



Oregon Citizens' Utility Board

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July 18, 2022

Public Utility Commission
Attn: Filing Center
P.O. Box 1088
Salem, OR 97308-1088

Re: UG 435 – In the Matter of NORTHWEST NATURAL GAS COMPANY, dba NW NATURAL, Request for a General Rate Revision.

Dear Filing Center:

The Oregon Citizens' Utility Board (CUB) files herewith a correction to its UG 435 Rebuttal and Cross Answering Testimony, originally submitted on June 30, 2022. CUB Table 1 was mislabeled as “lbs/metric tonne,” rather than simply “metric tonne.”

The testimony and exhibits attached here reflect these changes, and CUB respectfully requests that this updated testimony be filed on the Public Utility Commission of Oregon’s eDockets website.

CUB apologizes for any inconvenience. Please contact me if you have any questions with this filing.

Sincerely,

Michael P. Goetz, OSB #141465
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**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UG 435

In the Matter of)
)
NORTHWEST NATURAL GAS)
COMPANY, dba NW NATURAL,)
)
Request for a General Rate Revision.)
_____)

**REBUTTAL AND CROSS ANSWERING TESTIMONY
OF THE
OREGON CITIZENS' UTILITY BOARD**

June 30, 2022

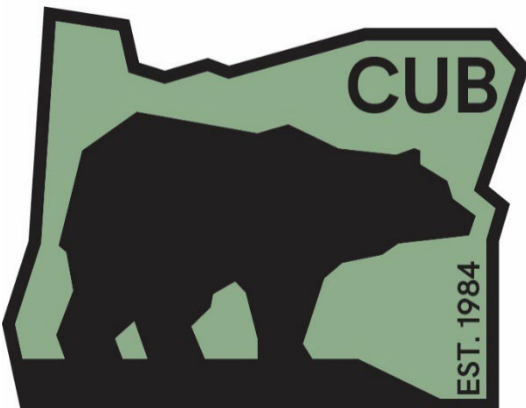


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**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UG 435

In the Matter of)	
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NORTHWEST NATURAL GAS)	REBUTTAL AND CROSS
COMPANY, dba NW NATURAL,)	ANSWERING TESTIMONY OF THE
)	OREGON CITIZENS' UTILITY
Request for a General Rate Revision.)	BOARD
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I. INTRODUCTION

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

2 **A.** My name is Bob Jenks. I am the Executive Director of the Oregon Citizens' Utility
3 Board (CUB). My business address is 610 SW Broadway, Ste. 400 Portland, Oregon
4 97205.

5 **Q. What is the purpose of your testimony?**

6 **A.** I previously provided Opening Testimony in this proceeding labeled as CUB Exhibit
7 100. In this Rebuttal and Cross-Answering Testimony, I address the response of NW
8 Natural (NWN or the Company) to my Opening Testimony. My Opening Testimony
9 discussed challenges to NWN's business model: technological advances, climate
10 change and greenhouse gas (GHG) emissions regulations, and cost.¹ My testimony
11 proposed several recommendations to problems that arise from these challenges. A
12 number of my recommendations have been addressed in settlement, which will be

¹ UG 435 – CUB/100/Jenks/1-6.

1 addressed in a forthcoming stipulation.² However, I continue to have concerns about
2 the challenges to the Company’s business model and believe that these challenges
3 compel an update to the Company’s Line Extension Allowance (LEA) policy.

4 **II. BUSINESS MODEL RISK**

5 **Q. How did the Company respond to your concerns about the challenges to its**
6 **business model?**

7 **A.** In my testimony, I cited the Company’s CEO as saying that the gas industry needed
8 to respond to its challenges in a manner that was akin to a “political campaign.”³
9 This is how I would characterize NWN’s response to my testimony—it reads as
10 political in nature. NW Natural repeatedly mischaracterizes my testimony and
11 misrepresents CUB’s position. Truth and nuance are often lost in political
12 campaigns. Exaggeration or misrepresentation of a political opponent’s position is a
13 common practice. However, we are not engaged in a political campaign. This is a
14 regulatory proceeding in which decisions must be based on the evidentiary record.
15 NWN’s allegations aimed at CUB, mostly without citation, should be ignored.⁴
16 CUB’s position is described fairly and accurately by CUB witnesses. The Public
17 Utility Commission of Oregon (Commission) should not rely on NWN’s claims
18 without citation about what CUB said or what CUB believes but is “unstated.”⁵

² UG 435 – Third Settlement Update (June 17, 2022) available at <https://edocs.puc.state.or.us/efdocs/HAH/ug435hah143857.pdf>.

³ CUB Exhibit 104.

⁴ See, e.g., UG 435 – NWN/1700/Heiting-Bracken/2, line 15; p. 5, line 4; p. 5, line 9; p. 6, line 17; p. 8, line 4; p. 8, line 9; p. 9, line 10; p. 9, line 15; p. 16, line 8; p. 16, line 10; p. 23, line 1; p. 38, line 9; p. 53, line 12; p. 53, line 18; p. 54, line 12; p. 70; line 14; p. 71, line 1; p. 71, line 7; p. 71, line 16; p. 73-74; p. 76, line 13.

⁵UG 435 –NWN/1700/Heiting-Bracken/16 (“The CUB proposal rests on the unstated belief that the electric utilities in Oregon can serve all new (and over time much of the existing) building load and do so with fewer emissions and at a lower cost than gas.”).

1 Evidence must be stated in order for the Commission to consider it. Unfortunately
2 for the Company, the Commission does not “reject the subtext underlying” an
3 argument, it considers the party’s actual argument.⁶
4

5 It is important to recognize that CUB is not NWN’s opponent. CUB represents
6 NWN’s customers. Our concern is what is best for the customers of NWN. I
7 personally have a gas furnace in my home. CUB believes that both regulators and
8 customers need to understand the risks associated with the gas system in a state that is
9 committed to reducing GHG emissions and evaluate them when making regulatory
10 policy decisions or when making decisions concerning the equipment they are putting
11 into their homes. Importantly, CUB is not making a “rush to judgment” regarding the
12 future of the natural gas system, as the Company erroneously states.⁷ Rather, CUB is
13 advocating for a full and frank discussion of *current* gas system risks in order to
14 determine whether revisiting existing policies is necessary.
15

16 I am surprised by the Company’s reaction to my testimony. I discussed three
17 challenges to the Company’s business model: the technological challenge related to
18 heat pumps, the climate change challenge associated with decarbonizing a fossil fuel
19 system, and the cost challenge as cheap natural gas is replaced by more expensive
20 renewable natural gas (RNG) and hydrogen. NWN is not hearing about these
21 challenges for the first time in this proceeding. The Company already addressed all
22 of these challenges and risks in its 2020 Annual Report to shareholders (10-K):

⁶ UG 435 – NWN/1700/Heiting-Bracken/9.

⁷ UG 435 – NWN/1700/Heiting-Bracken/6.

- 1 • The technological risk associated with heat pumps could negatively affect
2 earnings:

3 Technological improvements such as heat pumps, batteries or other
4 alternative technologies could erode NW Natural's competitive
5 advantage . . . [which] could have a negative impact on . . . NW
6 Holdings' and NW Natural's results of operations.⁸

- 7 • The GHG emissions reduction efforts may not be fast enough or effective:

8 NW Natural believes natural gas has an important role in moving
9 the Pacific Northwest to a low carbon future, and to that end is
10 developing programs and measures to reduce carbon emissions.
11 However, NW Natural's efforts may not happen quickly enough to
12 keep pace with legislation or other regulation, legal changes or
13 public sentiment, or may not be as effective as expected.⁹

- 14 • The price risk could reduce demand for their product:

15 If natural gas prices rise relative to other energy sources, or if the
16 cost, environmental impact or public perception of such other
17 energy sources improves relative to natural gas, it may affect NW
18 Natural's ability to attract new customers or retain our existing
19 residential, commercial and industrial customers, which could have
20 a negative impact on our customer growth rate and NW Holdings'
21 and NW Natural's results of operations.¹⁰

22 The challenges and risks are real and should be considered when evaluating the
23 policies and mechanisms like the Company's LEA. Rather than acknowledging that
24 these are real risks and discussing the implications of these risks on NWN's
25 customers, the Company misrepresents CUB's testimony and attempts to broaden the
26 narrow issue before the Commission in this proceeding. That issue is whether current
27 subsidization warrants revisiting the Company's LEA.

28 **Q. NWN's 10-K explains the above challenges as risks that the Company faces. Do**
29 **NWN's customers also face risks associated with these challenges?**

⁸ NW Natural 2020 Annual Report, page 24, *available at*
annualreports.com/HostedData/AnnualReports/PDF/NYSE_NWN_2020.pdf.

⁹ NW Natural 2020 Annual Report, p. 28.

¹⁰ NW Natural 2020 Annual Report, p. 24.

1 A. Yes. As my Opening Testimony demonstrated and this testimony will detail, due to
2 regulatory compliance costs from the Oregon Department of Environmental Quality's
3 Climate Protection Program (CPP), adding new customers no longer provides a
4 benefit to existing customers. The Company's existing LEA warrants reexamination
5 under this fact alone. However, customers are also faced with many additional risks
6 due to the changing nature of the gas system, and future carbon regulation may add
7 additional cost and risk to NWN's customers.

8
9 However, the goal of this proceeding is not to speculate regarding the future of the
10 natural gas system in Oregon. Rather, the Commission must determine whether
11 NWN's rates are just and reasonable overall,¹¹ which includes an examination of
12 whether *current* subsidies and costs warrant a reexamination of the Company's LEA.

13
14 The Company seeks to broaden the discussion in this proceeding by suggesting that
15 CUB is attempting to create a Commission policy regarding the best means to
16 decarbonize the energy system. This baseless assertion is not articulated anywhere in
17 CUB's contribution to the record. My testimony will clarify instances in which NWN
18 misrepresented CUB's position before reiterating recommendations that are sound
19 and based upon the evidentiary record, rather than speculation.

20 **Q. How did NWN misrepresent your position?**

21 A. NWN makes a lot of claims about what CUB's position is, often by referring to CUB
22 and the Coalition. Many of these claims are not found in our testimony and have

¹¹ ORS 756.040.

1 little to do with the actual adjustments that CUB is recommending.¹² In addition, the
2 Company projects a lot onto CUB's discussion of the risks to the Company's business
3 model that were not articulated anywhere on the record.

4
5 For example, here is one quote from NWN that is two sentences long and makes
6 multiple misstatements:

7 CUB's and the Coalition's testimony are filled with broad
8 statements and sweeping conclusions, all of which are grounded in
9 two central beliefs: (1) NW Natural cannot decarbonize its system
10 as required by the CPP; and (2) it is both possible and less
11 expensive for Oregon's electric utilities to serve all new building
12 load, along with their existing load and transportation load, both
13 safely and reliably, with renewable energy. Based on these beliefs,
14 CUB and the Coalition suggest that the only way for Oregon to
15 reach its decarbonization goals will be to electrify building load,
16 while discouraging the addition of new customers to the gas
17 system and ultimately phasing out natural gas service over time.¹³

18 If we unpack and examine this statement, we find that it misrepresents CUB position
19 in this case. Let's start with the two "central beliefs" NWN assigns to CUB and its
20 conclusory misrepresentation growing from those beliefs. I list them here and then
21 explain why they are not true below: (1) NWN "cannot decarbonize its system as
22 required by the CPP"; (2) it is "less expensive for Oregon's electric utilities to serve
23 all new building load, along with their existing load and transportation load, both
24 safely and reliably, with renewable energy"; and (3) "the only way for Oregon to
25 reach its decarbonization goals will be to electrify building load, while discouraging
26 the addition of new customers to the gas system and ultimately phasing out natural
27 gas over time."

¹² *Supra*, note 4.

¹³ UG 435 – NWN/Heiting-Bracken/1700/5.

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“NWN cannot decarbonize its system.” Decarbonizing a natural gas system relies largely on technologies that are currently not commercialized in large quantities (natural gas heat pumps, RNG from thermal gasification, green hydrogen, and methanated green hydrogen). NWN’s compliance modeling in UM 2178 included some level of electrification through the promotion of dual fuel (hybrid electric and natural gas) heat pumps. As discussed above, NWN admits that there are risks associated with the pace and effectiveness of its efforts to reduce carbon emissions in its 2021 Annual Report to investors. CUB believes that the compliance plan that the Company submitted in UM 2178 is flawed and contains unreasonable assumptions (for example, market share of natural gas heat pumps in 2026 and the rapid increase in energy efficiency spending). Based on this, CUB has said that the Company has not demonstrated that it can comply with CPP. This is not the same as saying that the Company cannot decarbonize and meet CPP targets. There are costs and risks associated with compliance. Good regulation requires examination of costs and risks.

“Electric utilities can do it all with renewable energy.” CUB’s focus in NWN’s GRC is on costs that are included in the test year, including whether the CPP causes the current level of subsidies (e.g., its LEA) to be unreasonable. CUB is well aware of the challenges associated with electric utilities and their efforts to decarbonize affordably while maintaining reliability. CUB has been engaging with electric utilities on this issue since PacifiCorp proposed investing in three additional coal plants 15 years ago. CUB’s experience in electric planning would

1 never lead CUB to suggest that renewable energy procurement is all that electric
2 utilities need to decarbonize. The electric system is much more complex than
3 that. Decarbonization of the electric system will involve better utilization of
4 hydropower capacity, creation of a more rational regional market structure,
5 implementation of energy efficiency and demand response, investment in storage
6 resources, **and** new renewable resources. At a minimum. But this case is not
7 about electric utility decarbonization, it is a natural gas GRC.

