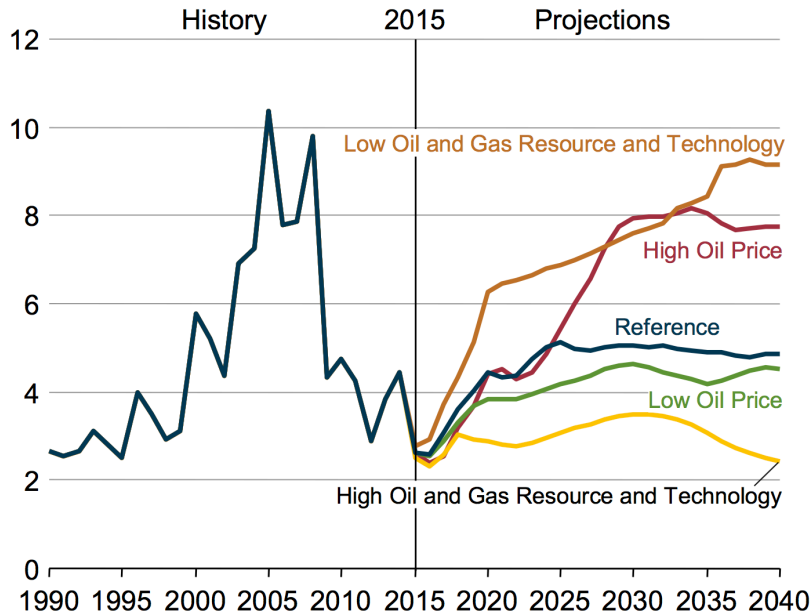
¹⁴ 2016 AEO at E-7, E-8, E-9, Table E1 “Summary of AEO2016 Cases”.

¹⁵ Id.

¹⁶ Re Commission Investigation into Integrated Resource Planning, Docket No. UM 1056, Order No. 07-002 at 5 (Jan. 8, 2007).

Figure 2

Figure MT-42. Annual average Henry Hub natural gas spot market prices in five cases, 1990–2040 (2015 dollars per million Btu)



Second, Idaho Power’s graph produced in response to REC’s data request No. 1.1(c) (in addition to Figure 7.4 in the IRP) misleads the upward projections for the EIA’s Reference Case and the Low Oil and Gas Resource and Technology Case, and it makes the High Oil and Gas Resource and Technology Case appear more reasonable.¹⁷ Idaho Power’s graph uses nominal dollars, which overstates the future price projections. Compare Idaho Power’s graphs to the EIA’s Figure MT-42 (reproduced above as Figure 2). Idaho Power’s graph in response to REC’s data request No. 1.1(c) shows the Low Oil and Gas Resource and Technology Case as an extreme case going way beyond any historical Henry Hub spot price. Idaho Power’s graphs show the Reference Case nearly reaching the historical peak prices and the High Oil and Gas

¹⁷ Attachment A (Idaho Power’s Response to REC’s Data Request No. 1.1(c)).

Resource and Technology Case reaching a price above that of some of the lower peaks in 2000, 2010, and 2014. This is misleading because it does not account for future inflationary effects. The EIA's Figure MT-42 expresses everything in 2015 dollars, which offers a clearer picture of the price projections compared to historical process. The Low Oil and Gas Resource and Technology Case in 2015 dollars is actually below the historical price peaks, the Reference Case shows a mid-range price projection, and the High Oil and Gas Resource and Technology Case illustrates future prices well-below most of the historical prices.

Third, a long-term plan should not unduly rely upon current short-term natural gas prices. One reason Idaho Power gives for using the High Oil and Gas Resource and Technology Case is that it is more consistent with ICE settled futures contracts for natural gas sales.¹⁸ Specifically, in its response to REC's data request No. 1.1(c), Idaho Power shows how the ICE futures contracts "line up" with the High Oil and Gas Resource and Technology Case. This argument fails because ICE settled contracts for future energy sales are based on today's expectations of near-term natural gas prices, not future price estimates and does not include long-term price projections.

Idaho Power admits that there is no ICE data beyond 2028, but it may actually be even more limited than that. The volume of contracts traded out past a couple years is slim to none.¹⁹ Idaho Power is just using the ICE futures contracts as a crude justification for using a low natural gas price projection, but Idaho Power cannot justify that ICE futures contracts are a more accurate tool than the EIA's Reference Case. ICE futures contracts do not account for long-term

¹⁸ See Attachment A (Idaho Power's Response to Staff's Data Request No. 32 and Idaho Power's Response REC's Data Request No. 1.1(c)).

