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December 8, 2016

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
201 High Street SE Suite 100
Post Office Box 1088
Salem, Oregon 97308-1088

Attn: Filing Center

Re: **LC 64: NW Natural's 2016 Integrated Resource Plan Reply Comments**

Northwest Natural Gas Company, dba NW Natural (NW Natural or Company), files herewith its Reply Comments on NW Natural's 2016 Integrated Resource Plan.

Please contact me at (503) 226-4211, extension 5865, if you have questions.

Sincerely,

/s/ Gail Hammer

Gail Hammer
Rates and Regulatory Affairs

enclosure

Before the Public Utility Commission of Oregon
LC 64

In the Matter of NW Natural's 2016 Integrated Resource Plan	NW Natural's Reply Comments

I. INTRODUCTION

Northwest Natural Gas Company (NW Natural or Company) files these Reply Comments in response to both Public Utility Commission of Oregon (OPUC) Staff's initial Comments (Staff Comments) and Comments of the Citizens' Utility Board of Oregon (CUB), both submitted in the subject docket.

Prior to addressing Staff's and CUB's specific comments, NW Natural would like to thank all participants (collectively referred to hereafter as Parties) in its Integrated Resource Planning (IRP or Plan) process for their engagement, comments, and general spirit of collaboration. As mentioned in Staff Comments, this process began in January 2016 with the first of five technical workshops held over six months. NW Natural filed a draft IRP on June 28, 2016, and used comments received from stakeholders regarding the draft in preparing the IRP filed on August 26, 2016.

II. GAS REQUIREMENTS FORECAST

Residential and Commercial Customer Forecasts

NW Natural welcomes Staff's review of methodologies and results associated with the Company's customer forecasts in the 2016 IRP and appreciates Staff's finding that the Company's forecast of Residential new construction customer additions appears reasonable.[1]

Staff includes a statement regarding customer forecasts it previously made in the context of NW Natural's 2014 IRP, that "[d]eveloping separate econometric forecasts at the load center level would facilitate the incorporation of intrastate regional economic factors into the forecast,"[2] and recommends the Company explore using load center-specific data for its customer forecasts. Staff predicates this recommendation, in the

[1] Page 4 of Staff Comments.
[2] Page 3 of Staff's Final Comments in Docket No. LC 60. See page 3 of Staff Comments.

context of forecasting Commercial new construction customer additions, on the expectation that improved forecast accuracy will result.[3]

While NW Natural generally concurs with undertaking, in the course of developing its next IRP, the exploration Staff recommends, the Company makes three points regarding this recommendation.

First, econometric forecasts incorporating exogenous variables—as the 2016 IRP forecasts of NW Natural's Residential and Commercial new construction customer additions each do—require forecasts of such variables over an extended time horizon for use in an IRP, on an annual or higher frequency, and ideally for more than 20 years. Extended forecasts of potentially relevant "intrastate regional economic factors" available at the *county* level, which is an imprecise match for most of NW Natural's Oregon load centers, are limited. An example of a forecast that partially meets these requirements is the Oregon Office of Economic Analysis' 2013 release of Oregon's long-term population forecast by county for 2010 – 2050 at five-year intervals.[4]

Second, it is not obvious to NW Natural that accuracy at the load center level leads to improved accuracy for the Company's customer forecast overall, as an aggregation of load center customer forecasts may be less accurate by some measures than a forecast prepared at the state level. Such a result could distort the Company's forecast of gas requirements at the state or system levels.

Third, NW Natural notes that customer forecasts at the load center level may have limited applicability for identifying and assessing distribution system issues due to the relatively limited geographic scope of many such issues. In other words, the scale of distribution system issues is typically smaller—and often much smaller—than would be represented by load center information.[5] NW Natural's 2016 IRP includes two Oregon examples of such issues.[6]

Staff includes two minor concerns with NW Natural's forecast of gas requirements. The first of these is that the "use of a four year average for customer losses is relatively undocumented, and may not accurately represent losses on an ongoing basis."[7] NW Natural agrees with Staff on this point and is actively investigating how its forecasts of Residential and Commercial customer losses in the Company's subsequent IRP might

[3] Page 3 of Staff Comments.
[4] This forecast is available at http://www.oregon.gov/das/OEA/Pages/forecastdemographic.aspx (accessed November 3, 2016).
[5] See the discussion on page 7.2 of the 2016 IRP regarding the size of an area impacted by a distribution system issue relative to that of the associated load center.
[6] See pages 7.10 through 7.13 of the 2016 IRP.
[7] Page 5 of Staff Comments.

be improved.

Staff's second minor concern is that NW Natural's "method of allocating growth to load centers may be overestimating growth in Coos County," and Staff states that "[g]rowth rates in the future, particularly for conversion customers, will likely be lower than historic growth rates."[8]

NW Natural first notes that its forecasts of Oregon Residential and Commercial conversion customer additions, as shown in Figures 2.15 and 2.23, respectively,[9] each *decline* over the planning horizon of the 2016 IRP. As the proportions used to allocate conversion customer additions to load centers are static over the planning horizon of the 2016 IRP,[10] the rate of customer growth attributable to conversion customer additions *for each load center* necessarily declines over the planning horizon. Therefore, and with respect specifically to customer conversions, NW Natural agrees with a reformulation of Staff's statement, that *the portions of load center customer growth rates attributable to conversion customer additions will decline over the planning horizon for each Oregon load center—including Coos Bay—relative to the respective historic levels*. In fact, this situation is incorporated within NW Natural's 2016 IRP customer forecasts.

It is possible that NW Natural's method of allocating customer additions to load centers from its Oregon state level forecast results in somewhat overstated customer forecasts for the Company's Coos Bay load center. However, NW Natural notes that its Coos Bay load center, as of the end of 2015, represented 0.2 percent of the Company's total Residential customers and 0.5 percent of its total Commercial firm service customers.[11] NW Natural additionally notes that its 2016 IRP includes no Action Item related to system expansion to accommodate forecasted customer growth in its Coos Bay load center.

Industrial Forecasts

Staff recommends that the Company describe in its Reply Comments how it uses transportation prices to determine if industrial customers will continue to be on firm sales service or will switch to firm transportation service.[12]

To determine whether or not an industrial customer will, for economic reasons, switch

[8] Page 5 of Staff Comments.
[9] These figures appear on pages 2.18 and 2.24, respectively, of the 2016 IRP.
[10] See page 2.27 of the 2016 IRP.
[11] See Table 2.2 on page 2.10 of the 2016 IRP. See also the discussion on page 2.27—including footnote 32—of the 2016 IRP.
[12] Page 3 of Staff Comments.

from firm sales to firm transportation service, the Company would need to know the price differential, from the customer's perspective, between NW Natural's sales service versus NW Natural's transportation service plus the expected price of gas from a marketer. Customers on transportation schedules must arrange for their own gas supplies to be delivered to a certain gate station serving our system. However, the price that customer pays for gas, unlike NW Natural's publically available rate schedules, is not known to NW Natural. Without this piece of information it is not possible to determine if an industrial customer will switch from sales to transportation or vice versa. Furthermore, numerous products for non-NW Natural gas supply are available in the market for current and prospective transportation customers to choose from which results in the existence of numerous unique contracts for gas supply for NW Natural's transport customers that, the terms of which are unknown- and unknowable- to NW Natural.