8
9 ***“Ultimately phasing out gas.”*** CUB does believe that electrification of some
10 building load is likely to develop - but so does NWN. Its UM 2178 compliance
11 plan includes promotion of dual fuel (hybrid electric and natural gas) heat pumps.
12 With a dual fuel heat pump, a building’s primary heating source changes from
13 natural gas to electricity. While CUB and NWN do agree that electrification is
14 one of the tools that is available to meet the CPP, we may not agree on the best
15 application of electrification. CUB is concerned about the risk of stranded costs
16 and encourages electrifying load in ways that can avoid not just emissions, but
17 also capital investments. NWN advocates for electrification in ways that do not
18 affect customer counts. As far as NWN’s claim that CUB believes that there is a
19 need to ultimately phase out natural gas, CUB recognizes that climate change is
20 real and requires that fossil fuel combustion be phased out over time. While there
21 are questions concerning the sufficiency of RNG supply and the best uses for that
22 RNG (residential homes versus industrial applications, versus transportation and
23 shipping), CUB is not opposed to RNG development.

1

2 Aside from RNG, there are limits on how much hydrogen can be mixed into the
3 system. To reduce emissions with methanated hydrogen requires a reasonable supply
4 of green hydrogen, a reasonable supply of CO₂ that otherwise would have been
5 released into the atmosphere (e.g., power plant, cement plant), and supportive
6 regulatory policies (for example: if the source of the CO₂ is a power plant, how are
7 the emission reduction benefits allocated between the power plant's capture of the
8 carbon and the release of it through end use combustion by NWN customers?). CUB
9 is very concerned about the risks to customers as NWN attempts to decarbonize its
10 system. But identification of these risks, discussion of these risks, and taking these
11 risks into account as we engage in ratemaking and planning is different from
12 predicting the outcome of those risks. CUB does not know what will "ultimately"
13 happen. This includes a future in which non-fossil gas still plays a role, despite
14 NWN's contention that CUB believes the opposite. Such a speculative and future-
15 based discussion is not germane to the topics at issues in this GRC.

16 **Q. Are there other examples of NWN misrepresenting CUB's testimony?**

17 **A.** There are quite a few and I am not going to respond to all of them, but here are some
18 additional examples:

- 19 • CUB argues that "any expansion of the gas system is certain to result in
20 stranded costs."¹⁴ Stranded cost is a risk, not a certainty.
21
22 • CUB believes that "the Commission possesses the authority to "choose"
23 electrification over a route that allows natural gas utilities to demonstrate
24 compliance with emissions reduction."¹⁵ CUB is asking the Commission to
25 examine NWN's line extension policy, just as it did in a 2012 general rate

¹⁴ UE 435 – NW Natural/Heiting-Bracken/1700/8, line 5-6.

¹⁵ UE 435 – NW Natural/Heiting-Bracken/1700/19, lines 12-14.

1 case (GRC). CUB is not asking the Commission to choose electrification, and
2 CUB’s witness did not address the Commission’s legal authority.
3

- 4 • “Accordingly, racing ahead to electrify new construction in Oregon—which is
5 what it appears CUB is seeking to accomplish with its proposed changes to
6 NWN’s line extension policy—without understanding these dynamics is not a
7 responsible or effective plan.”¹⁶ CUB has proposed a reduction and phase out
8 of the subsidies that existing customers pay to help new customers connect to
9 the system, because it is no longer cost justified. Neither CUB, nor NWN, has
10 offered any evidence that this will result in wholesale electrification of new
11 construction.
12
- 13 • Regarding California building temporary natural gas plants to meet demand,
14 NWN states “[t]his example shows that legislation like California’s mandate
15 for a 100 percent renewable electric system does not automatically mean that
16 a reliable, carbon-free electric system will result, as CUB appears to
17 assume.”¹⁷ CUB has not made this assumption. CUB recognizes that more
18 than a legislative mandate is required to create a reliable, carbon-free electric
19 system just as it takes more than a DEQ mandate to create a reliable, carbon-
20 free gas system.
21
- 22 • “[T]he Commission should reject outright CUB’s claim that customers are
23 already leaving the natural gas system in substantial numbers or are poised to
24 do so.”¹⁸ CUB did not make this claim. CUB cited NWN’s market research
25 which shows that the number of customers who prefer a gas furnace over a
26 heat pump had declined. But installing a heat pump does not require leaving
27 the gas system. In addition, because a gas furnace has an 18-year useful life¹⁹
28 this changing preference does not mean that a substantial number of
29 customers are currently leaving the system. CUB is well aware that market
30 transformation of long-lived appliances takes a substantial period of time.
31

32 I could go on, but the point is that claims NWN makes about our testimony, about our
33 assumptions, and what CUB is proposing in this GRC are often not accurate.

34 III. CUSTOMER GROWTH AND LEA POLICY

35 **Q. Please summarize CUB’s position on this issue.**

¹⁶ UE 435 – NW Natural/Heiting-Bracken/1700/23, lines 1-5.

¹⁷ UE 435 – NW Natural/Heiting-Bracken/1700/38, lines 9-12.

¹⁸ UG 435 – NW Natural/Heiting-Bracken/1700/8, lines 1-3

¹⁹ CUB Exhibit 401, Consumer Reports list of useful lives based on home builder estimates.

1 **A.** CUB believes that the current LEA should be reduced and phased out. I am
2 recommending one change to the LEA adjustment I proposed in Opening testimony.
3 In Opening Testimony, CUB recommended reducing the LEA from \$2,875 to \$2,330
4 in 2023, reducing that by 50% in 2024, and eliminating it in 2025. That proposal was
5 based on rejecting NWN's Internal Rate of Return (IRR) model and limiting the LEA
6 to 5 years of margin revenue. In their decoupling testimony, Staff argued that new
7 customers have lower usage than existing customers, which is corroborated by the
8 Company's UM 2178 analysis. In UM 2178, NWN projected that customers added to
9 the system in 2023 would use 593 therms.²⁰ I am updating my analysis to use this
10 number. With less usage, the new customer contributes less margin and the updated
11 LEA would be \$2,200. I still recommend decreasing the LEA by 50% in 2024 and
12 eliminating it in 2025.

13
14 Additionally, CUB continues to recommend that the Commission phase out the
15 presumption of prudence for growth-related investments. Instead, the Company
16 should demonstrate the prudence of these investments, consistent with traditional
17 resource procurement. Increasing costs from CPP compliance obligations combine
18 with the LEA to create a circumstance where new customers no longer benefit
19 existing customers.

20 **A. The Cost of Growing the System**

21 **Q. What is CUB's concern with regards to customer growth?**

²⁰ UM 2178, NWN modeling workpapers

1 **A.** Under the CPP, NWN is required to reduce GHG emissions by 50% from a historic
 2 baseline. This means that as the system continues to grow and add new customers
 3 consistent with its projections²¹ (with the new emissions), the emission reduction
 4 requirements (and costs to achieve them) increase. As shown in Table 1 below,
 5 NWN will have to reduce baseline emissions, not by 50% but by 69% to
 6 accommodate this load growth while achieving the requisite emissions reductions.²²
 7 This increases the costs to existing customers.

8 **CUB Table 1: Load Growth is Increasing Emission Reduction Requirements²³**

Emission Reductions (metric tonne)	
Baseline residential emissions	2,050,672
Reduction required	1,025,336
Percent reduction required	50%
Emissions associated with growth	394,590
Reduction required with growth	1,419,926
Percent reduction required	69%

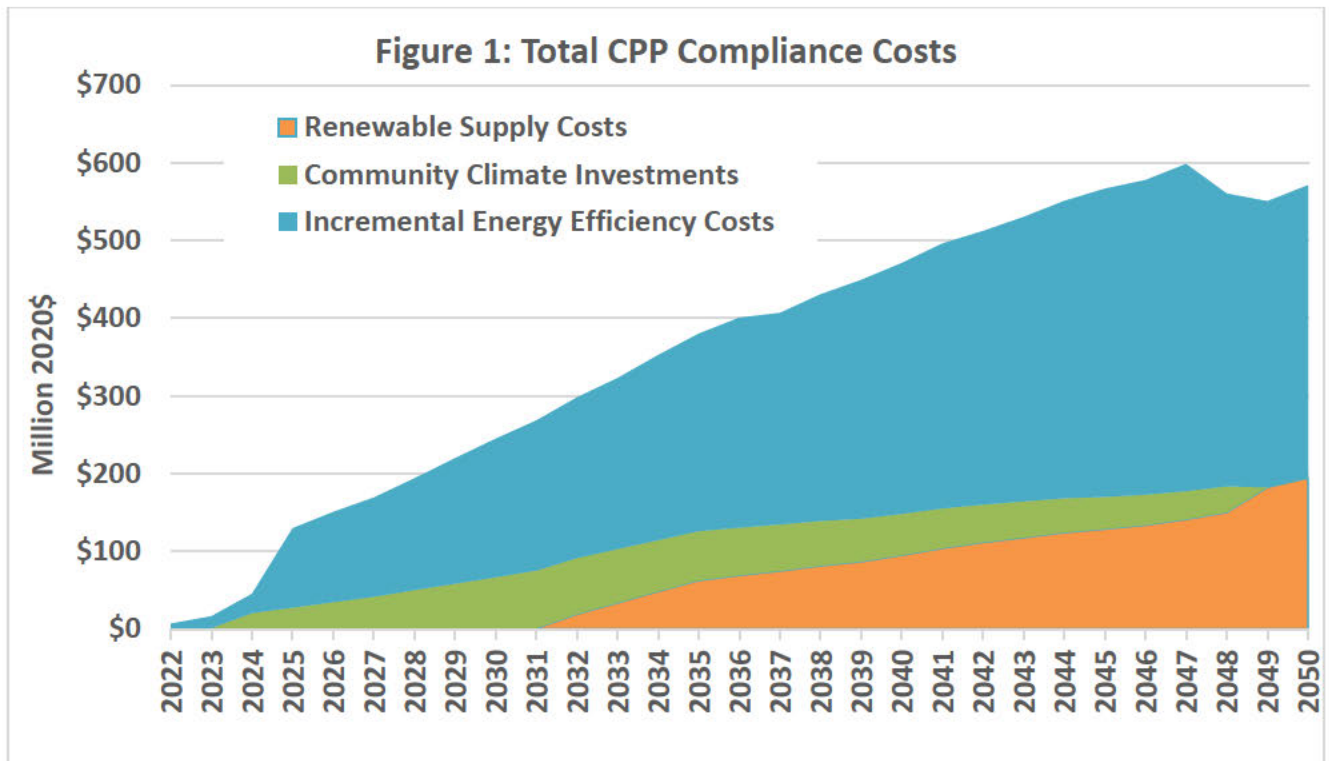
9
 10 NWN submitted a compliance model in the UM 2178 natural gas fact-finding
 11 proceeding. That model shows energy efficiency as the largest driver of the costs to
 12 achieve emissions reductions:²⁴

²¹ CUB Exhibit 103.

²² UG 435 – CUB/100/Jenks/11.

²³ CUB Exhibit 105

²⁴ UM 2178 – NWN Compliance Modeling Presentation, September 14, 2021, Slide 49



1 According to the Company’s model, incremental energy efficiency spending
2 surpasses \$100 million by 2025. By 2035, the slice in this chart attributed to
3 incremental energy efficiency is about \$300 million. Today it is about \$22 million.²⁵
4 This is a significant increase. Most of the energy efficiency costs are incentives
5 provided to customer to help them purchase energy efficiency applications such as
6 high efficiency appliances.

7
8 Growth of the gas system adds more therms, which requires existing customers to
9 dramatically increase funding of a dramatically larger set of energy efficiency
10 incentives. The Company’s current LEA is problematic because customers are being

²⁵ UG 435 – CUB/100/Jenks/5, lines 20-21.

1 asked to subsidize the expansion of the system to increase demand (therms) and then
2 subsidize (incentives are subsidies) energy efficiency investments to reduce the
3 number of therms. The Company claims that more information is necessary before
4 the Commission can evaluate gas utilities' CPP implementation strategies.²⁶ CUB is
5 not asking for the Commission to do so here. This is a GRC, not an Integrated
6 Resource Plan. At issue in this GRC is whether changing regulations, costs, and
7 circumstances warrant a reexamination of the Company's LEA. The Company is
8 attempting to expand a narrow issue germane to this proceeding into a larger policy
9 debate. The Commission should not be persuaded by NWN's attempt to do so. The
10 Commission can and should act on the Company's LEA in this proceeding.

11 **Q. Doesn't the addition of new customers help reduce costs by spreading fixed costs**
12 **among a larger customer base?**

13 **A.** Not entirely. Because a utility system contains joint and common costs which are
14 primarily recovered through usage charges and spread to all customers, adding the
15 load of a new customers will spread the fixed costs across a wider base and lower the
16 share of fixed costs all customers must pay. However, a new customer will also add
17 costs to the system when they interconnect to the system. The purpose of a Line
18 Extension Allowance is to look at the projected load of the new customer and, based
19 on that load, set a cap on what share of the interconnect costs can be borne by the
20 utility's other customers without impairing the benefit from sharing joint and
21 common costs. So new customers only benefit the system if the LEA is properly set.

²⁶ UG 435 – NW Natural/1700/Heiting-Bracken/5.