¹⁹ See NYMEX Natural Gas Futures Contracts (available at https://www.barchart.com/futures/quotes/NG*0/all-futures?viewName=main).

changes in the industry. As discussed above, the EIA analyzes a variety factors including variations in the rates of technological advances, and rates of ultimate discovery and recovery.

The ICE futures contracts do not take into account these factors and it is not reasonable to rely on that data for long-term projections that are intended to account for market uncertainty.

Therefore, Idaho Power should not be allowed to rely on consistency with the ICE futures contracts as justification for using the High Oil and Gas Resource and Technology Case.

C. Reliance Upon Extremely Low Natural Gas Prices Will Result in Under Investments in Conservation and Inaccurate Avoided Cost Rates

Idaho Power's reliance upon an inaccurate natural gas price assumptions could result in distorted resource planning that harms customers. Idaho Power's near-term resource decisions will include installation of selective catalytic reduction investments, the Boardman to Hemmingway transmission line, market purchases, and modest investments in demand side management.²⁰ The near term practical impact of using the wrong natural gas price forecast may be underinvestment in conservation and entering into too few new and existing qualifying facility contracts, while the long-term impacts could be over reliance upon natural gas generation resources and short-term market purchases.

Idaho Power's third-party consultant estimated preliminary demand side management investments based on the EIA's 2016 AEO Reference Case; however, Idaho Power is using the High Oil and Gas Resource and Technology Case in for its 2017 IRP cost effectiveness test.²¹ Thus, use of this low gas price forecast may have a practical impact on the amount of conservation that Idaho Power ultimately invests in or finds to be cost effective.

²⁰ See 2017 IRP at 6-8.

²¹ Attachment A (Idaho Power response to REC Data Request 1.9).

Planning conservation and other resource investments based on overly optimistic views of natural gas price forecasts could have extremely harmful long-term impacts on customers. In the late 1990s, California and Pacific Northwest utilities essentially stopped investing in conservation resources, which turned out to be disastrous when energy needs exceeded available resources. The Commission should not let Idaho Power make long-term resource decisions that ignore that the short-term low gas price forecasts are unlikely to endure for the next two decades and will likely experience greater volatility than we have recently experienced. Even if current gas prices were likely (but not guaranteed) to exist uninterrupted for the long-term, it would still not be the least risk strategy to assume that the high gas prices and greater price variation of less than a decade ago will not return.

III. CONCLUSION

The practical effects of allowing Idaho Power to use a low natural gas price forecast is that it would disproportionately favor gas generation over other possible least cost least risk resources, would eventually result in too little conservation, and will produce inaccurately low avoided costs. The High Oil and Gas Resource and Technology Case is based on extreme assumptions regarding future technological advancements, discovery of resources, and ultimate recovery of natural gas. The historic uncertainty in the natural gas industry favors using a more mid-range projection. Further, settled futures contracts only represent actual trades of natural gas for a couple years do not account for future uncertainties in the market and industry. The EIA analyzed numerous price forecasts and settled on the Reference Case as its business-as-usual price projection. This projection should be used as it accounts for a range of possible outcomes.

Dated this 31st day of October, 2017.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Irion Sanger". The signature is written in a cursive style with a large initial "I" and a long, sweeping underline.

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Of Attorneys for the Renewable Energy Coalition

Attachment A

Data Requests and Idaho Power's Responses

October 27, 2017

Subject: Docket No. LC 68 – 2017 Integrated Resource Plan (“IRP”)
Idaho Power Company’s Responses to Renewable Energy Coalition’s (“REC”)
First Set of Data Requests (DRs 1.1-1.9)

REC’S DATA REQUEST NO. 1.1:

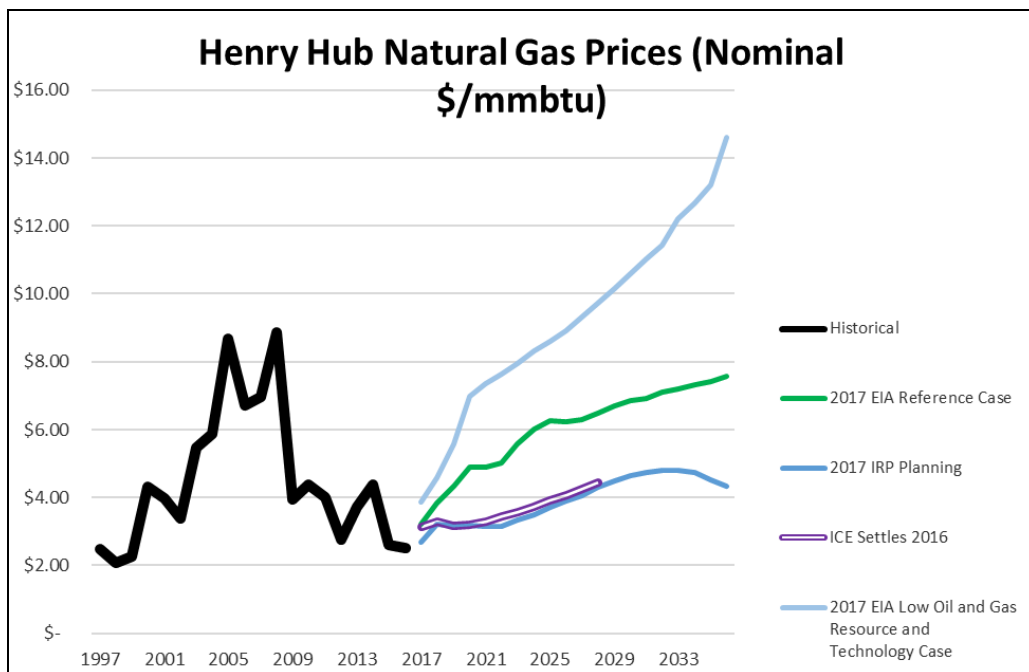
Please refer to page 84 of the IRP where Idaho Power states that it is using the Energy Information Administration’s (“EIA”) High Oil and Gas Resource and Technology Case from EIA’s 2016 Annual Energy Outlook (“AEO”) for its Natural Gas Price Forecast because “this case is more consistent with recent price trends than the reference case.”

- a. What were the other EIA forecasts that Idaho Power could have used? Please provide a fuller explanation of why each of the alternatives was rejected in favor of the High Oil and Gas Resource and Technology Case.
- b. Please explain why recent price trends relevant to Idaho Power’s Natural Gas Price Forecast?
- c. Please explain how the High Oil and Gas Resource and Technology Case is more consistent with recent price trends?
- d. Please refer to Idaho Power’s Response to Staff’s Data Request No. 32 where Idaho Power indicates that it compared Intercontinental Exchange (“ICE”) settled forward contracts to the EIA’s cases to determine that the High Oil and Gas Resource and Technology Case was more accurate than the EIA’s Reference Case. Please explain why the ICE settled forward contracts a good benchmark for Idaho Power’s natural gas price forecast?
- e. Did Idaho Power limit its review of the ICE settled forward contracts to only the Henry Hub, or for other hubs as well? Is data available from ICE for all hubs?
- f. How many years of ICE settled forward contracts did Idaho Power review? How many years of ICE settled forward contracts data is available?
- g. What other data besides ICE settled forward contracts could be used to analyze recent price trends?

- h. What (if any) are the actual natural gas prices Idaho Power has paid during the last two years and contracted for in the future (and explain how they are calculated)?

IDAHO POWER COMPANY’S RESPONSE TO REC’S DATA REQUEST NO. 1.1:

- a. Idaho Power Company (“Idaho Power” or “Company”) attempts to use the best gas price forecast which most closely aligns with future expectations. Of the EIA natural gas forecasts from the 2016 EIA Energy Outlook, the High Oil and Gas Resource and Technology Case is the case that most aligns with the forward market information (ICE contracts). The other EIA forecasts did not represent the direction of future prices indicated by the natural gas forward contract market. Additionally, Idaho Power discussed the natural gas price forecasts extensively with members of the IRP Advisory Council (“IRPAC”) and other public participants during the IRP planning process.
- b. As future natural gas price assumptions influence the financial results of the operational modeling used to evaluate and rank resource portfolios, the Company believes historical price trends are important to evaluate when choosing a natural gas price forecast for the IRP. The natural gas price forecast in the last two IRPs have consistently overstated the gas price forecast when using the EIA Reference Case.
- c. As shown in the graph below, the 2017 IRP Planning case (High Oil and Gas Resource and Technology Case) and the ICE settled contracts line up very well through 2028, which is the extent of ICE data available at the time.



- d. ICE settled prices represent transacted bi-lateral contracts for future natural gas. These actual transactions are the best representation of market expectations for future natural gas prices because the market sets these prices.