Anecdotally, the Company has seen that when gas prices are rising (falling) quickly, some industrial customers switch from (to) transportation to (from) sales service. NW Natural's gas costs, due to the Company's volatility-reducing hedging activities, generally lag swings in the current market price, where market prices are an option available to transport customers through third party marketers. It is likely that more sophisticated industrial operators take advantage of this differential when it is beneficial to them to lower their costs. Additionally, since the preponderance of transportation volumes move on interruptible service agreements, these switches are much more likely to affect the mix of interruptible sales versus interruptible transportation volumes, neither of which are part of our IRP design day resource plans.

Emerging Markets Forecasts

Staff recommends that NW Natural update its CHP assumption in the Company's Reply Comments "based on proceedings in Docket No. UM 1744."[13] The Company believes that this would be problematic for several reasons. First, preparing an IRP requires months of analysis before it can be filed and much of this analysis must occur sequentially. NW Natural discussed the CHP assumptions Staff is requesting be updated at a technical working group meeting in January of 2016,[14] which included robust stakeholder engagement. The Company "locked down" its load forecast in February of 2016 to enable completion of the remaining analysis, the authoring and filing of a draft IRP, and the August filing of the 2016 IRP.

NW Natural notes that the Commission's Order in UM 1744 was entered on March 30th of 2016 and that any updating of the load forecast as a result of that Order would

[13] Page 4 of Staff Comments.
[14] See; e.g., slides 65 through 68.

therefore have served to delay the filing of the Company's 2016 IRP. It is not practical to update an IRP (and consequently delay an IRP's filing) to reflect new developments, especially where the impacts would be minimal or negligible, as would be the case here.

As a final point, the 2016 IRP assumes CHP load is not firm sales load, so updating assumptions about CHP load would not change the action plan in NW Natural's 2016 IRP.

Peak Day Forecast

NW Natural appreciates that Staff finds the changes made by the Company to its peak day forecast are an improvement. Staff comments:

> *The Company finds that day of week impacts peak day usage such that weekends and Fridays have lower usage than Monday through Thursday. The Company then computes its planning period peak day forecast under the assumption that the coldest temperature and a Monday through Thursday day of week will occur simultaneously. Rather than assuming a repeat of the highest heating requirement day in 30 years, the Company is creating a worst-case scenario by combining factors that did not actually occur on the historical highest heating day requirement.*
>
> *Staff recommends that the Company explore in its Reply Comments whether this approach overestimates the planning period peak day requirement.*

NW Natural understands Staff's concern, but believes it has not taken a conservative approach that is likely to overstate its resource needs for a number of reasons. To start, the following are all underlying assumptions of NW Natural's peak day forecast:

1. Supply-side and demand-side resources are 100% reliable and will be available at 100% of planned capacity on a peak day
2. The peak forecasting model is 100% accurate
3. A planning reserve margin is not required

Looking at these assumptions one at a time, one would conclude that each assumption is more likely to lead to a situation where too few resources are held in the portfolio to adequately meet loads under extreme conditions as opposed to too many resources being held, where the tendency is amplified since all of the assumptions are assumed in combination. NW Natural takes its commitment to provide reliable and affordable service to customers seriously and must be careful in adopting too many assumptions that put the Company at risk of not being able to serve its customers on the coldest days that can be seen in its service territory.

The improvements made to the peak day load forecast in the 2016 IRP greatly reduce the unexplained variation in day to day loads, which in turn greatly reduces the prediction error of a forecast on a given day.[15] One of the ways this better forecast precision[16] is obtained is by explicitly modeling the impact the day of the week has on load (where, if it is not explicitly modeled, the differences in load due to day of the week would be seen as error in the forecasted load).

However, day of the week and temperature are not correlated. Therefore, the chance that planning peak day weather will occur on any given day of the week is 1 out of 7. If we expect that peak weather will occur once in 30 years as is assumed by our planning standard, there is an equal chance it will occur on any given day of the week. Therefore, the chance that the weather seen on the planning peak day (weather from Friday Feb 3rd, 1989) would fall on a day other than Friday is 6 out of 7. Furthermore, if we used Friday as the assumed day of the week for the planning peak standard, we would expect that we would not hold enough resources to be able to meet our load requirements on 4 of the 7 possible days of the week that the peak day weather could fall even if the assumptions listed above hold true.[17] NW Natural believes that planning not to hold enough resources to meet its peak day load if the peak day weather fell on one of these four days of the week is taking too large a risk it will not be able to serve its customers during a peak day event.

V. SUPPLY-SIDE RESOURCES

Mist Asset Management Project

NW Natural discusses the Company's Mist Asset Management Project on pages 3.24 through 3.29 of the 2016 IRP, which includes an Action Item to repair or replace, depending in relative cost-effectiveness, the large dehydrator at Mist's Miller Station.[18] Comments from CUB include that it is unclear to CUB whether the large dehydrator serves core customers, interstate customers, or both.[19] NW Natural regrets the lack of

[15] Note, however, even though NW Natural adopts assumption 3 above that even with the substantial improvements made neither the R-squared or adjusted R-squared of the customer count or peak day use per customer models are equal to 1, so technically the Company would expect peak day load to exceed the forecast 50% of the time and be lower than the forecast 50% of the time.
[16] Note that the new peak day forecasting methodology has shown to be more accurate at predicting loads during extreme weather as well.
[17] Actually the probability is slightly less than 4 out of 7 given that lower usage is also seen on holidays and there are holidays in the December through February period where a peak day is possible which could fall on a Monday, Tuesday, Wednesday, or Thursday.
[18] This Action Item appears on page 1.18 of the 2016 IRP.
[19] Page 8 of CUB's Comments.

clarity on this point in the 2016 IRP: the large dehydrator is part of the integrated facility design and operation of Miller Station. Its costs are allocated entirely to core customers due to its original purchase and installation occurring several years prior to the commencement of interstate storage service.[20, 21] A dehydration unit was subsequently added in 2004 as part of an interstate storage expansion. None of this dehydrator's costs are currently in core customer rates; its costs are 100 percent allocated to interstate storage.

The current total rated dehydration capacity in core customer rates is 315,000 Dth/d. Total Mist core customer reservoir and compression capacity is 305,000 Dth/d. Scheduled Mist Recall is for 30,000 Dth/d in 2019, bringing total core customer reservoir and compression capacity to 335,000 Dth/d. At that point in time, the entire capacity of the dehydrator unit under discussion will be fully needed for core customers. Core customers will also need to recall a portion of the other dehydrator unit's capacity as well.