1 If the LEA is too generous, it can offset the benefit that existing customers would see
2 from the sharing of joint and common costs.

3
4 Joint and common costs are primarily spread across usage (therms) and not across
5 customers, so each therm contributes the same amount of fixed cost support whether
6 that therm is from a new customer or an existing customer. The therms reduced
7 through the energy efficiency incentive payments contribute to fixed costs in the same
8 manner as the therms added through new customer growth. New customers are
9 different than existing customers in two ways: (1) new customers add an additional
10 monthly service charge of \$8/month,²⁷ and (2) new customers require a connection to
11 the system, and this is subsidized through the LEA up to \$2,875, which is 359 times
12 the customer charge. It would take 30 years for the customer charge to equal the
13 LEA subsidy if there are no adjustments for the time value of money, and even longer
14 if the time value of money is considered.

15
16 Here is an example. Assume NWN wants to reduce the system by 600 therms/year.
17 It could work to reduce 10 therms of demand from 60 homes, or it could avoid adding
18 one additional customer who is expected to consume 600/therms/year. Both reduce
19 the per therm revenue by the same amount: the retail rate times 600. But the new
20 customer requires a LEA subsidy of \$2,178, which adds costs to the system, but also
21 adds \$8/month in revenue. As long as the LEA subsidy is so much greater than the
22 customer charge, it is better for ratepayers for existing customers to reduce load by

²⁷ NW Natural bill for June, 2022.

1 avoiding new customers, rather than reducing demand. This fundamental economic
2 premise is the basis for CUB's recommendation in this matter.

3
4 Ironically, phasing out the LEA as CUB proposed would change this math equation.
5 Without a LEA to recover, the customer charge would provide a benefit to the system
6 and, in the above example, it could²⁸ be better for the system to reduce the load from
7 60 houses by 10 therms, rather than avoid the new customer.

8
9 Even though reducing and eliminating the LEA improves the economic benefits of
10 adding new customers, NWN opposes CUB's proposal.

11 **B. NWN Shareholders Benefit From The LEA.**

12 **Q. Why is NWN opposed to eliminating the LEA?**

13 **A.** The Company's shareholders earn profit from the LEA, which is fed by improper
14 subsidies from existing customers. The Company's Reply Testimony equates
15 reducing and phasing out the LEA to elimination of growth, but there is no evidence
16 to support this. Without this subsidy, new buildings can still connect to the gas
17 system. The average price of a home in the Portland area is \$542,000.²⁹ The subsidy
18 associated with the LEA is about half of 1% of this cost. If customers prefer homes
19 that are connected to the gas system, a reduction and phase out of the LEA does not
20 create a substantive barrier to that preference. Customers that prefer gas can still
21 choose to connect to NWN's system, but phasing out the subsidy benefits NWN's

²⁸ Depending on the cost of energy efficiency incentives.

²⁹ <https://www.oregonlive.com/realestate/2021/03/what-you-can-buy-at-portlands-average-home-price-of-542000.html>

1 existing customers, who will pay more for emissions reduction investments due to the
2 additional load.

3

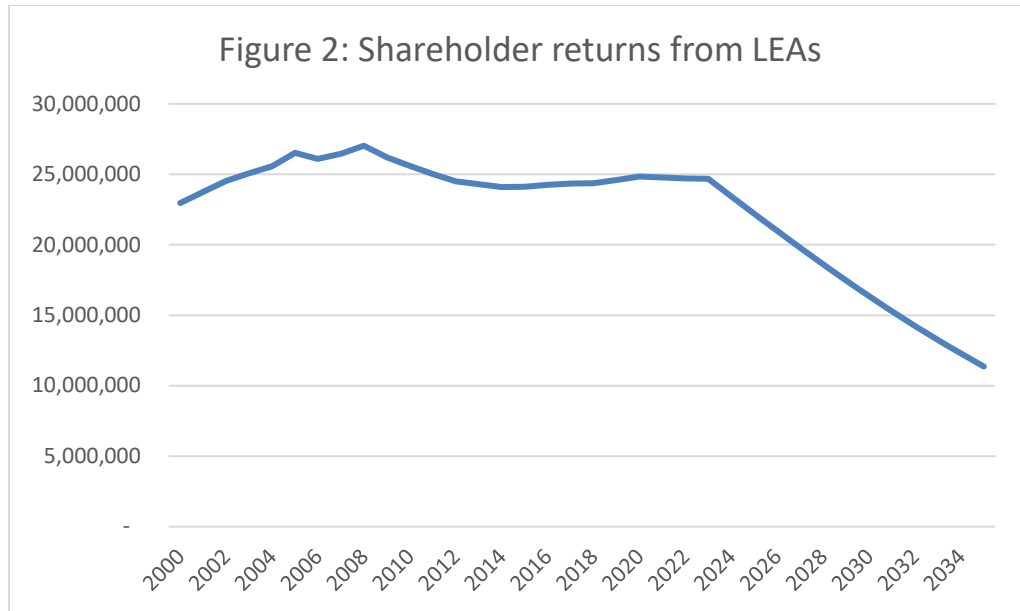
4 The LEA does contribute to the Company's earnings, and utilities are often reluctant
5 to agree to policies that reduce earnings. The LEA is capitalized. NWN's LEA
6 analysis from UG 212 that supported the LEA³⁰ assumed the LEA was capitalized
7 over 40 years. While capitalizing a \$2,875 LEA does not produce significant
8 earnings, NWN analysis shows that it creates a 40-year stream of earnings.³¹ But if
9 more than 10,000 new residential customers are being added each year, this becomes
10 an annual investment of \$30 million. And if happens year-after-year it becomes a
11 significant source of shareholder returns.

12

13 The following chart approximates the current shareholder earnings that NWN
14 receives from capitalizing the LEA and shows how those profits decline when the
15 LEA is eliminated:

³⁰ UG 435 – NWN Exhibit 1802 or Coalition Exhibit 213

³¹ Later CUB will show that the actual capitalized life of the LEA is greater than 40 years.



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CUB Figure 2 is detailed in CUB’s Workpapers. It identifies the approximate annual earnings from residential LEAs. This is an attempt to show that LEA’s are currently a significant source of earnings and that eliminating them reduces earnings going forward. It is not an exact analysis and is provided for illustrative purposes. The amount of historic data that the Company can provide related to LEAs is limited to 5 years.³² Because of the 40-year useful life, CUB took year by year customer growth going back to 1970,³³ assumed a consistent LEA between 1970 and 2012, and the current LEA from 2013 to today. To see the impact of removing the LEA, CUB’s analysis eliminated it starting in 2023.

³² CUB Exhibit 402 (DR 83).

³³ From the PUC Utility Statistic Book *available at* <https://www.oregon.gov/puc/forms/Forms%20and%20Reports/2020-Oregon-Utility-Statistics-Book.pdf>.

1 No doubt that this analysis will be criticized by NWN, because it is assumes that the
2 maximum LEA is paid out in all circumstances and has a series of other assumptions.
3 But there are offsetting assumptions. CUB only looked at residential LEAs, and only
4 looked at Oregon. We assumed a 40-year amortization life, when the amortization
5 life of the largest LEA component is 58 years³⁴ and a longer amortization life
6 increases the financing costs and the return on equity. In 2019, our assumed LEA
7 subsidies were \$29,313,500³⁵ whereas NWN actual LEA subsidies were
8 31,634,012.³⁶ In 2020, CUB's assumed LEA subsidies were \$30.414,625³⁷ and the
9 actual was \$31,418,982.³⁸ So our estimate is in the ballpark. This modeling shows
10 that the return on equity that shareholders earn from LEA investments is significant
11 enough that the company would want to retain them. And it shows that eliminating
12 these subsidies reduce shareholder profits.

13 **C. Responding to NWN's Criticism of CUB's LEA Proposal**

14 **Q. What was NWN's response to CUB's testimony on load growth and LEA's?**

15 **A.** As discussed, even though elimination of the LEA subsidy would improve the benefit
16 that existing customers receive from expanding the system, NWN opposes it. NWN
17 had a number of criticisms which I will respond to in the following section:

- 18 • It will have major consequences for the Company in the investment
19 community, making decarbonization more difficult and interfering with
20 the ability of the state to meet Oregon's climate goals.³⁹

³⁴ CUB Exhibit 403 (DR 90).

³⁵ CUB Workpapers.

³⁶ CUB Exhibit 404 (DR 84).

³⁷ CUB Workpapers.

³⁸ CUB Exhibit 404 (DR 84).

³⁹ UG 435 – NW Natural/1700/Heiting-Bracken/8-9.

- 1 • CUB’s LEA proposal would drive building electrification, which is
2 outside the Commission’s authority.⁴⁰
- 3 • CPP costs are directly recoverable from customers and do not belong in
4 the LEA.⁴¹
- 5 • Updating the LEA assumption results in a higher LEA of \$3,790.⁴²
- 6 • CPP compliance costs are collected through a per therm cost and are not
7 associated with margin revenue⁴³.

8 1. *NWN’s claim of investment consequences*

9 **Q. What is NWN’s argument that this will have major financial consequences?**

10 **A.** NWN argues but offers no evidence to support this claim:

11 Such a determination could signal that it [the Commission] has
12 pre-decided a diminished role for gas utilities in Oregon’s energy
13 future, which in turn could impair the Company’s financial health
14 and its ability to access the resources necessary to pursue all
15 available strategies for decarbonization. Presupposing NW
16 Natural’s system is not necessary or socially beneficial to realizing
17 Oregon’s clean energy future would be irresponsible in the absence
18 of supporting, Oregon-specific analysis. In fact, making this kind
19 of far-reaching policy change without a comprehensive assessment
20 of energy system risks and costs would very likely, and
21 unnecessarily, interfere with the state’s ability to achieve its
22 climate goals.⁴⁴

23 **Q. How do you respond to this argument?**

24 **A.** As discussed, the Company is misrepresenting CUB’s testimony and positions and
25 conflating the narrow LEA issue with a broader conversation about utility
26 decarbonization. Now, they are arguing against CUB’s proposal based on the idea

⁴⁰ UG 435 – NW Natural/1700/Heiting-Bracken/14, lines 1-7.

⁴¹ UG 435 – NW Natural/Taylor/1800/4, lines 8-10.

⁴² UG 435 – NW Natural/1800/Taylor/18.

⁴³ UG 435 – NW Natural/1800/Taylor/30, lines 11-12

⁴⁴ UG 435 – NW Natural/1700/Heiting-Bracken/8-9.

1 that, if the Commission were to grant CUB's request, the investment community
2 might misunderstand it – that the investment community might believe the
3 misinformation the Company has put in the record and overreact. The Commission
4 should not be persuaded by NWN's speculative testimony regarding what the
5 investment community may do if CUB's proposal is adopted. The Commission must
6 decide based on the evidence before it in this proceeding.

7
8 CUB is not asking the Commission to pre-decide the future of gas utilities by
9 reducing and phasing out the LEA. CUB is asking the Commission to recognize that
10 the CPP has changed the economic analysis associated with the LEA, and the
11 Commission should adjust the LEA accordingly to protect existing customers from an
12 inappropriate subsidy. Adjusting tariffs based on changing economic circumstances
13 is not an unusual action of utility regulators, and NWN should explain the changed
14 circumstances to investors in a manner that does not affect its outlook in the
15 investment community.

16
17 Importantly, NWN offers no evidence that the investment community would
18 overreact or react irrationally. But NWN is asking the Commission to ignore the
19 evidence CUB has offered based on an assertion that investors *could* view that as a
20 signal.

21
22 It is also important to recognize that NWN's LEA is generous. Avista's LEA is
23 limited to three times the estimated revenue the company expects to receive from the

1 new building.⁴⁵ For residential homes this is about \$2,000, or 40% lower than
2 NWN's LEA.

3

4 2. *NWN's claim that CUB is asking the Commission to electrify*
5 *new buildings.*

6 **Q. According to the Company, CUB's LEA proposal would drive building**
7 **electrification, which is outside the Commission's authority.⁴⁶ How do you**
8 **respond?**

9 **A.** The Company's position makes little sense. First, neither Ms. Heiting or Mr. Bracken
10 are attorneys.⁴⁷ Not only are they wholly unqualified to posit on matters related to
11 the scope of the Commission's legal authority, it is plainly inappropriate for a witness
12 in a contested case to do so. The Commission's legal authority should be addressed
13 in legal briefing and at the hearing. However, it is worth noting that the Company's
14 current LEA was created and authorized in the 2012 GRC.⁴⁸ The LEA represents
15 capital investments that are in the 2023 revenue requirement that is the central issue
16 in the GRC. Further, in its Draft Report in the UM 2178 natural gas fact-finding
17 proceeding, Staff notes that "PUC Rates, Finance and Audit (RFA) staff and Oregon
18 Department of Justice are to explore with gas and electric utilities an interim, easily
19 implemented approach to line extension allowance policy in future upcoming gas and
20 electric **rate case dockets.**"⁴⁹ The Commission, Staff, and the Department of Justice

⁴⁵ Avista Utilities, Oregon Tariffs, Rule 16 – Service Connections and Facilities on Customer's Premises Line Extension

⁴⁶ See, e.g., UG 435 – NW Natural/1700/Heiting-Bracken/14, lines 1-7.

⁴⁷ See UG 435 – NW Natural/1700/Heiting-Bracken/1.

⁴⁸ UG 435 – CUB/100/Jenks/16, lines 10-12.