- e. The natural gas industry uses the Henry Hub futures contract as a basis for determining forward prices and applies a basis differential to adjust for locational differences. For example, most of the gas that Idaho Power purchases for its power plants is bought at the U.S./Canadian border at Sumas, Washington. For forecasting and hedging purposes, Idaho Power would use the Henry Hub futures contract in combination with a Sumas basis swap to represent the forward price of natural gas at Sumas. Both the Henry Hub futures contract and the Sumas basis swap are traded and cleared on the ICE platform.

Hubs from all over the country are traded on the ICE platform. Idaho Power uses the Sumas Hub because this is where most of its firm pipeline transportation is sourced from and is where the Company buys most of its physical natural gas supply.

- f. The Henry Hub fixed price futures contract trades 156 consecutive months and the Sumas basis contract trades 72 months. For more information on the various hubs that are traded on ICE, please refer to the following website:
<https://www.theice.com/products/6590258/Henry-LD1-Fixed-Price-Future>.

Idaho Power used the ICE data, which extended through 2028, in order to review and validate the EIA natural gas price forecast used for the 2017 IRP.

- g. There are many sources of natural gas forecast information available. There are paid subscription services that can be used for this purpose. Additionally, there are free sources such as the EIA in its Annual Energy Outlook, which can be viewed at the following website: <https://www.eia.gov/outlooks/aeo/pdf/0383%282017%29.pdf>.

h.

- (1) Idaho Power uses Platts to obtain natural gas settlement prices. Please see Table 1 in the protected information Excel file for actual weighted average price per MMBtu for 2015, 2016, and year to date 2017.
- (2) Idaho Power forward contracts are priced at agreed upon pricing when the contract is negotiated. Please see Table 2 in the protected information Excel file for forward contract purchases by MMBtu (weighted average) for October 2017 thru April 2019.

The attachment produced in response to this Request contains protected information and will be provided in accordance with General Protective Order No. 17-292.

REC'S DATA REQUEST NO. 1.2:

Did Idaho Power review other natural gas price forecasts, such as Wood Mackenzie or a third-party expert, before deciding to use EIA? If so, what were the factors that decided the EIA usage?

IDAHO POWER COMPANY'S RESPONSE TO REC'S DATA REQUEST NO. 1.2:

No. Idaho Power began using EIA in the 2013 IRP as the basis for the natural gas forecast. EIA is used because it is transparent and public. Prior to the 2013 IRP, Idaho Power's natural gas forecast was internally developed using several blended proprietary forecasts, resulting in a non-public natural gas forecast. Idaho Power continues to use the EIA as the source for natural gas price forecasts for the 2017 IRP, and discussed the natural gas price forecasts extensively with the IRPAC and other public participants during the IRP planning process.

REC'S DATA REQUEST NO. 1.9:

Please refer to Idaho Power's Response to Staff's Data Request No. 15 where Idaho Power indicates that it provided the EIA 2016 AEO natural gas forecast Reference Case to its third- party consultant to use in the preliminary DSM alternate costs analysis in the Energy Efficiency Potential Study, but that the High Oil and Gas Resource and Technology Case was used in Idaho Power's final Demand Side Management alternate costs in the IRP.

- a. Please provide the AEG Energy Efficiency Potential Study.
- b. Has AEG performed an updated Energy Efficiency Potential Study using the High Oil and Gas Resource and Technology Case? If so, please provide the updated study.
- c. Please explain why different natural gas forecasts were used in these analyses?
- d. What is the effect of using the two different natural gas forecasts in these analyses instead of using the same forecast for both?

IDAHO POWER COMPANY'S RESPONSE TO REC'S DATA REQUEST NO. 1.9:

- a. <https://www.idahopower.com/EnergyEfficiency/reports.cfm>.
- b. No.
- c. Prior to each IRP cycle, Idaho Power contracts with a third-party consultant. In 2016, the Company contracted with the Applied Energy Group ("AEG") to produce an Energy Efficiency Potential Study. The Company provides its contractor with the preliminary Demand-Side Management ("DSM") Alternative costs based on the previous IRP preferred portfolio updating those variables that are available at that time. For example, for the 2017 IRP, the Company updated the load forecast and the gas forecast using the EIA 2016 AEO Reference Case. Because of the timing of the energy efficiency potential analysis, the final DSM Alternative costs had not yet been determined. The Company and its contractor must use the best data available at the time of the potential study to incorporate energy efficiency potential into the IRP process.