While CUB states it does not oppose NW Natural's investment in Miller Station, it recommends the Commission either not acknowledge this Action Item, or acknowledge with the condition that "rate recovery is dependent on completion of a cost study which demonstrates that captive customers are subsidizing neither interstate storage nor interstate storage optimization."[22]

NW Natural understands CUB's concern. At the same time, the Company is very uncomfortable with deferring projects essential for providing reliable service to core customers pending the conclusion of a proceeding that does not evaluate the need for investments. It is the IRP that analyzes what resource investments are required to meet customer needs.

The Company feels strongly that acknowledgement of a resource decision is appropriately based on analysis showing both the need for the resource and that the proposed solution represents the best combination of cost and risk for customers. Prudently maintaining NW Natural's Mist underground storage facility is the best combination of cost and risk for customers regardless of how costs to repair or replace the large dehydrator may be allocated.

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[20] Footnote 15 on page 3.29 of the 2016 IRP includes that NW Natural "anticipates that costs of any repair to or replacement of the large dehydrator at Miller Station will be allocated to utility customers."
[21] NW Natural anticipates that results of the cost study ordered in Docket No. UM 1654 will include, in addition to the condition described here, that there are Mist underground storage assets providing service for both core and interstate storage customers that are currently allocated entirely to the latter customer group.
[22] Pages 9 and 10 of CUB's Comments.

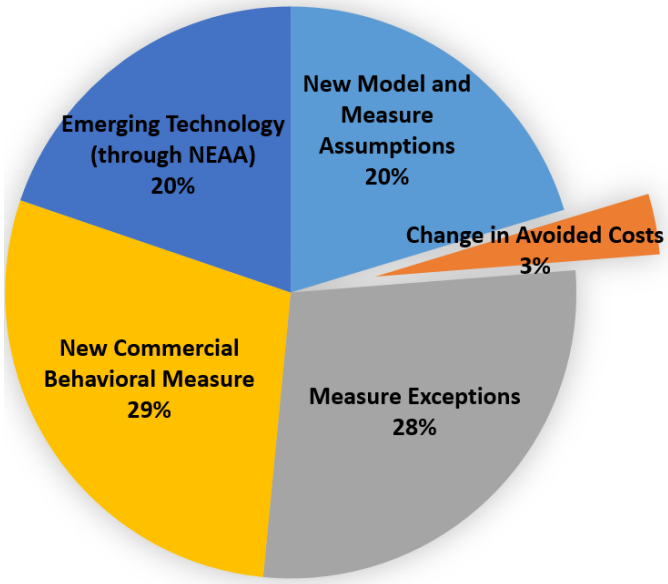
Should resolution of cost allocation issues associated with NW Natural's Mist underground storage facility in Docket No. UM 1654 occur prior to the Company incurring any costs to repair or replace the large dehydrator, such resolution may inform the allocation of these costs once incurred. Conversely, if these issues are not resolved prior to NW Natural incurring these costs, the Company will allocate such costs in the same manner as costs of the large dehydrator system are currently allocated; i.e., to utility (core) customers. NW Natural believes this approach is not inconsistent with Order No. 15-066 in Docket No. UM 1654, and direction provided by the Commission in the form of an Order in that proceeding may result in reallocation of these and other costs.

VI. DEMAND-SIDE RESOURCE AND AVOIDED COSTS

NW Natural is committed to doing its part to ensure all cost-effective energy efficiency is acquired as the Company recognizes the value of energy efficiency to its system, its customers, society, and the environment. The Company is appreciative of the great work of Energy Trust of Oregon (Energy Trust) in providing energy savings for our customers. As Staff's comments point out, a combination of factors has led to a substantial increase in the DSM savings projection in the Company's 2016 IRP relative to the 2014 IRP. Figure 1 breaks down the components of the increase in the cumulative expected DSM savings in Oregon over the IRP planning horizon detailed in the IRP and listed in Staff's Comments. The figure represents the expected cumulative impact of DSM efforts over the IRP planning horizon by showing the cumulative annual expected therms saved for the last year in the planning horizon (2036):

Figure 1:

Breakdown of Increase in Cumulative 2036 Annual Energy Efficiency Savings from 2014 to 2016 IRP



Change Component	EE Savings Change (Therms/year in 2036)
New Model and Measure Assumptions	11,008,514
Change in Avoided Costs	1,855,997
Measure Exceptions	15,047,381
New Commercial Behavioral Measure	15,534,076
Emerging Technology (through NEAA)	10,707,753
Total Change from 2014 to 2016 IRP	**54,153,720**

Data provided by Energy Trust of Oregon

It is important to note that if there were not measure exceptions in place the improvements in avoided costs made in the 2016 IRP would mean that cumulative annual savings would be 1.86 million therms per year higher in 2036 than if the 2014 avoided costs were used (an increase of 2%). Additionally, the 2014 IRP did not originally include the projected savings from measures with exceptions (though these measures were incorporated into Energy Trust budgets) but have been included in the 2016 IRP, so savings from measures with exceptions can be represented as a change from the 2014 IRP. Furthermore, the inclusion of the new commercial behavioral measure and emerging technology in the 2016 IRP together account for roughly half of the increase in the savings projection from the last IRP. Lastly, Energy Trust's change to a new cost-effectiveness evaluation model with updated measure assumptions accounts for a significant portion of the increase.

Avoided Costs

NW Natural feels that its treatment of avoided costs (AC) in its 2016 IRP sets a standard for transparency and that the Company has demonstrated during the IRP technical workshops and in the IRP itself that the changes to the AC calculation methodology are an improvement upon prior IRPs. Additionally, the Company has detailed a path going forward that will result in further improvements. The Company appreciates Staff's recognition of the improvements made to calculating AC and is grateful for Staff's engagement on this issue. The high level of transparency the Company exhibited on this

topic in its IRP technical workshops and the IRP itself has helped generate a robust and important discussion on this topic. Even though, as is seen above, the current lay of the land is such that avoided costs have a relatively small impact on DSM savings projections relative to other factors, AC are a complex and important topic and the discussion on AC in Staff's opening Comments are much appreciated. Staff's Comments focus on two primary areas regarding AC: (1) venues, processes, scope, and implications; and (2) assumptions and methodological considerations.