⁴⁹ UM 2178 – Natural Gas Fact Finding Draft Report at 24 (Apr. 15, 2022) (emphasis added).

1 clearly feel the Commission has the authority to address LEA policy in a GRC.
2 Importantly, although the Company appears to believe that CUB's proposal is an
3 attempt to drive electrification of building load,⁵⁰ it is not. CUB's proposal around
4 the Company's LEA is a fact-based examination of subsidies that exist within the
5 current NWN LEA that are exacerbated by CPP compliance obligations. It is an
6 examination of an issue only relevant to NW Natural's system, and is a relevant
7 inquiry in this GRC. In order to ensure that this subsidy does not harm existing
8 customers, and in alignment with its prior practice of examining an LEA in a GRC
9 setting, CUB respectfully urges the Commission to grant its recommendation on this
10 issue.

11 3. *NWN's claim that CPP costs are directly recoverable from*
12 *customers and do not belong in the LEA because this is double*
13 *counting.*

14 **Q. What is your response to NWN's criticism that CPP costs are directly**
15 **recoverable from customers and do not belong in the LEA?**⁵¹

16 **A.** CPP compliance costs become system costs that are recovered from the customers on
17 a system basis in much the same manner that the LEA is a system cost recoverable
18 from customers. In addition, CUB is not proposing double counting these costs.

19 **Q. Are the compliance costs commodity costs which are directly recoverable from**
20 **individual customers?**

21 **A.** No. The CPP looks backwards at emissions to set a baseline for emissions. NWN and
22 other regulated entities are required to reduce emissions from that baseline by 50% by

⁵⁰ UG 435 – NW Natural/1700/Heiting-Bracken/14, lines 1-7.

⁵¹ UG 435 – NW Natural/Taylor/1800/4, lines 8-10.

1 2035. Any new growth after this historic baseline would add additional fossil gas to
2 the system, which adds to the emissions and creates an additional system
3 responsibility, which increases the need to reduce baseline emissions to 69% by
4 2035.⁵²

5
6 While NW Natural argues that CPP compliance costs are directly recoverable from
7 customers, neither NWN, CUB, nor any other party is proposing a mechanism that
8 recognizes the cost causality of new customers increasing CPP compliance costs and
9 allocates these costs to individual new customers. In theory, the cost of compliance
10 could be tracked and allocated to usage. Consider the 2035 compliance requirements.
11 A customer who was added after the compliance baseline, using 600 therms/year,
12 could be assigned the cost of decarbonizing 600 therms, while a pre-existing
13 customer could be assigned the cost of decarbonizing 300 therms. This would
14 recognize that there is an existing requirement to reduce emissions by 50% and all
15 new emissions added on top will have to be fully decarbonized. This would require
16 charging customers of new buildings a different rate than customers of existing
17 buildings. Again, no party is proposing this. CUB is not proposing this. Instead, the
18 additional compliance costs are not assigned to the cost causer (new load above the
19 baseline), but to all customers. Because of this, it is necessary to reconsider whether
20 the current LEA does what it is intended to do: ensure that growth of the system
21 benefits customers as a whole.

22

⁵² *Supra*, note 7.

1 There is no double-counting. The purpose of the LEA is to determine what level of
2 connection subsidy will ensure that existing customers benefit from adding a new
3 customer to the system. NWN's compliance plans include hundreds of millions of
4 dollars in new energy efficiency investments which reduce therms on the system. As
5 long as the current LEA and customer charge are in place, existing customers benefit
6 from spending less on energy efficiency incentives and instead limiting new customer
7 growth.

8
9 Again, I feel compelled to state that the purpose of reducing and eliminating the LEA
10 is not an expectation that doing so will eliminate any and all growth in new
11 customers. The purpose is to eliminate a subsidy that is no longer warranted and that
12 is no longer set at a level that protects existing customers. Customers should not be
13 asked to subsidize new growth when that new growth adds costs that existing
14 customers have to pay. By sharing the emission reduction costs associated with this
15 new load, existing customers are already subsidizing new customers. When existing
16 customers do not benefit from new customer growth, the LEA is not justified.

17
18 It is also important to recognize that CUB is making this recommendation based on
19 the current DEQ CPP rules and the current costs of compliance tools. If the cost of
20 compliance tools change, the LEA can be revisited in future rate case.

4. *NWN's claim that a higher LEA is justified.*

Q. How do you respond to the Company's argument that if you update the assumptions in the LEA, an LEA of \$3,790 is now justified?⁵³

A. The Company is incorrect. The current subsidy of \$2,875 is not justified. Neither is a higher amount. There are several problems with this argument. First, it assumes that the only cost the new customer is adding to the system is the cost of the LEA. As CUB's analysis has demonstrated, the new customer also brings with it additional emissions reduction costs that fall upon all customers. The second problem is that NWN LEA model from 2012 is flawed and should not be used as the basis to recalculate it. By using a 30-year IRR calculation on a cost that is assumed to have a 40-year useful life, but actually has a longer life, creates serious problems.

Q. Can you explain the useful life issue?

A. Yes. The LEA model calculates the IRR on a 30-year basis. NWN argues that they use a 30-year model "to recognize both the useful life of utility assets and the expected time a new customer is expected to remain on the system."⁵⁴ However, in the model, NWN is amortizing the LEA over 40 years. The effect of this is that there is a \$725 stranded cost at the end of 30 years. If a customer leaves the system after 30 years, which is a model assumption, then that customer leaves behind a stranded cost for other customers to pay. This means that the IRR modeling that produces a \$2,875 LEA actually only represents recovery of \$2,175 of the \$2,875 LEA. This can be seen below. NWN assumes an LEA of \$2,900 in their LEA modeling. In year 30 there has been

⁵³ UG 435 – NW Natural/1800/Taylor/18.

⁵⁴ UG 435 – NW Natural/1800 Taylor/18; *see also* CUB Exhibit 405, (DR 52)

1 \$2,175 of accumulated depreciation, leaving \$725 of the original investment.⁵⁵ This can
2 be confirmed by changing the gross plant in the calculation from \$2,900 to \$2175. This
3 results in fully paying of the LEA in year 30.

4

5

CUB Figure 3.

NW Natural														
Income Statement	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
1 Revenue - Original	371	371	371	371	371	371	371	371	371	371	371	371	371	371
2 Operations & Maintenance	(40)	(40)	(40)	(40)	(40)	(40)	(40)	(40)	(40)	(40)	(40)	(40)	(40)	(40)
3 Depreciation	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)
4 Franchise Tax	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)
4 Property Tax	(26)	(25)	(24)	(23)	(22)	(21)	(20)	(18)	(17)	(16)	(15)	(14)	(13)	(12)
5 Interest Expense	(22)	(21)	(20)	(19)	(18)	(17)	(16)	(15)	(14)	(13)	(12)	(11)	(10)	(9)
6 Net Income Before Tax	202	204	206	208	210	212	214	216	218	220	222	224	226	228
7 Income Tax	81	81	82	83	84	85	86	86	87	88	89	90	90	91
8 Net Available to Common	121	123	124	125	126	127	129	130	131	132	133	135	136	137
Balance Sheet														
Assets														
9 Gross Plant	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900	2,900
10 Accumulated Depreciation	1,233	1,305	1,378	1,450	1,523	1,595	1,668	1,740	1,813	1,885	1,958	2,030	2,103	2,175
11 Net Plant	1,668	1,595	1,523	1,450	1,378	1,305	1,233	1,160	1,088	1,015	943	870	798	725
12 Total Assets	1,668	1,595	1,523	1,450	1,378	1,305	1,233	1,160	1,088	1,015	943	870	798	725
Liabilities and Equity														
13 Common Equity	501	479	457	435	414	392	370	348	327	305	283	261	239	218
14 Long Term Debt	501	479	457	435	414	392	370	348	327	305	283	261	239	218
15 Deferred Taxes	666	637	608	579	550	521	492	463	434	405	376	347	319	290
16 Total Liabilities and Equity	1,668	1,595	1,523	1,450	1,378	1,305	1,233	1,160	1,088	1,015	943	870	798	725

6 **Q. How do these differing useful lives affect the LEA?**

7 **A.** NWN's LEA is based on an IRR analysis. NWN has a good description of the basis
8 for the IRR. It begins with the difference between the margin revenue from the new
9 customer and the expenses that customer adds to the system, including depreciation:

10 When a new customer is added to the system, it provides additional
11 distribution margin revenue to cover its non-commodity cost of
12 service (\$371 in year 1). The new customer also directly causes an
13 increase in expenses, including O&M, **depreciation**, franchise tax,
14 property tax, and income, offset by the tax benefit of the
15 investment (\$146 in year 1). This results in an increase in operating
16 cash flow attributable to the new customer joining the system
17 (\$225 in year 1).⁵⁶

18

⁵⁵ UG 435 – Coalition Exhibit 213 or NWN Exhibit 1802.

⁵⁶ UG 435 – NWN/1800/17 (emphasis added).

1 But depreciation expense is based on the useful life of an investment. A \$2,875
2 investment will have a different depreciation expense depending on its useful life.

3
4 The 40-year useful life of the LEA that NWN uses for modeling purposes does not
5 represent the actual useful life used by the company. According to NWN, the
6 primary components of the LEA rate base are service lines, meters, and meter
7 installations. These come with a useful life of 58 for service lines, 43 for meters, and
8 32 for meter installations,⁵⁷ Because service lines are the bulk of the cost, most of
9 NWN's LEA has a useful life of 58 years⁵⁸.

10
11 The depreciation expense for the asset will vary with the useful life. Below is a
12 simple calculation of the annual depreciation expense of the \$2875 LEA with
13 different useful lives. See CUB Table 2 below:

CUB Table 2: Useful Life Determines Depreciation Expense	
Useful Life	Depreciation Expense
50	58
40	72
30	96
18	160

14
15 In its testimony, NWN claimed that it used a 30-year useful life “to recognize both
16 the useful life of utility assets and the expected time a new customer is expected to
17 remain on the system.”⁵⁹ But NWN did not use the 30-year useful life to recognize

⁵⁷ CUB Exhibit 403 (DR 90)

⁵⁸ CUB Exhibit DR 87

⁵⁹ UG 435 – NW Natural/1800/Taylor/18; *see also* CUB Exhibit 405

1 the useful life of the asset, it used 40 years. That leaves a \$725 stranded cost, but it
2 increases the IRR by decreasing the depreciation expense throughout the 30-year
3 model. Using a 50-year useful life would further increase the IRR. Using an 18-year
4 useful life (Consumers Reports estimate of a furnace life⁶⁰) would create a
5 depreciation expense that is more than double the depreciation expense that the
6 Company used in its model and would reduce the IRR. CUB believes that the IRR
7 model is flawed and should not be used to determine the LEA. In addition, this
8 mismatch between the expected customer life and the useful life of the service line
9 could create a significant problem for the Commission in the future.

10 **Q. Please explain how this would create a serious problem for the Commission?**

11 **A.** If the Company is assuming that a new customer may leave the system in 30 years,
12 there is a serious problem with using a 58-year useful life for the service line. While
13 a meter could conceivably be reused, a service line is stranded if a customer leaves.
14 This creates a used and useful problem. I am not a lawyer but my understanding of
15 the presently used and useful standard as applied in the *Trojan* case is that capital
16 investment (rate base) that is no longer presently used cannot be charged to customers
17 unless the Commission finds that the retirement of that property is in the public
18 interest, and that when this happens the Company is no longer allowed to earn a profit
19 on the investment, it can only charge the time value of money.

20
21 We tend to apply this ruling to major capital investments, and not worry about
22 applying it to small items like meters which are normally covered through group

⁶⁰ CUB Exhibit 401 (Consumers reports life of appliances)

1 depreciation practices. But if the availability of heat pumps or increasing emission
2 reduction costs cause customers to start to leave the system in significant numbers,
3 this could be an issue. For example, although the Commission declined to set a
4 threshold at which the *Trojan* precedent should be applied to retired assets that are
5 typically subject to group depreciation in the UE 374 PacifiCorp GRC, it held that
6 “the circumstances of replacing 85 percent of the company's meters within a
7 comprehensive meter replacement program to be distinguishable from the gradual
8 replacement and retirement of units over time.”⁶¹ A stakeholder could bring evidence
9 that there are thousands of service lines that are not presently used to serve customers
10 and ask the future Commission to apply the *Trojan* policy to that rate base. Of
11 course, if the LEA is phased out, this will no longer be a problem.

12 5. *NWN's claim that CPP costs are collected through a per therm*
13 *charge?*

14 **Q. NWN argues that because CPP compliance costs are collected through a per**
15 **therm cost, they belong in the LEA. Is this correct?**

16 **A.** There are two problems with this. First, CUB is not recommending that CPP
17 compliance costs be placed in the LEA. CUB's position is that because a new
18 customer brings incremental CPP compliance costs that increase costs to existing
19 customers, there is no longer a justification to subsidize that customers' connection to
20 the system. This is because that subsidy is supposed to be set at a level that ensures
21 other customers *benefit* from the new connection. The second issue is that it is

⁶¹ *In re PacifiCorp, dba Pacific Power, Request for a General Rate Revision*, OPUC Docket No. UE 374, Order No. 21-090 at 7.

1 incorrect to say that CPP compliance costs are collected through a per therm charge
2 and do not impact margin.