The final DSM Alternative costs published in the 2017 IRP Appendix C: Technical Report are based on the 2017 IRP preferred portfolio using the 2017 IRP planning case natural gas price forecast, which is based on the EIA 2016 AEO High Oil and Gas Resource and Technology Case. These DSM Alternate costs are used for program cost-effectiveness after the IRP has been acknowledged by the Idaho Public Utilities Commission and the Public Utility Commission of Oregon.

- d. Neither the Company nor its contractor has conducted that analysis; however, the Company does not consider the level of energy efficiency included in the IRP to be a ceiling or limit in program execution and whatever achievements Idaho Power completes in pursuing cost-effective energy saving is incorporated into the next IRP.

STAFF'S DATA REQUEST NO. 32:

See page 112 of the IRP, Figure 9.1. Staff understand this graph to reflect that the Company has chosen the lowest of all gas price scenarios as the planning case, with price sensitivities only being tested above the planning case. Is this correct? Why has the Company chosen to use low gas prices in its planning case scenario? Is this the same gas price assumptions the Company used for its energy efficiency analysis (DSM Report)?

IDAHO POWER COMPANY'S RESPONSE TO STAFF'S DATA REQUEST NO. 32:

No. The natural gas price forecast sensitivities shown in Figure 9.1 are based on the 2016 EIA High Oil and Gas Resource and Technology ("EIAHO") case forecast (depicted as the "Planning Case" in Figure 9.1). The graph in Figure 9.1 displays the resulting natural gas prices based on the EIAHO Planning Case forecast over a range of upward price sensitivities. The objective of the gas price sensitivities analysis was to test the performance of each portfolio over a possible range of higher priced futures, which helps effectively test the key resource decisions of coal unit retirement and the B2H transmission project evaluated in the 2017 IRP.

The natural gas forecast was discussed at the September 2016 and March 2017 IRPAC meetings. Following those discussions, it was determined that testing sensitivities lower than the EIAHO Planning Case forecast was not informative to the resource portfolios being evaluated.

The Company chose the EIAHO case forecast as its Planning Case because actual natural gas prices have consistently been lower than the Idaho Power IRP Planning Case EIA forecast selected in the past several IRP cycles. The IRP Planning Case natural gas price is based on an EIA forecast. Upon a detailed a review of Intercontinental Exchange ("ICE") settled forward contracts, ICE was shown to be a more accurate indicator than the EIA Planning Case forecast used in the IRP over the past few years. Comparing the ICE reviewed data to the 2016 EIA forecasts available, the 2016 EIAHO case forecast was selected, as it closely followed the ICE forward contract prices as compared to the other available EIA forecasts.

The 2016 EIAHO case natural gas forecast was not used in the energy efficiency analysis used in Appendix B of the 2017 IRP. Please see the Company's response to Staff's Data Request No. 15 for more information regarding the gas forecast utilized for the DSM potential study.

STAFF'S DATA REQUEST NO. 33:

See page 114 of the IRP, Natural gas price.

- a. Please explain what the Company means by “adjusted upward from the planning case gas price forecast.” Please explain why the Company chose this approach.
- b. Please explain how the Company estimated the black dashed line in figure 9.2 and why the Company chose a lower estimation for natural gas prices while it did not choose a lower estimation for the other two stochastic variables—customer load sampling (Figure 9.3) or Hydro generation sampling (Figure 9.4).

IDAHO POWER COMPANY'S RESPONSE TO STAFF'S DATA REQUEST NO. 33:

- a. The “adjusted upward from the planning case gas price forecast,” means most of the future gas price forecasts are higher than the planning case gas price forecast, with some futures below the planning case. With today's unprecedented low natural gas prices, the Company chose to evaluate the upward risk if natural gas prices were to return to historical levels.
- b. Figure 9.2 on page 114 of the IRP shows 100 future gas price forecasts that were used in the Company's stochastic analysis. The starting point for the stochastic analysis is the planning case natural gas forecast, represented by the black dashed line near the bottom. Therefore, the black dashed line in Figure 9.2 is the planning case natural gas price not an estimated value. The dashed black line in Figure 9.3 is the planning case customer load and the dashed black line in Figure 9.4 is the planning case hydro generation. The risk sampling for Figures 9.3 and 9.4 show a normal distribution, where 50 percent of the draws are above the planning case and 50 percent of the draws are below the planning case.