Avoided Costs Venues, Processes, Scope and Implications

Staff's comments represent a shift in direction regarding the appropriate venue for updating AC calculation methodologies that seem to conflict with the Oregon Administrative Rules (OAR). Staff states "(w)hile Staff is open to NWN's proposed changes to AC methodology, Staff is uncertain if an IRP filing is the appropriate forum in which to effect such large changes in methodology."[23]

NW Natural believes the IRP is the appropriate venue to propose methodological changes to AC calculations per OAR 860-030-0007(1), and believed that Staff had taken the same stance until Staff's opening comments. Note that OAR 860-030-0007(1) states:

> *Investor-owned gas utilities shall file a proposed avoided-cost method and draft avoided costs with the least-cost plans pursuant to Order No. 89-507. Final avoided-cost information shall be filed within 30 days of Commission acknowledgment of the least-cost plan to become effective 30 days after filing. The avoided-cost method filed should be appropriate for determining the cost effectiveness of weatherization measures from the gas utility's perspective.*

Additionally, in meetings with Staff for Docket No. UM 1622 about what should be labeled the "hedge value" of DSM, NW Natural and Staff agreed that NW Natural's proposed changes to its AC methodology should be undertaken in an IRP process and that IRP technical working groups were the appropriate venue to present the changes and gather stakeholder feedback.[24] NW Natural presented these changes at an IRP technical workshop in line with this agreement where the methodological issues being raised in Staff's opening comments were covered in depth, and notes that concerns were not raised by Staff or other parties as to the appropriateness of proposing the changes in an IRP or on matters of content themselves.

NW Natural is willing to work with Staff to understand the appropriate venue to address

[23] Page 9 of Staff Comments.
[24] An email memorializing this is attached as Appendix 1.

avoided cost methodologies, but also notes that Staff does not state what process the Company should have used to address changes to its AC methodology nor the impetus for its change in direction or deviation from the OAR. Additionally, NW Natural is not supportive of Staff's recommendation that the "Commission open a docket to handle ongoing issues related to the utilities' avoided cost methodologies, and the process by which their EE avoided costs are updated"[25] without additional clarification. For example, why is this separate avoided cost proceeding superior to the IRP process, why deviate from the OAR, and is this meant to be a NW Natural specific proceeding?

NW Natural believes technical workshops, like those held during IRP processes, are particularly suited to presenting and reviewing AC methodologies. Additionally, beyond the opportunity for both informal stakeholder feedback at these technical workshops, IRPs provide ample opportunity for formal feedback through comments like these. As such, in agreement with the OAR, the Company believes IRPs are the appropriate venue for AC methodologies and creating additional processes is not beneficial.

Moreover, there seems to be a conflict between NW Natural's and Staff's view on the Company's role relative to AC and their implications. Staff states in its comments:

> *In much of its work behind the scenes and with customers, Energy Trust uses a weighted average blend of avoided costs for all gas measures across all three gas utilities served (by) Energy Trust. NWN comprises approximately 80 percent of Energy Trust's gas customer base. Given this, Staff will need to continue to work with stakeholders to determine what conversations NWN and Energy Trust have had with Cascade and Avista about the potential spillovers of NWN higher avoided costs. Also, Staff seeks clarification about whether Energy Trust is already applying this new methodology in its 2017 incentives and other calculations, or whether it is intended only for planning purposes.*

NW Natural understands its role in this process to be to calculate its AC as accurately as possible and transparently provide the methodology and calculations to stakeholders, customers, and Energy Trust for their review (noting Energy Trust runs measure cost-effectiveness screens and acquires all non-low income energy efficiency savings on behalf of NW Natural's customers). The Company believes it has done this in this IRP. NW Natural recognizes that Energy Trust uses a weighted AC figure, though does not see the relevance of this fact to a review of NW Natural's AC calculation methodology.

However, even though the Company does not feel the question about the implications of NW Natural improving its AC methodologies is appropriate in a review of said

[25] Page 10 of Staff Comments.

methodologies, in light of Figure 1 above the AC changes have a minor impact on expected energy efficiency programs, particularly in comparison to the other changes that have taken place in this IRP relative to updating the DSM savings projection.

NW Natural believes that the AC in the 2016 IRP are the best representation of the Company's AC and should be used to generate the IRP DSM savings projection, as was done in this IRP, and the Company prefers that the updated AC could be used in Energy Trust's Oregon system-weighting for 2017 incentives and budgets. Energy Trust is, however, correctly using the AC from NW Natural's 2014 IRP for its 2017 incentives and budgets to comply with OAR 860-030-0007, which requires IRP acknowledgment before adoption. As such, contingent upon acknowledgement of the 2016 IRP, Energy Trust will use the updated AC in their 2018 budgets and incentives.[26]

Avoided Costs Assumptions and Methodological Considerations

Again, NW Natural is grateful for Staff's engagement on the assumptions and technical details of the Company's AC calculation methodology. The Company hopes the following clarifications and suggestions for moving forward will alleviate many of Staff's concerns.

Staff's comments list the "new elements" of NW Natural's 2016 AC as:

- *Financial Risk: Hedge value of Demand Side Management (DSM)*
- *Environmental Risk: Future, state carbon policy*
- *Infrastructure Risk: Peak day supply capacity resources*
- *Infrastructure Risk: Distribution capacity*

NW Natural is uncomfortable with this characterization as the Company would only categorize one of the components of its avoided costs as a "risk" component, and that is the commodity price risk component, or the "hedge value of DSM." As the Company states on page 5.5 of the IRP, "(w)hile 'the cost to achieve natural gas price certainty' is a more accurate representation of this component of avoided costs, the name has been kept for convention and recognition from the Oregon PUC process that led to its inclusion." This is different than costs that will be avoided from the purchase and delivery of natural gas if energy is saved. While the costs of each of the other components listed by Staff as "risks" are uncertain, NW Natural does not concur with the characterization of these components, which are forecasts of different types of costs, as "risk" components. Numerous components of the IRP are uncertain, though we do not refer to forecasts of them in this manner. While supply capacity costs can be

[26] Note that the Washington Utilities and Transportation Commission (WUTC) has asked Energy Trust to use the updated avoided costs figures for NW Natural's/Energy Trust's Washington programs and the new AC are now being used in 2017 in Washington.

uncertain, they are actual costs that are avoided with peak period EE savings, and are not costs associated with the risk of these costs. Please note that the Scenario analysis conducted by NW Natural regarding AC in the 2016 IRP is a risk analysis of these uncertain costs.

A. Carbon Policy Costs

Staff states in page 11 of its comments:

> *While carbon risks and cost will vary by organization they are not necessarily specific to the utility territory. This raises the question as to what precedent NWN is setting for all Oregon utilities in explicitly building in a carbon price into its avoided costs. A determination will need to be made regarding whether NWN's approach that adopts a carbon cost in the avoided cost methodology is in line with Commission Orders 07-002 and 08-339.*

NW Natural feels it is appropriate to review the relevant Oregon IRP guideline cited in Staff's comments:

Guideline 8: Environmental Costs

a. *BASE CASE AND OTHER COMPLIANCE SCENARIOS: The utility should construct a base case-scenario to reflect what it considers to be the most likely regulatory compliance future for carbon dioxide (CO_2), nitrogen oxides, sulfur oxides, and mercury emissions. The utility also should develop several compliance scenarios ranging from the present CO_2 regulatory level to the upper reaches of credible proposals by governing entities. Each compliance scenario should include a time profile of CO_2 compliance requirements. The utility should identify whether the basis of those requirements, or "costs," would be CO_2 taxes, a ban on certain types of resources, or CO_2 caps (with or without flexibility mechanisms such as allowance or credit trading or a safety valve). The analysis should recognize significant and important upstream emissions that would likely have a significant impact on its resource decisions. Each compliance scenario should maintain logical consistency, to the extent practicable, between the CO_2 regulatory requirements and other key inputs.*