3

4 As demonstrated above, incremental energy efficiency costs were the largest portion
5 of the compliance costs that the Company modeled in its UM 2178 compliance
6 modeling. Currently, energy efficiency is not collected on a per therm charge, but as
7 a percentage of the bill, including margin.⁶² Energy efficiency is not collected as a
8 fixed cost or a commodity cost, but as essentially a tax on the fixed costs and the
9 commodity costs of the system. Unless this is reconsidered, this is how the largest
10 component of the CPP will be charged to customers. And the fixed costs that energy
11 efficiency is applied to is an element of the traditional LEA analysis.

12 **D. The LEA Provides a Disincentive to Dual-Fuel Heat Pumps.**

13 **Q. Do you have any other concerns about NWN's LEA?**

14 **A.** Yes. Currently, the LEA does not recognize dual-fuel heat pumps. If a home came
15 into the system with a dual-fuel heat pump as its only gas equipment, it would not be
16 eligible for a LEA. If the home came into the system with a dual-fuel heat pump, an
17 electric water heater heat pump and a gas stove, it would receive a \$850 LEA. The
18 \$2,875 associated with space heating is only available for customers who have gas as
19 their **primary** space heating. A customer with a dual-fuel heat pump has electricity
20 as their primary space heating and gas as back up for colder weather. This creates an
21 incentive for homebuilders to put in gas furnaces rather than more efficient dual-fuel

⁶² See ADV 681, Staff Report.

1 heat pumps since with a dual-fuel system, the home builder would have to pay for
2 most of the cost of the interconnection.

3

4 This makes some sense because the LEA is based on the size of the new load. The
5 greater the expected margin revenue from that customer, the greater the LEA that is
6 justified. More usage means more margin revenue. A customer with a dual-fuel heat
7 pump will not be placing load on the system when the temperature is in the 40's, 50's,
8 and 60's, as a gas furnace customer would. This creates significantly less revenue for
9 the gas company, significantly less margin, and reduces the amount of an LEA that is
10 justified.

11

12 Reducing and phasing out the LEA would eliminate the disincentive to installing a
13 dual-fuel heat pump in a new home.

14 **E. CUB's LEA Proposal**

15 **Q. What did CUB propose related to NWN's Line Extension Policy?**

16 **A.** NWN's Line Extension Policy was increased in 2012 in a GRC. In Opening
17 Testimony, CUB provided an analysis that showed that when the costs associated
18 with CPP compliance are considered, the current LEA is not justified, and proposed
19 to phase it out and eliminate it.

20 **Q. Has CUB proposed that the Commission prohibit new buildings from connecting**
21 **the gas system?**

22 **A.** No.

23 **Q. What is CUB's recommendation with respect to NWN's LEA?**

1 A. CUB continues to advocate that the current residential LEA should be reduced and
2 phase out over time. Because new customer growth brings emissions reductions
3 obligation which become a system responsibility in excess of its allotted LEA
4 subsidy, the subsidy should be eliminated. Recognizing that home builders may be
5 assuming this is currently available, CUB recommends phasing out the LEA.

6

7 There are two components of my recommendation. The first was rejecting the
8 Company's IRR modeling which reduces the LEA in 2023 and returning to prior
9 methodology. Secondly, I then phased that LEA out over two years. The first
10 adjustment was due to flaws in the IRR model and the second was recognize the
11 impact the CPP had on the costs associated with growing the system.

12

13 In Opening Testimony CUB recommended reducing the LEA from \$2,875 to \$2,330
14 in 2023, reducing that by 50% in 2024 and eliminating it in 2025. That was based on
15 rejecting NWN's IRR model and limiting the LEA to 5 years of margin revenue. I
16 am recommending one change. In their decoupling testimony, Staff argued that new
17 customers have lower usage than existing customers. In the UM 2178 workpapers,
18 NWN projected that new customers added to the system in 2023 would use 593
19 therms. I am updating my analysis to use this number. With less usage, the new
20 customer contributes less margin and the updated LEA would be \$2200. I still
21 recommend cutting it in half in 2024 and eliminating it in 2025.

1 **F. Prudence of growth-related investments**

2 **Q. What was your recommendation concerning the prudence of growth-related**
3 **investments?**

4 **A.** I recommended that there should no longer be a presumption of prudence for growth-
5 related investments, and that the Company should have to demonstrate the prudence
6 of these investments. The Company dismissed my concerns because the LEA is
7 supposed to show the prudence of these costs.

8
9 The LEA was last reviewed in the 2012 rate case, and there was very little
10 discussion of the proposed changes in that rate case. As I have pointed out, the
11 methodology from that case was flawed, yet the Oregon regulatory review (including
12 stakeholders like CUB) have simply assumed that it remains valid and that these costs are
13 prudent. Today, with the CPP and potentially other emissions regulations, there should
14 no longer be an assumption that a prior LEA establishes that current growth-related costs
15 are prudently incurred and benefit customers. NWN should have to prove that growing
16 the system, in spite of the need to reduce terms to reduce its compliance obligation, is
17 reasonable. Because it has the burden of proof, if it cannot show that growth related
18 investments are prudent, those costs should not be recoverable from customers.

19 **Q. Does that conclude your testimony:**

20 **A.** Yes.



By the Numbers: How long will your appliances last? It depends

Consumer Reports News: March 21, 2009 12:09 AM

35 & 6



Average life expectancy in years of a thermostat and a compactor, respectively the longest-lived and shortest-lived appliances in the American home, according to the National Association of Home Builders/Bank of America Home Equity Study of Life Expectancy of Home Components. (See the table below for an alphabetized list of appliances.)

Keep in mind that the life expectancy listed here is just a general guideline—depending on the model and brand of appliances you buy and how well you treat them, your gear might last longer or might need replacing even sooner.

So after you figure out where to buy appliances, be sure to check the brand-repair histories (available to subscribers) of the gear on our Appliances hub.

Appliance	Life Expectancy (years)
Air Conditioners (room)	10
Air Conditioners (central)	15
Boilers (electric)	13
Boilers (gas)	21
Compactors	6
Dehumidifiers	8
Dishwashers	9
Dryers (electric and gas)	13
Freezers	11
Furnaces (electric warm air)	15
Furnaces (gas warm air)	18
Furnaces (oil warm air)	20
Garbage Disposers	12
Humidifiers	8
Microwave Ovens	9
Range/Oven Hoods	14
Ranges (electric)	13
Ranges (gas)	15
Refrigerators	13
Refrigerators (compact)	9
Thermostats	35
Washing Machines	10
Water Heaters (electric)	11
Water Heaters (gas)	10
Water Heaters (tankless)	20+

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Rates & Regulatory Affairs
UG 435
Request for a General Rate Revision
Data Request Response

Request No.: UG 435 CUB DR 83

83. Please provide for the past ten years, the annual amount of line extension allowances that were capitalized and added to rate base.

Response:

The table below provides the capital expenditures associated with the connection of new customers for the last five years, which are the only years for which such data are readily available:

Line Items	2017	2018	2019	2020	2021
Main Extensions	\$8,777,367	\$9,688,455	\$9,763,204	\$8,402,386	\$9,003,073
Service Lines	\$17,051,844	\$16,773,524	\$17,673,737	\$18,733,865	\$19,764,260
Meters	\$2,911,276	\$3,062,145	\$3,623,074	\$3,178,081	\$3,193,239
Permits	\$1,128,901	\$1,208,757	\$1,267,864	\$1,695,366	\$1,208,981
Retained Contributions (CIAC)	(\$698,765)	(\$781,558)	(\$693,866)	(\$590,715)	(\$1,713,723)
Total	\$29,170,623	\$29,951,323	\$31,634,013	\$31,418,982	\$31,455,831



Rates & Regulatory Affairs
UG 435
Request for a General Rate Revision
Data Request Response

Request No.: UG 435 CUB DR 90

90. NWN assumed a 40-year useful life for line extension investments in its analysis of the line extension allowance.

- a. What is the useful life that used for these investments when they go into rate base?
- b. Please provide the useful lives of the components of the line extension allowance by FERC account.

Response:

- a. The primary classifications of plant that are included in line extensions are Services, Meters, and Meter Installations. Under the current depreciation rates, the useful life for Services is approximately 58 years as indicated by the use of the average service life component of the 58-R2 survivor curve. For Meters, the useful life is about 43 years (43-S0 curve), and for Meter Installations, the useful life is about 32 years (32-S0.5 curve).

The depreciation rate included in the UG-221 analysis was a blend of the three depreciation rates at the time, with Services at 2.71%, Meters at 2.31%, and Meter Installations at 2.47%.

- b. See response to a.



Rates & Regulatory Affairs
UG 435
Request for a General Rate Revision
Data Request Response

Request No.: UG 435 CUB DR 84a

84. For the last 5 years of available data, please provide the following information:
- a. How much did the company pay in residential line extension allowances?
 - b. How much of 84a. was for residential new construction?
 - c. How much of 84a. was for residential gas conversions?

Response:

The following reflects total system amounts for residential, commercial, and industrial line extension allowances. A breakdown of line extension allowances for new construction vs. conversions is not available.

Line Items	2017	2018	2019	2020	2021
Main Extensions	\$8,777,367	\$9,688,455	\$9,763,204	\$8,402,386	\$9,003,073
Service Lines	\$17,051,844	\$16,773,524	\$17,673,737	\$18,733,865	\$19,764,260
Meters	\$2,911,276	\$3,062,145	\$3,623,074	\$3,178,081	\$3,193,239
Permits	\$1,128,901	\$1,208,757	\$1,267,864	\$1,695,366	\$1,208,981
Retained Contributions (CIAC)	(\$698,765)	(\$781,558)	(\$693,866)	(\$590,715)	(\$1,713,723)
Total Investment	\$29,170,623	\$29,951,323	\$31,634,013	\$31,418,982	\$31,455,831
Meter Sets	13,488	13,551	14,041	13,012	14,013
Investment/Meter	\$2,162.71	\$2,210.27	\$2,252.97	\$2,414.62	\$2,244.76



Rates & Regulatory Affairs
UG 435
Request for a General Rate Revision
Data Request Response

Request No.: UG 435 CUB DR 52

52. Refer to NW Natural Oregon Tariff Book Schedule X, please provide the workpapers used to estimate the Category A-D construction allowance for residential customers.

Response:

Please see attached file named "UG 435 CUB DR 52 Attachment 1.xlsx." Note that this file produced the construction allowances as filed in the general rate case UG-221, and not the allowances that are quantified in Schedule X of the tariff. The changes that were proposed in the Company's filing in UG 221 were approved in Order 12-408 (page 8), which adopted the Second Partial Stipulation in the docket. Order 12-408 is attached as "UG 435 CUB DR 52 Attachment 2.pdf." The allowances that are in Schedule X of the tariff are slightly lower than the filed amounts due to the lower resulting revenue requirement after processing the case, but the methodology to produce the allowances was the same. The allowances have not been adjusted in subsequent cases.

The methodology used to determine the allowances was to set the construction cost or allowable such that a revenue stream for different terms created an internal rate of return (IRR) set at the Company's cost of capital. The revenue stream assumed billing on a Straight-Fixed-Variable (SFV) rate design that was proposed in the Company's rate case filing. For Category A in the tariff, the revenue stream was assumed for 30 years; for Category B, the revenue stream was assumed for 15 years, and for Category C, the revenue stream was assumed for 5 years. The 30-, 15-, and 5-year terms were used based on an assumption that a customer having gas space heating would remain a customer for 30 years, and so on.



Rates & Regulatory Affairs
UG 435
Request for a General Rate Revision
Data Request Response

Request No.: UG 435 CUB DR 87

87. Does the company have any estimate as to how much of average residential line extension goes to fund the following components?

- a. Pipes
- b. Trenching
- c. On-premises gas equipment
- d. Other

Response:

- a. In 2021, the average cost of a residential service line, which would include labor for trenching, was \$1,631. Depending on the project (new construction vs. conversion), the Company may not incur any costs for trenching. Additionally, the Company's average cost for meters, including installation, in 2021 was \$217; permits was \$47; and indirect materials was \$181.
- b. See (a).
- c. The Company does not fund on-premises gas equipment.
- d. N/A.

**BEFORE THE
PUBLIC UTILITY COMMISSION OF OREGON**

UG 435

**REBUTTAL AND CROSS ANSWERING TESTIMONY OF THE
OREGON CITIZENS' UTILITY BOARD**

EXHIBIT 500

I. INTRODUCTION

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

2 A. My name is William Gehrke. I am a Senior Economist employed by Oregon
3 Citizens' Utility Board (CUB). My business address is 610 SW Broadway, Ste. 400
4 Portland, Oregon 97205.

5 **Q. What is the purpose of your testimony?**

6 A. I previously provided testimony in this proceeding, CUB Exhibit 200. In this
7 testimony, I respond to issues raised in Intervenors' Opening Testimony and NW
8 Natural's (NWN) Reply Testimony as it relates to the rate-spread and cost recovery
9 of renewable natural gas (RNG).

10 **Q. Please summarize your proposals.**

11 A. I am sponsoring two proposals:

12 **II. RNG Rate Spread**

13 **III. RNG Cost Recovery Mechanism**

14 **II. RNG RATE SPREAD**

15 **Q. What issue did you raise regarding RNG rate spread in Opening Testimony?**

16 A. In opening testimony, NW Natural proposed to allocate RNG on an equal cents per
17 therm basis to all customers. NW Natural made this proposal because all customers
18 will benefit from RNG, which will be utilized for its compliance with Climate
19 Protection Program (CPP).¹ However, the Company's opening rate spread proposal
20 did not allocate any RNG costs to special contract customers. In Opening Testimony,

¹ UG 435 – NW Natural/1300/Walker/28, lines 19-20.

1 CUB modified the Company's rate spread proposal to include special contract
2 customers.

3 **Q. How did the Company respond to CUB's position?**

4 **A.** In Reply Testimony, the Company accepted CUB's position and allocated RNG costs
5 to special contract customers. The Company agreed with CUB that the CPP rules
6 make NW Natural the single point of regulation for all emissions associated with all
7 customers taking natural gas service on its distribution system, including special
8 contract customers.

9 **Q. What is the Alliance of Western Energy Consumers' (AWEC) position on
10 RNG cost allocation?**

11 **A.** AWEC proposed that no costs associated with RNG projects be allocated to
12 transportation customers due to the limitations it perceives SB 98 creates.² AWEC
13 proposed that RNG costs be allocated on an equal percent of margin basis, rather than
14 an equal cents per therm basis.³

15 **Q. Why is AWEC proposing to not allocate any RNG costs to transport
16 customers?**

17 **A.** AWEC has argued that "NW Natural is only allowed to acquire RNG for the purpose
18 of meeting the targets established in ORS 757.396(a)."⁴ AWEC argues that RNG can
19 only be acquired based on specific targets in ORS § 757.396(a) and the costs and
20 benefits of RNG should only apply to sales customers. Based on this argument,

² UG 435 – AWEC/100/Mullins/33, lines 16-17.

³ UG 435 – AWEC/100/Mullins/33, lines 18-19.

⁴ UG 435 – AWEC/100/Mullins/30, lines 9-10.

1 AWEC argues that transport customers should not bear any of the costs and benefits
2 associated with RNG.

3 **Q. What is CUB’s response to AWEC’s argument?**

4 **A.** CUB disagrees with AWEC’s position that transport customers should not bear any
5 RNG costs and benefits. CUB also disagrees with AWEC’s interpretation of the
6 contours of SB 98 and will address it in briefing. However, it is worth noting that
7 “the Company expects that the Lexington RNG project will assist it in complying
8 with [the CPP].”⁵ CUB agrees with the Company that the RNG it has procured to
9 date will help it comply with all applicable climate regulations.

10 **Q. What is AWEC’s position on allocating RNG on an equal cents per therm
11 basis to all customers?**

12 **A.** AWEC’s opposes this rate spread proposal, and instead proposes to allocate no RNG
13 costs to transport customers, and allocate costs on an equal percent of margin basis
14 between sales customers. AWEC points to the UI 451 testimony, and argues that that
15 CUB, Staff, AWEC, and NW Natural all agreed that the sole purpose of the
16 Lexington project is to assist the goals of SB 98.⁶ Based on this statement, AWEC
17 argues that Lexington RNG was not originally intended for CPP compliance, since
18 the CPP did not exist when the Lexington RNG facility was acquired.⁷ According to
19 AWEC’s logic, this small timing difference should determine how RNG costs are
20 spread among customers.

⁵ UG 435 – NW Natural/1100/Chittum/6, lines 1-2.

⁶ UG 435 – AWEC/100/Mullins/32, lines 7-8.

⁷ UG 435 – AWEC/100/Mullins/32 Lines 11-13.

1 **Q. Does CUB agree that the Lexington Project was not originally intended for**
2 **CPP compliance?**

3 **A.** Yes. AWEC correctly notes the timing of the Lexington RNG project. The decision
4 to invest in Lexington was made prior to the adoption of CPP rules. Therefore, NW
5 Natural did not initially make the decision to construct the Lexington project for CPP
6 compliance. However, the regulatory regime in Oregon has changed dramatically
7 since that time.

8 **Q. What quote did AWEC cite from UI 451 on this topic?**

9 **A.** AWEC cites to a partial quotation from the UI 451 joint testimony, “[a]ll parties
10 acknowledged in Docket UI 451, ‘the sole purpose’ of the Lexington RNG facility
11 was to ‘assist the Company in investing in RNG infrastructure under SB 98.’”⁸

12 **Q. What is the complete quote from the UI 451 joint testimony?**

13 **A.** The complete quote is: “NW Natural has stated that the sole purpose of this affiliated
14 subsidiary is to assist the Company in investing in RNG infrastructure under SB 98.”⁹

15 **Q. You were a joint sponsor of that testimony on behalf of CUB. What is your**
16 **understanding of that testimony?**

17 **A.** UI 451 was a proceeding in which NWN sought approval for an affiliated transaction
18 between NW Natural and Lexington Renewables LLC. According to NW Natural at
19 the time, it created its subsidiary to assist the procurement of the Lexington RNG
20 project to meet SB 98 requirements. This language was included in the Joint

⁸ UG 435 – AWEC/100/Mullins/32, lines 7-9.

⁹ UI 451 – NW Natural-Staff-CUB-AWEC/100/Kravtiz-Muldoon-Gehrke-Mullins/3, lines 17-19.

1 Testimony accompanying the Stipulation in that proceeding. However, the quote
2 which AWEC relies upon was not included in the Stipulation itself.¹⁰

3 **Q. What is CUB's response to AWEC's position that, since the Lexington project**
4 **was acquired under SB 98, the costs of the project should only be allocated to**
5 **sales customers?**

6 **A.** The use case for utility assets can evolve over time. In the 20th century, the federal
7 hydro system was created to provide electricity to the Northwest and provide energy
8 and capacity to the electricity system. Today, Bonneville Power Administration
9 (BPA) uses the federal hydroelectric system to integrate wind resources that connect
10 to its transmission system.¹¹ The federal hydroelectric system was not constructed to
11 integrate wind. Under AWEC's logic, BPA would be unable to charge transmission
12 customers for wind integration, because the federal hydroelectric was constructed to
13 meet energy and capacity needs of power customers. That is not what occurred.
14 When the federal hydroelectric system began integrating wind electricity, BPA
15 charged a transmission rate to wind facility owners that used the service.¹²

16
17 While the timeframe is shorter than the federal hydroelectric system example above,
18 Lexington's usefulness has evolved past meeting SB 98 targets. CUB disagrees with
19 AWEC's logic that, since this project was built to meet SB 98 guidelines, the project
20 should only be allocated on SB 98 costs. Lexington will help NW Natural's
21 distribution system (which includes transport customers) meet the state's CPP

¹⁰ See *in re Northwest Natural Gas Company, dba NW Natural*, OPUC Docket No. UI 451, Order No. 22-211 at Appx. A (Jun. 6, 2022).

¹¹ <https://www.bpa.gov/learn-and-participate/projects/wind-integration>

¹² CUB Exhibit 501.

1 compliance needs. Utility assets' usefulness are not static and evolve over time.
2 Because Lexington will be used to help the Company comply with the CPP,¹³ it is
3 appropriate to spread RNG costs among all of NWN's customers because NWN is
4 now the CPP compliance point for all of its customers. This is consistent with cost
5 causation principles. CUB's position is that government-mandated costs—such as
6 those imposed by regulations like the CPP—be borne by all customers of the utility.
7 CUB urges the Commission to take this position in this instance as well.

8 **Q. Why is it inappropriate to allocate this cost on the basis of equal percent of**
9 **margin, as AWEC proposes?**

10 **A.** Margin revenue is revenue related to the cost of delivering natural gas to customers,
11 and does not include the commodity cost of natural gas and upstream third party-
12 owned transportation. RNG is a gas commodity cost and should not be allocated
13 based on the allocated cost of NW Natural's physical distribution system. The cost of
14 RNG projects is associated with natural gas usage. This premise is corroborated by
15 the treatment of AWEC and other parties to create a performance expectation
16 condition as part of the UI 451 Lexington Stipulation.¹⁴ The more RNG commodity
17 that the Lexington project produces, the lower its costs will be. The inverse is also
18 true. The performance condition was included to capture this interplay.

19 **Q. What is CUB's response to AWEC's testimony that "[the equal cents per**
20 **therm proposal for RNG] is contradictory in that it assigns a larger portion**
21 **of the costs of RNG to transportation customers, while otherwise ignoring**
22 **cost causation in the context of base rate increases"?**

¹³ *Supra*, note 5.

¹⁴ Order No. 22-211 at Appx. A, p. 4.

1 **A.** NW Natural’s Long-Run Incremental Cost (LRIC) study is an engineering-economic
2 cost of service study that is meant to apportion the incremental revenue requirement
3 to rate schedules based on each schedule’s cost of service. There are several
4 engineering and economic assumptions that are used in the LRIC. These assumptions
5 can vary. For example, in this proceeding, Staff presented an alternative study which
6 reduced the allocated LRIC cost to small customers.¹⁵ In general, an LRIC is a tool
7 used to inform rate spread proposals among the customer classes. However, the
8 LRIC is not fully relied upon to calculate rate spread. It is merely incremental
9 evidence that the Commission can consider when examining rate spread proposals.
10 CUB is not surprised that AWEC wants to lean on the results from the LRIC, because
11 that would result in industrial customer classes receiving a rate decrease, or no costs
12 moving forward.

13
14 CUB’s position is that all customers should pay for RNG costs, because all of NW
15 Natural customers are responsible for CPP compliance costs. If the Commission were
16 to adopt non-rate case cost recovery mechanism for the recovery of RNG costs, a cost
17 allocator to allocate costs between general rate case proceedings would be necessary.
18 For this reason, CUB recommends that the Commission adopt an equal cents per
19 therm rate spread to all of NW Natural’s customers excluding storage customers.

20 **III. RNG COST RECOVERY MECHANISM**

21 **Q. Please summarize CUB’s position.**

¹⁵ UG 435 – Staff/1600/Gibbens.

1 A. CUB continues to recommend that the Commission adopt CUB's proposed RNG cost
2 recovery mechanism detailed in CUB/200.

3 **Q. What is CUB's RNG cost recovery mechanism?**

4 A. CUB's proposed RNG cost recovery mechanism is structured as follows:

- 5 • All costs associated with RNG investments will be tracked separate from
6 base rates in the RNG cost recovery mechanism.
- 7 • NW Natural will file to update RNG investment costs using a forward test
8 year on February 28th of each year. The February 28th filing will include the
9 cost of new RNG projects that are not included in rates. The rate effective
10 date for costs in the mechanism will be November 1st. This process will
11 give the stakeholders adequate time to review proposed RNG qualified
12 investments
- 13 • NW Natural will file an update on August 1st, which allows the Company
14 to update the cost of existing RNG projects.
- 15 • NW Natural will include the projected revenue requirement associated with
16 new RNG assets and will annually update the forecasted cost of previously
17 approved in rates.
- 18 • NW Natural will only be allowed to add new RNG assets on November 1st
19 of each year.
- 20 • Prior to changing rates on November 1st, NW Natural will attest that all
21 RNG projects are currently operating, and providing utility service to
22 Oregon customers. If a project is no longer producing and is retired while
23 there is still undepreciated capital investment associated with the project,

1 NW Natural will remove that project from its calculation of its return on
2 rate base from the mechanism and will earn the time value of money on its
3 undepreciated capital investment.

- 4 • The Company will not be allowed to file for a deferral between the in-
5 service date of the RNG project and the rate effective date.
- 6 • The Company will be allowed to defer differences between forecasted and
7 historic RNG costs and actual costs, subject to an earnings test. The earning
8 test eliminates any annual RNG cost adjustment if the Company earn within
9 a one hundred basis points deadband around its allowed return on equity
10 (ROE).
- 11 • Once NW Natural expects to meet the cost cap in SB 98, NW Natural will
12 meet to discuss changes to the mechanism, and address how ratemaking
13 should occur once the cost cap is reached.

14 **Q. Did CUB change any parts of its proposed RNG cost recovery mechanism**
15 **from its original proposal?**

16 **A.** Yes. CUB added a condition proposed by the Company, which would enable NW
17 Natural to update existing projected costs on August 1st of each year. CUB has
18 concerns about how the review process of this update would align with the review of
19 other proceedings, such as the Purchased Gas Adjustment. However, CUB is
20 sensitive to the Company's desire to have a more accurate forecast.¹⁶ CUB may
21 propose an alternative schedule after working through the RNG cost recovery process
22 in a future proceeding.

¹⁶ UG 435 – NW Natural/1600/Kravitz/32, lines 6-8.

1 **Q. How would CUB characterize its proposed mechanism?**

2 **A.** CUB's proposal fairly balances the interests of customers and the Company.

3 Customers and the Company need to acquire RNG in order to meet the requirements
4 of CPP and SB 98. Under CUB's proposal, the Company is allowed to annually
5 update the costs associated with RNG. NW Natural's customers will bear 100% of
6 these forecasted costs. Compared to traditional cost recovery in a general rate case,
7 CUB's proposal will enable NW Natural to timely recover its profit associated with
8 RNG and expenses related to its RNG portfolio. In the long term, if operating costs
9 increase or additional capital investment is needed to operate an RNG facility, the
10 Company will have a timely mechanism to recover these costs from customers under
11 CUB's mechanism. CUB also believes its mechanism aligns with legal requirements,
12 which we will expand upon in briefing.

13 **Q. What is the primary source of disagreement between the Company and CUB?**

14 **A.** NW Natural appears to be arguing that ORS § 757.396(2) requires the Commission to
15 charge customers 100% of the forecasted cost of RNG, and requires NW Natural to
16 receive a dollar-for-dollar true up of RNG costs.