NW Natural has complied with IRP Guideline 8(a), which is a major focus of Chapter 4 of the 2016 IRP, with the discussion in section 3.4 starting on page 4.10 of particular interest. As such, the Company does not believe that its approach regarding including expected regulatory compliance costs is precedent-setting or novel. Rather, this approach taken is required by the Commission's IRP guidelines. Since the form of carbon

regulation as it pertains to LDCs in Oregon is highly uncertain at this time, but can reasonably be expected over the IRP planning horizon, NW Natural has chosen to use a carbon price as the proxy for compliance costs associated with a prospective carbon policy. The Company has forecasted the timing of this generic prospective carbon policy impacting Oregon LDCs starting in 2021.[27] NW Natural agrees with CUB that "carbon regulation is likely to occur at some point over the planning horizon, and a prudent utility should incorporate expected carbon costs into its IRP planning. This is critical in evaluating long-term investments whose useful lives will likely include a period of carbon regulation. For DSM programs, this makes a lot of sense. Weatherizing a home will reduce natural gas usage and at some time in the future that usage reduction is likely to reduce NW Natural cost of carbon regulation."[28]

NW Natural would like to point out that forecasting 20 years out is a daunting task with much uncertainty, so it is certain that some of the forecasts in the 2016 IRP will not come to pass. However, the challenge of forecasting policy and its outcomes over 20 years is particularly formidable. When there was less certainty about the specific form of carbon regulation for electric utilities (before the passage of SB 1547), Oregon's IOUs included a carbon price to represent uncertain carbon policy—including in evaluating demand-side resources—as NW Natural has done in its 2016 IRP.

B. Peak Supply Capacity Costs

Staff also states:

> *The inputs into the new element "supply capacity value" are based on the Energy Trust's EE activities fully avoiding the construction of the new North Mist II storage facility in 2026. Staff needs clarification from NW Natural as to the amount of additional EE that must be installed on its system, given projected rates of growth, for Energy Trust's EE activities to avoid the construction of this new storage capacity in less than 10 years.*

This is an inaccurate description as NW Natural's AC are not assuming North Mist II will be "fully avoided" by EE activities. Avoided costs represent the incremental costs that would be incurred if an incremental therm of gas needed to be supplied. As such, the costs of the incremental capacity resource that would be needed at a given time represent the capacity costs avoided at the time. Currently—and over roughly the next decade—the incremental supply capacity resource that would be added if an

[27] See Figure 4.6 on page 4.13 of the 2016 IRP.
[28] See page 6 of CUB opening Comments in this proceeding.

incremental therm of gas needed to be supplied[29] is Mist Recall, therefore the costs of Mist Recall represent the supply capacity costs component of AC over this period. Later in the planning horizon it is expected that Mist Recall will be exhausted and North Mist II will become the supply capacity resource that will be needed to serve the incremental load, so North Mist II's costs represent the supply capacity costs avoided over this time frame. Just as it is inaccurate to say that NW Natural's AC assume that all Mist Recall will be avoided, it is inaccurate to assume that the Company's avoided costs assume energy efficiency will avoid the North Mist II project.

Per page 5.7 of the 2016 IRP "the incremental supply resources that would be saved for each year in the planning horizon with DSM needed to be assumed before the supply resource optimization in order to assign a cost for the supply capacity costs being avoided." Also, from page 5.9:

> *Note that the current process assumes that supply resources are incremental rather than "chunky" resources, or in other words that they can be sized and acquired at any level and the costs are the same regardless of the capacity chosen for acquisition and costs are proportional to capacity (for example, if DSM savings on peak represent 10 percent of the savings needed to avoid a project it is assumed in this IRP that 10 percent of the costs of the resource are avoided through DSM savings) even though this is not typically the case. Additionally, since NW Natural secures supply resources for its entire service territory rather than by state, supply capacity costs avoided do not vary by state.*

In summary, NW Natural believes that using North Mist II's costs as the incremental supply resource costs avoided for the years it is the incremental supply resource is (1) the appropriate approach, (2) consistent with the Commission direction on calculating AC, and (3) consistent with the methodologies of other utilities and planning organizations in the State of Oregon, in the Pacific Northwest, and around the country in regards to valuing capacity costs saved from energy efficiency.

C. Value of Peak Reduction

Staff's comments:

> *The Company believes that the value of an energy efficiency measure's peak reduction is only to be found in its percent of reduction of load on a peak day. The Company asserts that measures such as water heating and*

[29] Note that as is discussed in detail in Chapter 5 of the 2016 IRP, whether this peak is on peak or not is of critical importance in calculating AC.

> *savings from interruptible customers avoid little to zero supply capacity costs associated with a peak day. However, a natural gas grid is not instantaneous. Gas can be stored within the system. Less energy demanded overall requires fewer overall injections and withdrawals from the grid's storage, in theory freeing up capacity during the peak. Staff is still unclear whether the Company's methodology could be underestimating the overall peak capacity benefit of these measures.*
>
> *Current Energy Trust goals and performance metrics are not orientated around peak-capacity reductions. While they are an element of any given EE measures, cost-effectiveness calculation, peak-capacity reductions are not a specific goal. Given the value NWN places on peak-capacity reduction embedded within these revised AC calculations, it is still to be determined if Staff and stakeholders should work with Energy Trust to develop peak-capacity goals.*

NW Natural mostly agrees with Staff's characterization of the Company's position regarding the value of energy efficiency as capacity resources that is described in great detail in Chapter 5, Appendix 5 and Appendix 6 of the IRP, though would like to clarify that NW Natural believes the following: *capacity*[30] costs avoided by energy efficiency are proportional to how much savings on peak come from the EE measure. From page 5.7 of the IRP:

> *It is important to incorporate the capacity costs avoided with energy conservation into the DSM cost-effectiveness process as energy conservation provides real capacity cost savings, but if it is assumed that each unit of energy savings provides the same level of capacity cost savings, which is the assumption made if all DSM savings are provided the same value for capacity avoided costs, this understates the value of savings from space heating measures and overstates the value of savings from base load and interruptible measures. This would lead to both non cost-effective energy efficiency being acquired (relative to base load and interruptible measures) and cost-effective space heating energy efficiency not being acquired.*

Furthermore, NW Natural does not simply "assert" how much peak savings come from different end use measures. Rather, the Company quantifies these savings in a transparent manner using customer data. As Staff points out, NW Natural is pioneering this quantification effort for LDCs, so the Company realizes there are likely refinements

[30] Note that costs associated with the actual natural gas commodity and environmental costs are avoided for each and every therm saved equally, regardless of whether those therms come on peak or not.

possible to improve the peak savings calculations and its assumptions as this frontier is further explored.

NW Natural appreciates Staff's comment on the role of storage injections and withdrawals during non-peak periods and their impact on the availability of capacity resources during peak times and recognizes this impact does exist. Though NW Natural will need to complete further work to better quantify the impact of non-peak period storage withdrawals on peak period capacity resource availability, much of this effect is already accounted for by using SENDOUT® to calculate the commodity and variable transmission component of AC. Even so, the Company commits to explicitly calculating this impact for the 2018 IRP. The Company is certain, however, that the costs avoided due to this impact are dwarfed relative to direct savings on a peak hour and day and this would be an incremental improvement in comparison to the calculations undertaken regarding peak day EE savings by end uses in the 2016 IRP.

D. Tracking of Peak Day Savings

NW Natural would like to clarify that DSM action item 3[31] does not state that NW Natural seeks acknowledgement of working with Energy Trust to develop peak-capacity goals. The action item merely seeks acknowledgement that NW Natural will work with Energy Trust to track peak day savings to better understand if the capacity costs assumed avoided in AC are actually being saved and to start collecting data so the value DSM provides as a capacity resources can be better measured, quantified, and understood going forward. NW Natural feels that this quantification is an active field of study in the energy efficiency arena[32] and widely recognized as a step in the right direction in better understanding the full value of energy efficiency to the energy system. Consequently, while NW Natural would be supportive of Energy Trust developing peak-day savings goals along with annual savings targets, our action item is restricted to seeking acknowledgement of the initial step of tracking peak savings and not about goals for achieving them.

E. "Targeted" DSM Pilot

NW Natural appreciates Staff's support for an upcoming "targeted" DSM pilot filing with Energy Trust and would like to draw the link to the value energy efficiency can provide as a capacity saving resource in addition to an energy saving one and the need to better understand how much capacity acquisition is avoided through DSM. NW Natural believes the pilot would be a first of its kind for gas LDCs in the country and, though

[31] See page 5.17 of the 2016 IRP.
[32] An example being recent work by the Northwest Power and Conservation Council's Regional Technical Forum (RTF)

there are valid concerns about "targeted" DSM's potential as a capacity resource at the distribution system level, much can be learned from the effort that is necessary for this potential to be understood and incorporated in to integrated resource planning. That being said, NW Natural never proposed a "targeted" DSM project (pilot or otherwise) in the past as Staff suggests in regards to the South Salem Feeder supply-side project considered in the 2014 IRP.

F. South Salem Feeder

Staff misstates the history of the South Salem Feeder project.[33] In its 2014 IRP, the Company identified a needed capacity resource to serve the Salem load center. At the Special Public Meeting on November 4, 2014, the Commission asked the Company to look at an accelerated DSM alternative for the Salem area and to assess the impact of that alternative on the need for and timing of the proposed South Salem Feeder. NW Natural worked closely with Energy Trust to evaluate different program structures to avoid or delay the project. That work ultimately showed that accelerated/targeted DSM was unlikely to be cost-effective. At no point did NW Natural bring forth a capacity deferral pilot project. Indeed, in its final comments on the South Salem Feeder action item in the 2014 IRP, the Company stated:

> *As Staff noted in its comments, the assumptions used in the analysis of acceleration of DSM in conjunction with Energy Trust used broad state-level assumptions. NW Natural agrees that a more detailed look into the Salem area could conceivably show more resource potential. While the potential to delay South Salem Feeder with accelerated DSM may be technically possible, it is far from certain to be feasible or economic to attempt to do so. Because Energy Trust has no experience with acceleration of measures within a load center, its assumptions about market adoption and the costs of acceleration are not empirically derived (Energy Trust has not previously tried to accelerate DSM programs in a specific area) and therefore highly uncertain.*

After making modeling improvements to the assumptions of gas supply availability in the Salem area, as described in Chapter 8 of the 2016 IRP and consistent with the acknowledged action item in the 2014 IRP, the Company saw no need to move forward with the project.

Though it was far from the only reason NW Natural decided to approach Energy Trust about including an action item in the 2016 IRP on a "targeted" DSM pilot, the experience of the South Salem Feeder process and the work completed relative to "targeted" DSM was an important piece of the information pie that led to the Company proposing the idea of a "targeted" DSM pilot in this IRP. The South Salem Feeder

[33] Page 9-15 of Staff's Final Comments on the Company's 2014 IRP in LC 60 detail much of this history.

experience illuminated how much is unknown about using DSM as a capacity resource and how much would need to be learned for it to be a feasible option for consideration in addressing system needs. NW Natural believes a pilot project is the appropriate way to gain these learnings and is seeking acknowledgement of the idea it should allocate resources to the idea and file a "targeted" DSM pilot for review as a result.

In this light, NW Natural is uncomfortable with Staff stating "if the Commission had allowed NWN to install the additional metering proposed within this IRP for the South Salem project, ratepayers would have incurred unnecessary costs and Energy Trust may have overspent on accelerated/targeted DSM acquisition."[34] Had NW Natural proposed a capacity deferral project in Salem—which as has been established it did not do—as always the decision to go forward with a pilot and the outcome are separate issues where the typical standard of prudence applies. That being said, if a "targeted" DSM project had gone forward in Salem, the research questions of a pilot on page 6.31 of the 2016 IRP could have been answered, though the cost of answering these questions may have been higher than is necessary as Salem does not meet the initial parameters for a pilot found on page 6.32 seeing as it is too large of an area.

Responses to Staff Requests Provided By Energy Trust

NW Natural would like to note that Staff's comments on Demand-Side Management contained several instances of requests for the Company to provide data within its reply comments. While NW Natural has replied to these requests in its comments, the Company has concerns about this approach, and would prefer that data be developed and shared through the data request process, rather than in comments, where sharing data is more difficult to present and not always relevant.

Staff's comments contain a number of questions or requests regarding the DSM savings projections in the 2016 IRP that Energy Trust has provided responses for:

> *Staff request: NWN's Oregon "achievable potential" detailed in Table 6.1 does not match its Oregon "achievable potential" in Figure 6.3 on the following page.*
>
> *Staff requests the Company to provide in its Reply Comments an explanation of this difference.*

Energy Trust Response: While the achievable potential detailed in Table 6.1 is designed to show the total achievable resource potential over the 20-year forecast period, Figure 6.3 is designed to show the levelized cost threshold for the cost-effective achievable potential. The dotted vertical lines represent the levelized cost thresholds for cost-

[34] Page 12 of Staff Comments.

effective achievable potential for the 2014 and 2016 IRPs respectively. There are significant amounts of achievable (but not necessarily cost-effective) savings potential in the model at a higher levelized cost than the $4.50/therm levelized cost at the end of the x-axis shown in Figure 6.3. The scale of the x-axis for Figure 6.3 was deliberately set to illustrate the cost-effectiveness cut off of the achievable potential. Per Table 6.1 there are resources included in the achievable potential that have a levelized cost as high as $150/therm but including the full continuum of resources in the x-axis in Figure 6.3 would make it difficult for the reader to see the cost-effectiveness threshold in relation to the achievable potential resource curve.