17 **Q. How does the Commission ensure that the utilities such as NW Natural are
18 able to recover prudently incurred costs?**

19 **A.** The primary tool that the Commission uses to allow recovery of prudently incurred
20 costs is a forecasted cost. Natural gas costs are forecasted annually; prudently
21 incurred margin costs are forecasted into a test year in the general rate case process.
22 Forecasting a cost and setting a rate to recover that cost is how utilities recover the
23 prudently incurred cost of capital investments, labor costs, material costs, financing

1 costs and management costs. There is nothing in SB 98 that suggests that forecasting
2 costs is not a legitimate method for NW Natural to recover all prudently incurred
3 costs.

4 **Q. What do CUB and the Company disagree on?**

5 **A.** CUB and the Company disagree on when to true up actual costs to forecasted costs.

6 The Company position is that the law requires the Commission to provide a 100%
7 true up actual costs to forecasted costs. Additionally, the Company wants the ability
8 to defer RNG costs between the commercial operation date of the RNG facility and
9 the rate effective date of the RNG cost recovery mechanism.

10 **Q. What is CUB's position on the Company's proposed cost recovery**
11 **mechanism?**

12 **A.** The Company's proposed cost recovery mechanism is unbalanced between customers
13 and the Company. The Company's proposal ensures that the Company recovers
14 100% of all costs associated with RNG. This is more favorable treatment than other
15 rate-based assets owned by the Company.

16 **Q. Do you agree with the Company's position that it should recover 100% of all**
17 **costs associated with RNG due to ORS § 757.396(2)?**

18 **A.** No. I am not an attorney and CUB will expand on this issue in briefing.

19 However, it is worth noting that the language in ORS § 757.396(2) is similar to
20 the language in ORS § 469A.120(1)—the statute that governs cost recovery for
21 electric utility investments to meet Renewable Portfolio Standard (RPS)
22 requirements. ORS § 757.396(2) provides, in part, that “[t]he commission shall
23 adopt ratemaking mechanisms that ensure the recovery of all prudently incurred

1 costs that contribute to the large natural gas utility’s meeting the targets set
2 forth...” Meanwhile, ORS § 469A.120(1) provides that “all prudently incurred
3 costs associated with complying with ORS 469A.005 to 469A.210 are recoverable
4 in the rates of an electric company.”

5 **Q. How has the Commission interpreted ORS § 469A.120(1)?**

6 **A.** The Commission opened an investigation into the recovery of costs incurred to
7 comply with the RPS as authorized by ORS § 469A.120(1) in Docket No. UM
8 1662. The investigation was opened at the request of Portland General Electric
9 Company and PacifiCorp, who stated that “the existing ratemaking mechanisms
10 fail to account for all their variable costs directly attributable to RPS compliance
11 that they are legally entitled to recover.”¹⁷ In the final order in that proceeding,
12 the Commission held that, “[b]ased on [its] plain reading of the statute, we agree
13 with Staff, CUB, and ICNU that ORS 469A.120(1) does not mandate dollar-for-
14 dollar recovery of all RPS costs, but rather allows the utilities the *opportunity* to
15 recover their variable costs.”¹⁸

16 **Q. What does this mean?**

17 **A.** CUB will expand on this issue in briefing. However, it appears that the
18 Commission has held that substantially similar statutory language does not require
19 dollar-for-dollar cost recovery, as NWN posits. Rather, the statutory language
20 requiring recovery of prudently incurred costs only requires the “opportunity” to

¹⁷ *In re Portland General Electric Company and PacifiCorp, dba Pacific Power, Request for Generic Power Cost Adjustment Mechanism Investigation*, OPUC Docket No. UM 1662, Order No. 15-408 at 1 (Dec. 18, 2015).

¹⁸ OPUC Order No. 15-408 at 6 (emphasis added).

1 recover those costs. CUB's proposal provides NWN the opportunity to recover
2 prudently incurred RNG costs.

3 **Q. How does the Renewable Automatic Adjustment Clause (RAC) operate?**

4 **A.** The RAC is the automatic adjustment clause that grew out of ORS 469A.120(1) .
5 It enables electric utilities to include forecasted capital, operation and
6 maintenance costs, transmission costs, and associated taxes in a separate rate
7 schedule. The RAC does not allow for the dollar-for-dollar true up of forecasted
8 renewable costs.

9 **Q. Are there any additional points you would like to make on this issue?**

10 **A.** Yes. CUB and NWN's proposed RNG cost recovery mechanisms are designed to
11 include costs associated with both SB 98 and CPP compliance. The language
12 NWN relies upon in ORS § 757.396(2) only relates to SB 98 compliance. There
13 may be costs added to this mechanism that were only incurred to meet CPP
14 targets, and those costs have no statutory underpinning guiding cost recovery. As
15 CUB will detail in briefing, NWN's footing to argue ORS § 757.396(2) requires
16 dollar-for-dollar cost recovery appears tenuous at best.

17 **Q. What is a utility's cost of capital?**

18 **A.** The cost of capital is the expected rate of return in capital markets on alternative
19 investments of equivalent risk.¹⁹

20 **Q. What is the composition of NW Natural's cost of capital?**

21 **A.** NW Natural obtains financing for debt by borrowing money from an outside source.
22 In exchange for the money from the bondholder, NW Natural promises to repay the

¹⁹ UG 435 – NW Natural / 300 / Villadsen-Figueroa/Page 9 / Lines 7-5.

1 bond plus interest. The interest on the debt issuance is the cost of financing the debt
2 instrument. Company equity is raised by selling a portion of the company to a
3 shareholder. Unlike a debtholder, which is compensated with the promise to repay
4 the principal plus interest, equity shareholders profit from share dividends and
5 appreciation in the value of the companies share. Unlike the return to debtholders,
6 equity shareholders' profit from the return from company dividends and capital
7 appreciation are not guaranteed. Shareholders receive compensation after debtholder
8 obligations are fulfilled. An equity investment in NW Natural is riskier than owning a
9 debt investment in NW Natural. Due to this risk, shareholders are compensated more
10 than debt holders. In finance, risk and return are correlated. In general, the higher the
11 risk associated with investment, the higher the return required by investors.

12 NW Natural's investments are currently financed at fifty percent equity and fifty
13 percent debt. Regulated utilities, such as NW Natural, do not operate in a typical
14 competitive environment. NW Natural's regulated natural gas business is the primary
15 source of profit for the Company. NW Natural's profit is set by state regulation. This
16 regulation is meant to replicate the forces of competition, and the two state
17 Commissions (Oregon Public Utility Commission and Washington Utilities and
18 Transport Commission) that regulate NW Natural set a return on equity comparable
19 with returns of similar enterprises.

20
21 While I am not an attorney, it is my understanding that ORS § 757.396(3) requires the
22 Commission to use the Company's most recently approved cost of capital when
23 calculating the revenue requirement associated with RNG.

1

2 The Company's proposal to true-up RNG costs to 100% of actuals absolves NW
3 Natural's shareholders of all risks associated with RNG production while charging
4 customers for the cost of equity in its capital structure. Equity holders are
5 compensated at the Company's return on equity for risk incurred. Under NWN's
6 proposal, equity holders would bear no risk, yet would be compensated for incurring
7 risk. This is an unacceptable proposal for customers. If natural gas usage on NW
8 Natural's system was less than expected when setting RNG rates and the Company
9 under recovered its costs due to normal business risk, under the Company's proposal,
10 the Company's shareholders would be guaranteed return on equity on its RNG
11 investment. If an RNG facility failed to operate due to normal business risk during
12 the winter heating season and the RNG facility did not produce expected gas sales
13 revenue, under the Company's proposal, the Company's shareholders would be
14 guaranteed to earn their return on equity associated with the RNG facilities.

15

16 NW Natural's proposal to charge customers an equity return on investment for RNG
17 capital, and use a regulatory mechanism to ensure a 100% true up of costs is
18 imbalanced and inequitable.

19 **Q. What is the Commission's responsibility to Oregon customers?**

20 **A.** The Commission's must establish fair, just, and reasonable rates which allow a utility
21 to recover its costs and the opportunity to earn a reasonable rate of return for its
22 shareholders while also ensuring customer rates are affordable.²⁰ To protect

²⁰ ORS 756.040(1).

1 customers, the rates must be set at a level sufficiently low to avoid unjust and
2 unreasonable exactions.²¹ This requires a balancing of the interests of the utility and
3 its customers. The Commission should not approve a mechanism that guarantees that
4 NW Natural will earn its authorized rate of return on RNG investments and would
5 shift all risk onto customers. As CUB will detail in briefing, such a mechanism
6 would fail to meet the fair, just, and reasonable standard.

7 **Q. Besides the equity risk premium that customers will be funding for RNG, are**
8 **there other reasons to not allow for a one hundred percent true-up of RNG**
9 **costs?**

10 **A.** Yes. RNG investments are being used to create low-carbon fuel or renewable thermal
11 credits for NW Natural's distribution system. This is a new type of investment,
12 which is different from other NW Natural investments. NW Natural has historically
13 managed and invested in natural gas distribution system investments. RNG
14 investments will include coordinating with third parties and producing physical RNG,
15 which is a departure from NWN's traditional business model and brings with it
16 different types of risk.

17
18 Customers will partially depend on RNG facilities to meet CPP regulatory
19 compliance needs. If a NW Natural RNG project is found to be prudent, and is used
20 and useful, customers bear the cost of the facility over the life of the project.

21 Customers do not have managerial control over the RNG facilities, and cannot
22 manage the costs of RNG. On the other hand, NW Natural does have managerial

²¹ OPUC Order No. 08-487 at 5.

1 control, and is providing capital to fund RNG production or interconnection. CUB's
2 proposal would provide a strong and important incentive for the Company to control
3 costs.

4
5 NW Natural has ratepayer-funded expertise in its RNG department and gas supply
6 department. The Company needs to have an incentive to be involved in business
7 decisions associated with RNG production to ensure that customers are receiving
8 value from the facility. Managerial oversight includes managing the output of RNG
9 facilities, managing annual RNG budgets and overseeing operations and maintenance
10 of RNG facilities. From a management perspective, it is easier for NW Natural to
11 raise money when faced with higher costs for RNG from customers, than for the
12 Company to manage RNG costs. CUB opposes a 100% percent pass through of RNG
13 costs because it will not provide NW Natural with an incentive to manage costs.

14
15 CUB's proposal is not punitive. If the Company experiences increased costs, the
16 Company would be able to update the expected costs of its RNG portfolio the
17 following year. Additionally, within the year, if the Company's earnings were
18 unreasonably low or high, the Company would be allowed to true up historical RNG
19 costs from actuals.

20 **Q. Why is CUB's earning test on RNG true ups reasonable?**

21 **A.** While a specific targeted ROE is usually established to set rates, a reasonable return
22 for a utility is considered to be a range. The Commission has acknowledged this
23 range for a reasonable return as a balance between competing interests:

1 The Commission sets rates within a reasonable range that protects the
2 competing interests of the utility and its customers. To protect customers,
3 the rates must be set at a level sufficiently low to avoid unjust and
4 unreasonable exactions. To protect the utility investor, the rates must
5 provide sufficient revenue not only for operating expenses, but also for the
6 capital costs of the business.²²

7 In this proceeding, parties have advocated a range of reasonable ROE for NW Natural
8 with lower bound being 8.6²³ and the upper bound being 10.5.²⁴ CUB's earning test
9 only enables the true up of actual RNG costs to forecasted RNG costs when NW
10 Natural's earnings are outside the range of reasonableness. This helps ensure that the
11 Company can earn within the range of reasonableness if its earnings are below this
12 range. It also protects customers from unnecessary costs when the Company is
13 already earning within the range of reasonableness. CUB's proposal is therefore
14 balanced and aligns with Commission policy and precedent to balance the interests of
15 the utility shareholder and customer. Further, CUB's earnings test proposal is durable
16 and can accommodate changes to NW Natural's authorized rate of return overtime.

17 **Q. Why did CUB propose an earning test at a 100-basis point earning test**
18 **around NW Natural's ROE?**

19 **A.** CUB's proposal provides NW Natural with a within the year incentive to manage
20 costs in its RNG portfolio. Moving forward, NW Natural is not going to be managing
21 the costs of just a single facility. The Company is going to going to managing an
22 RNG portfolio with investments beyond Lexington, with different fuel sources,
23 geographic locations, interconnection setups, and production methods. CUB's
24 proposal provides the Company with an incentive to manage costs of its RNG

²² OPUC Order No. 08-487 at 5.

²³ UG 435 - Staff/100/Muldoon/18, line 2.

²⁴ UG 435 – NW Natural/300/Villadsen-Figueroa/6, line 7.

1 portfolio within the year. If an RNG portfolio is experiencing higher costs cost than
2 forecast with in the RNG year, the Company has incentive to manage the cost of the
3 RNG portfolio. If NW Natural’s RNG portfolio is experiencing lower costs than
4 forecast, the Company has incentive to manage RNG costs and keep the difference
5 between RNG revenues and costs, as long the Company’s earnings are reasonable. If
6 the RNG portfolio costs change significantly, the Company is able to file for a new
7 forecasted cost in the next gas year.

8 **Q. What is the CUB’s response to the Company’s testimony on using deferrals to**
9 **capture costs between the commercial operation date of the RNG facility and**
10 **the rate effective date?**

11 **A.** The Company is trying to eliminate the risk that its shareholders earn less than its
12 regulated profit on RNG investments, and is trying to eliminate regulatory lag with
13 this proposal. CUB has already addressed regulatory lag by proposing a mechanism
14 that enabled annual updates of RNG costs, and allows the true up of forecasted to
15 actual costs under specific guidelines. The Company’s proposal would guarantee
16 revenue collection for utility between the commercial operation date and the rate
17 effective date of facility.