> *Staff Request: Staff further requests the Company to state whether it meant for the term "conventional" and "commercially available" to be used synonymously on page 6.10.*

Energy Trust Response: Yes, that is correct, in this context 'conventional' and 'commercially available' mean the same thing. In the future we will better align the terminology used between text and figures.

> *Staff Request: Staff further requests the Company to explain Northwest Energy Efficiency Alliance's (NEEA) new activities in gas market transformation can be characterized in terms of sectors being impacted and potential future savings and given the technologies NEEA chooses to focus on, if they have any impact on NWN peak-capacity.*

Energy Trust Response: NEEA's gas program work is focusing on the residential and commercial sectors – no current industrial sector measures are in the works. NEEA is about half way through their initial 5-year plan, dated February 23, 2015 and covering the span of 2015-2019. The following table is taken from page 11 of the 5-year business plan and was amended to include the market segments being targeted. This table shows the Sector, technology program, 20-year prospectus-level forecasted savings potential and associated 20-year total resource cost (TRC) levelized cost per therm.

Table 1: 20-year Portfolio Cost-Effectiveness

Sector(s)	Program/Technology	20-Year Savings Potential - Therms	TRC Cost-Effectiveness $/Therm
Residential & Light Commercial	**Gas Fired Heat Pump Water Heater**	**104,564,346**	**$0.39**
Residential & Light Commercial	**Combo Heating + Hot Water GF-HP**	**163,643,995**	**$0.37**
Residential & Light Commercial	**Hearth Products**	**10,535,660**	**-$2.26**
Residential	**Clothes Dryers**	**3,600,000**	**TBD**
Commercial	**Rooftop HVAC**	**TBD**	**TBD**
Total:		**282,344,002**	**$0.28**

The most recent NEEA Gas progress update and draft Operations Plan for 2017, published in September, 2016 indicates that they are not forecasting any therm savings during this 5-year plan. Hearths, rooftop HVAC, and combination units all have the potential to reduce peak load related to space heating.

Referring to the discussion on page 6.19, Staff requests NWN to provide in its Reply Comments, the percentages of Energy Trust's 2015 NW residential, commercial and industrial savings, which resulted from energy efficiency measures that have an exception.

Energy Trust Response:

Table 2:

Sector	Program Groups	Reportable Therms (Measures with No Exception)	Reportable Therms (Measures WITH Exceptions)	% of Program Total	Notes
Commercial	Existing Buildings	1,508,932	4,183	0.3%	
Commercial	New Buildings *	445,070	8,070	1.8%	Savings from exceptions are from 'Market Solutions Packages'. Only a small portion of these savings are from measures with exceptions.
Industrial	Industry and Agriculture	2,017,608	-	0.0%	
Residential	Existing Homes	780,093	90,895	10.4%	
Residential	New Homes and Products **	677,369	3,094	0.5%	Savings from exceptions are from EPS new construction homes. Only a portion of these EPS pathways require an exception.
	Totals:	**5,429,072**	**106,242**	**1.9%**	

* Therms from measures with exceptions are part of 'market solutions' packages and represent only a fraction of the 8,070 therms reported here

** Therms from measures with exceptions shown here are from EPS pathway 4 only of the New Homes program. This is 0.97% of the program's gas savings

Staff further requests the Company explain what impact the change in Avoided Cost for the 2016 IRP will have on these measure's benefit cost ratios.

Energy Trust Response: For measures that will be offered in 2017, if Energy Trust were to update measure approval documents (MAD) with Avoided Costs (AC) from the 2016 IRP only, and leave all other savings and cost assumptions static (not standard procedure—when MADs are updated all assumptions are revisited and AC is only one assumption), there would be an impact on the Total Resource Cost (TRC) test that ranges from a decrease of -22% to an increase of 43%. This range of impact is dependent on the measure's expected useful life (measure life), the amount of peak savings the measure provides to avoid capacity costs, and the version of the avoided costs that were used at the time the measure was subjected to the TRC test and formally approved as an offering.

For example, weatherization measures like ceiling insulation that save space heating load and have a 45-year measure life, capture a significant amount of value from the new incremental carbon policy adder and supply and distribution capacity benefits. In the case of the supply capacity value, its value increases almost ten times in year 11 and provides greater value to those measures with longer lives. The TRC for insulation measures increases by 42-43%. Tank water heating measures on the other hand, decrease by 11-12% because they have a shorter measure life of 13 years and capture very few of the capacity benefits related to peak day savings.

There are two measures that become cost-effective when NWN's new 2016 IRP avoided costs are introduced to the cost-effectiveness analysis presented in their respective MADs and all other cost and savings assumptions stay the same. These include residential gas furnaces for rental properties and ceiling insulation in zone 2 (zone 1 ceiling insulation increases from 0.66 to 0.95). The remaining measures show relative increases or decreases as discussed above, but still fall within a range of TRC scores between roughly 0.3 and 0.85.

VII. ENERGY POLICIES AND ENVIRONMENTAL CONSIDERATIONS

Upstream Methane Emissions Reduction Pilot

NW Natural appreciates the comments from both Staff and CUB regarding our proposal to develop a pilot to reduce methane emissions upstream of the Company's system. While both parties appear generally supportive of exploring this approach to reduce the environmental footprint of our customers' usage, they raise concerns regarding it being included as an action item within the IRP. With the help of ICF, the Company has begun to investigate the technical potential and possible costs of going upstream to achieve methane leakage reductions and believes further investigation makes sense based upon this initial work and that a pilot project is likely the appropriate next step.

It is, and always has been, the Company's intent to bring a fully designed stand-alone methane pilot project forward for Commission approval on its own merits in a filing outside the 2016 IRP. The Company recognizes it has not provided sufficient detail for review of an actual pilot, and the Company did not intend to provide that level of detail with its action item. Rather, the action item was included to give stakeholders a chance to weigh in on policy matters regarding this potential pilot concept and to determine if stakeholders feel further work in this area is worth pursuing.

NW Natural is willing to remove or reword the action item. The Company is only asking that a discussion of this concept continues in this IRP and hopes to hear from the Commission regarding this novel approach to reducing greenhouse emissions before allocating limited resources to take the next step.

Interaction between standard resource planning and SB 844

In their comments, CUB raises a number of concerns about the interaction between standard resource planning exemplified in the IRP and voluntary projects under SB 844. Ultimately, they recommend the Commission not acknowledge the action item but that the Company should further investigate upstream methane reductions to potentially bring a pilot forward under SB 844. NW Natural does not feel its position is so different from CUB's and hopes to clarify its view while also identifying some unanswered questions regarding application of the Commission's IRP guidelines.

- *Incorporating expected environmental compliance costs is required under Oregon's IRP guidelines*

IRP guideline 8(a), which can be found on page 13 of these comments, details that utilities should include expected compliance costs as well as "recognize significant and important upstream emissions that would likely have a significant impact on its resource decisions" in the resource planning analysis in their IRPs. As noted earlier in these comments, while it is particularly difficult to forecast policy 20 years into the future, NW Natural has complied with this guideline. Furthermore, CUB agrees with the Company's inclusion of a state policy carbon proxy adder in its base case resource planning, saying "CUB agrees with NW Natural that carbon regulation is likely to occur at some point over the planning horizon, and a prudent utility should incorporate expected carbon costs into its IRP planning." CUB, however, continues:

> *But at the same time, carbon regulatory costs do not currently affect NW Natural's system. If NW Natural's upstream emission reduction program is focused on short-term gas purchases that are cleaner, but there is no basis to forecast carbon regulation during the period of those short term purchases, then it is a voluntary activity that goes beyond what a prudent utility would do. But those programs should be considered SB 844 programs.*

NW Natural agrees with CUB on this point and notes that its state carbon policy proxy adder for Oregon starts in 2021. Therefore, if a hypothetical methane pilot focuses on greenhouse gas benefits from methane achieved prior to 2021, NW Natural would consider this a voluntary activity and the Company would file the pilot under SB 844.

- *Achieving long-term greenhouse gas reductions from upstream emissions may raise unanswered questions regarding the proper interpretation of the IRP guidelines*

The Company is also considering options for reducing upstream methane leakage that could have impacts beyond the near term. Hypothetically, if the Company could design a program option that would reduce long-term greenhouse gas emissions for the remaining life of the production well at a cost lower than the expected price of compliance during a period of expected or known compliance costs NW Natural believes this is complying with the Commission's integrated resource planning guidelines.[35]

Since the IRP guidelines explicitly call for consideration of upstream emission costs, NW Natural's interpretation is that upstream methane leakage reduction activities are similar to electric generating unit decisions for electric utilities, where upstream emissions and expected environmental compliance costs are explicitly part of the prudent resource decision analysis. NW Natural looks forward to engaging with stakeholders and the Commission in a continued dialogue on how IRP guideline 8(a) should be interpreted and how the IRP guidelines and SB 844 should be considered.

Conclusion

NW Natural's 2016 IRP complies with the guidelines established for IRPs and the Company requests the Commission's acknowledgement of its Plan as filed.

[35] Note the IRP guidelines drives the Company's thinking regarding whether upstream methane leakage reduction is prudent resource planning or a voluntary activity, and the Company has not considered the existence of the 4% cost cap in SB 844 in its thoughts on the pilot, as is suggested in CUB's comments.

Lenar, David P.

From: Gross, Jennifer
Sent: Wednesday, December 10, 2014 2:22 PM
To: ADAMS Aster; GORSUCH Lisa; Juliet Johnson (Juliet.Johnson@state.or.us)
Cc: Bracken, Ryan; Lenar, David P.; Storm, Steve; Linver, Tamy
Subject: UM 1622 Hedge Value and Refining Avoided Costs

All –

Below is a recap from our meeting on Monday regarding a proxy for hedge value. Attending from OPUC Staff were Aster Adams, Juliet Johnson, Lisa Gorsuch and Michael. Attending from NW Natural were Tamy Linver, Ryan Bracken, Jennifer Gross, and Dave Lenar.

The objective was to discuss what should and could be done in regards to determining a proxy hedge value for DSM and to improve the avoided cost value in response to the Commission's call for a report on the progress by April 1, 2015.

Initially, the Company expressed concern that while it would like to take a leadership role among Oregon LDC's in determining a more realistic avoided cost methodology, it saw the development of a hedge value within the broader avoided cost issue. Further, NW Natural was concerned that any temporary proxy value would be seen as the Company's number and that it would have to defend it for the foreseeable future, regardless of how comfortable it was with the validity of the figure to begin with. By means of example, the Company suggested that perhaps the premium value was zero and provided a theoretical reasoning for this case. This led to a conversation about what exactly was included in this hedge value or rather were we really talking about a premium value. Staff provided a worksheet that showed how the electric utilities develop their premium values, with separate columns for both stochastic risk reduction and capacity resource deferral as part of the "hedge" value of DSM. This helped clarify the conversation in identifying that the disagreement was not about what should be included in avoided costs, but a definitional one about what portions of avoided costs should be labeled the "hedge value." More specifically, both parties agreed that there are adders that should be considered to avoided costs and both parties agree that there is also the potential for a hedge value premium due to commodity price uncertainty. Additionally, both parties agreed that looking at a new methodology for LDC's to model avoided costs should be considered, though this discussion should include other stakeholders. Thus, it was agreed that both categories of avoided costs (stochastic risk reduction and capacity resource deferral) should be discussed in workshop/proposal/ or discussion document to be provided at a future workshop.

With the understanding that both "buckets" would be discussed, the conversation returned to what could reasonably be done by April 1st in regards to a temporary proxy value for the stochastic risk reduction portion of avoided costs (what NW Natural sees as the hedge value of DSM) It was discussed that to gain additional buy-in a workshop could be held with a small group of interested parties such as NWIGU, CUB, NWEEC, and the ETO. Within the context of this workshop, the Company with the support of Staff could suggest a proxy value, then articulate all the caveats that should be considered as part of the hedge value as well as all the additional items that should be considered in avoided costs or under the Capacity Resource Deferral as the electrics have done. To do this, we agreed on the following plan and action items:

1) The Company would memorialize the meeting notes
2) Staff would send documentation as to what the electrics included in their stochastic risk reduction figure. (Note; This has already been completed)
3) The Company would come up with a starting proxy value, quite possibly being set at the average for Oregon electric utilities were already using as well as a discussion document of all the items that should be considered or discussed at the workshop. This document would be sent to Staff for their review prior to the workshop

4) **A workshop is targeted for February and with this email, the Company offers up the following potential meeting dates (with a preference for the week of February 9th):**
Feb 9th, 10th, 11th, 17th, 19th, 20th, 23rd, 25th, 26th or 27th

The outcome of this workshop would be to document the discussion and capture feedback from the various parties. Staff would then use this document and any resulting proxy value to meet their April 1 deadline for reporting back to the Commission.

The Company reiterated the importance of calculating both the hedge value and avoided costs correctly as well as underscoring the importance of feedback from the parties, which the Company and Staff agreed would be part of the Company's next (2016) IRP. The Company proposed, and Staff agreed, that IRP working groups are a good forum for a wider discussion about the avoided cost calculation, including but not limited to, stochastic risk reduction and capacity resource deferral values. The Company using its technical working group process would explore both buckets and propose a value and new avoided costs based on feedback and input from the working groups to be used in its 2016 IRP. To this end, Staff was going to contact the ETO to inquire about timing for when they are planning to model regional savings again.

Please let us know if you have any comments or revisions to this meeting summary.

Thank you.

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