18
19 The Company also argued that the CUB’s proposal is imbalanced because it only
20 reduces one type of regulatory lag.²⁵ That is incorrect. CUB’s proposal reduces
21 regulatory lag on costs borne by customers and the Company, and allows the
22 Company to annually update its costs (capital additions, rate base, O&M expense,

²⁵ UG 435 – NW Natural/1600/Kravtiz/38, line 10-12.

1 brown gas sales revenue). This reduces regulatory lag for NW Natural and
2 customers.

3 **Q. What is the CUB's response to the Company's testimony on CUB's proposal**
4 **to only update the RNG cost recovery mechanism on November 1st of each**
5 **year?**

6 **A.** The Company argues that CUB's proposal does not allow for flexibility around the
7 rate effective date.²⁶ The Company also argues that CUB's proposal could lead
8 multiple rate adjustment in a given year.²⁷ The Company is using unusual and
9 unlikely to occur circumstances, such as an out of cycle rate case or PGA update, to
10 justify its proposal. If the November 1st rate change requirement were in effect for
11 the RNG tariff, the out of cycle rate case or PGA would be causing the additional rate
12 changes, not the renewable natural gas automatic adjustment clause. Additionally,
13 the Company acknowledges that it anticipates making rate changes on November 1st
14 of each year.²⁸ CUB's proposal is reasonable and in line with historical rate changes
15 conducted by the Company. Over the past ten years, most of NW Natural's rate
16 change due to the PGA and GRCs have occurred on November 1st. CUB appreciates
17 the Company's policy of minimizing the frequency of rate changes born by
18 customers, and is making that proposal to continue that policy.

19
20 The Company used an example of a qualified investment entering service on
21 November 7th as an example for the need for flexibility around the rate effective

²⁶ UG 435 – NW Natural/1600/Kravitz/33, line 1-2.

²⁷ UG 435 – NW Natural/1600/Kravitz/33, line 1-2.

²⁸ UG 435 – NW Natural/1600/Kravitz/34, line 17-18.

1 date.²⁹ The Company's example is not apt. First, the Company assumes that it will
2 be able to defer between the commercial operation date and rate effective date, which
3 CUB opposes. Second, all deferrals need to be subject to an earnings test, which will
4 require the Companies results of operation (ROO). NW Natural's Annual ROO is
5 filed on the first week of May. Even if NW Natural's rate effective date deferral
6 proposal for RNG is approved by the Commission over CUB's objections, it is better
7 to wait the six months between May 1st (when the previous year's earnings are
8 released) and November 1st (when NW Natural changes gas rates) and accrue interest,
9 than to have customer bear multiple rate changes in the year.

10 **Q. What is CUB's response to the Company's testimony on the time value of**
11 **money and retired RNG plant?**

12 **A.** In Opening Testimony, CUB proposed that an RNG project that is no longer
13 producing and is retired from service with undepreciated capital investment, would be
14 removed from NW Natural's rate base. CUB proposed that the Company would earn
15 the time value of money on the remaining balance of the undepreciated capital
16 investment.

17
18 The Company proposed to have the cost of NW Natural's embedded debt be used to
19 compensate the utility for the time value of money. CUB has two recommendations
20 on this topic. The first recommendation is that CUB recommends that this issue is
21 addressed when NW Natural first experiences a RNG facility retiring early. There are
22 numerous contested issues before the Commission in this general case, and it may be

²⁹ UG 435 – NW Natural/1600/Kravitz/34, line 1-4.

1 expedient to delay litigation of this minor issue and address it at a future date.
2 Further, it appears that NWN generally agrees with CUB's proposal on this issue and
3 agrees that it aligns with Commission precedent.³⁰ In the event that NW Natural
4 wants to litigate the future time value of money for the retired RNG, CUB has an
5 alternative recommendation. CUB proposes that the time value of money be a blend
6 of the utility's cost of debt and in place of the cost of equity, the Company's most
7 recent 10-year issuance for debt. CUB proposes this to align with the Commission
8 Order in UE 374.³¹ In UE 374, the Commission stated that such a methodology
9 would reasonably result in the time value of money for that case. CUB disagrees with
10 the Company's proposal that the embedded cost of debt is a reasonable proxy for the
11 time value of money. CUB's proposal is more representative of a current
12 representation of the time value of money because it uses the Company's most recent
13 medium term debt issuance is based on recent information. In this case, the
14 Company's embedded costs of debt include debt issuances from the early 2000s,
15 which presented higher corporate interest rates than current market rates.³²

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

17 **A. Yes.**

³⁰ UG 435 – NW Natural/1600/Kravitz/35, lines 10-11.
³¹ OPUC Order No. 21-090 at page 9.
³² CUB Exhibit 502.

Variable Energy Resource Balancing Service (VERBS)

BPA Transmission Business Practice

Version 2
3/10/2022

Variable Energy Resource Balancing Service (VERBS)

Version 2

This business practice describes the Variable Energy Resource Balancing Service (VERBS) and clarifies its application. Included in this business practice is a description of how BPA will provide each Variable Energy Resource (VER) in the BPA Balancing Authority Area with the schedule value that meets the accuracy standard for each hour. BPA strongly encourages VER participants to automate scheduling to the BPA-provided schedule value to assist in avoiding the Intentional Deviation Penalty Charge.

BPA Policy Reference

- [Transmission Rate Schedules/Provisions](#): Transmission Ancillary and Control Area Service Rates; Variable Energy Resource Balancing Service

For more information, visit the [BPA Transmission Business Practices webpage](#) or submit questions to techforum@bpa.gov.

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A. VERBS Description

1. VERBS is a Control Area Service comprised of two components: regulating reserves and non-regulating reserves. This service is required to help maintain the power system frequency at 60 Hertz in conformance with North American Electric Reliability Corporation (NERC) reliability standards.
2. A VER in the BPA Balancing Authority Area is required to either purchase this balancing service (VERBS) from BPA or make alternative comparable arrangements to satisfy the within-hour balancing service obligation.
 - a. BPA will determine if a Customer's proposed alternative arrangement satisfies the within-hour balancing service obligation.

B. Eligibility Information Required

1. A VER in the BPA Balancing Authority Area may elect to take VERBS from BPA in accordance with the Balancing Service Election for Dispatchable Energy Resource Balancing Service (DERBS) and Variable Energy Resource Balancing Service (VERBS) Business Practice.
2. Each phase of a VER facility being developed may separately receive VERBS so long as each phase is metered and scheduled independently and is not otherwise interdependent with any other phase.
3. The VER must comply with BPA's Technical Requirements for Interconnection to the BPA Transmission Grid, specifically Section 12.2.2, Data Requirements for Balancing Authority Area Services.
4. VERs taking VERBS from BPA are required to provide any other pertinent information requested by BPA.

C. Compliance with Dispatch Orders

1. VERs are subject to Dispatch Orders, including Curtailments, generation limits and any directives issued under Operational Controls for Balancing Reserves, BPA's reliability tool.
2. A VER that does not respond appropriately to a Dispatch Order is subject to a Failure to Comply Penalty Charge (see the Failure to Comply Penalty Charge Business Practice).

D. BPA-Provided Schedule Value (Intentional Deviation Measurement Value)

1. BPA will supply each VER in the BPA Balancing Authority Area with its hourly scheduling value.
2. Through a mutually agreed-to data link (signal), BPA will provide to the VER the scheduling value for the VER to use in its hourly schedule. The mutually agreed-to data link will be the system of record for the application of the Intentional Deviation Penalty Charge.

3. The BPA-provided scheduling value is the Intentional Deviation Measurement Value in the Transmission, Ancillary, and Control Area Service (ACS) Rate Schedules.
4. For VER, the BPA-provided hourly scheduling value will be updated every five (5) minutes.
 - a. The following table identifies the timeframes to utilize the BPA-provided scheduling value.

VER Financial Binding Scheduling Time Lines				
First Scheduling Day	VER Forecast Produced @			
	DA - 9:35AM	T-85	T-70	T-45
Start of BP-22 10/1/2021	N/A	Draft @ T-77	Draft @ T-57	Final @ T-20*
7 Days prior to Parallel Ops 11/24/2021	Draft @ 10 AM	Draft @ T-77	Draft @ T-57* Final @ T-20	N/A
7 Days prior to Go-Live 4/26/2022	Draft @ 10 AM	Draft @ T-77**	Final @ T-57*	N/A
	Requested	Required		
*Intentional Deviation Measurement Value shifts to T-70 Forecast on 11/24/21 ** e-Tags required for scheduling resources at the T-77 submittal on 4/26/22				

- b. For those periods that Generator Imbalance Service is provided pursuant to Schedule 9 of the BPA OATT:
 - i. The following table identifies when to utilize the BPA-provided scheduling value.

Period Start	T=xx:00		
	Posted	E-tag	Scheduling Period
VER (Intentional Deviation Measurement Value)	xx:15-xx:20	xx:40	xx+1:00 - xx+2:00

- c. For those periods that Generator Imbalance Service is provided pursuant to Schedule 9E of the BPA OATT:
 - i. The following table identifies when to utilize the BPA-provided scheduling value.

Submittal Deadline								
10AM PPT on Day Before Operating Day			T-77 minutes			T-57 minutes		
Forecast Vintage	Posted Period	Schedule Period	Forecast Vintage	Posted Period	Schedule Period	Forecast Vintage	Posted Period	Schedule Period
9:35 PPT	9:35 to 9:40 PPT	+1 Day HE1-HE24	T-85	T-85 to T-80	T+0 to T+60	T-70	T-70 to T-65	T+0 to T+60
			XX:35	XX:35 to XX:40	HE XX+2	XX:50	XX:50 to XX:55	HE XX+2

- ii. See the Energy Imbalance Market (EIM) Business Practice for more detail.
- d. BPA will update the BPA-provided scheduling value within one (1) minute after the start of the posting period for the applicable scheduling period.
 - i. In the event BPA does not update the BPA-provided scheduling value prior to the close of the Base Schedule posting period, BPA will deem this a BPA system failure in accordance with Section E.4 of this business practice.

E. Curtailments, System of Record Failures & Operational Controls for Balancing Reserves

1. During an Operational Controls for Balancing Reserves limit generation event or transmission schedule Curtailment, the VER participant’s performance will be measured on the BPA-provided schedule value as defined in Section F.
2. During an Operational Controls for Balancing Reserves schedule Curtailment the VER participant does not need to limit its generation in response to the Operational Controls for Balancing Reserves schedule Curtailment if there are no other transmission Curtailments affecting e-Tags sourced at the VER.
3. During a transmission schedule Curtailment, VER participants are expected to comply and limit generation to not exceed the sum of remaining approved e-Tags during the entirety of the Curtailment period.
4. During a system of record failure, the scheduling value that BPA provides to the VER participant may not be sent.
 - a. The VER participant should schedule the subsequent scheduling interval as accurately as possible by using iCRS to obtain the BPA-provided schedule value.
 - b. In recognition that inaccuracy could result from unavailability of the scheduling value, BPA will exclude the subsequent schedule interval from scheduling accuracy performance requirements.

- c. The VER participant should notify their assigned Transmission Account Executive as soon as possible of the unavailability of the scheduling value.

F. Application of Intentional Deviation Penalty Charge

1. VERs are subject to the Intentional Deviation Penalty Charge as defined in the BPA ACS Rate Schedules.
2. A VER that elects to self-supply their Balancing Reserve Capacity must comply with the requirements in the self-supply of Balancing Services Business Practice.
3. For schedule Intervals with no Curtailments or with Curtailments issued prior to the close of the Western Electricity Coordinating Council (WECC) scheduling window at T-20:
 - a. Intentional Deviation applies, in accordance with the ACS Rate Schedules, when the resource schedules to a value other than the BPA-provided schedule value (Intentional Deviation Measurement Value), except:
 - i. When the resource schedules to another value and the imbalance from a different schedule value meets or beats the imbalance that would have otherwise occurred had the resource scheduled to the BPA-provided schedule value, as defined in Section D.
4. For schedule periods with Curtailments issued after the close of the WECC scheduling window at T-20, for each scheduling period Intentional Deviation will not apply.

Issuer	Abbr	Issuer Name	Program Abbr	Program Name	Cusip	Issue Date	Maturity Date	Par Amt	Coupon Rate	Cost of Money
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RCA2	8/19/2013	8/19/2023	50,000,000.00	3.542%	3.696%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RBS4	11/21/2003	11/21/2023	40,000,000.00	5.620%	6.360%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RBJ4	9/6/2000	9/1/2025	20,000,000.00	7.720%	8.336%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RAU0	12/1/1995	12/1/2025	10,000,000.00	6.520%	6.589%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RAV8	10/15/1996	10/15/2026	20,000,000.00	7.050%	7.121%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RCC8	12/5/2016	12/5/2026	35,000,000.00	3.211%	3.383%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RAW6	5/20/1997	5/21/2027	20,000,000.00	7.000%	7.062%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RCE4	9/13/2017	9/13/2027	25,000,000.00	2.822%	2.966%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RAZ9	11/10/1997	11/10/2027	19,700,000.00	6.650%	6.714%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RBB1	6/1/1998	6/1/2028	10,000,000.00	6.650%	6.727%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RCG9	6/17/2019	6/15/2029	50,000,000.00	3.141%	3.275%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RBG0	8/29/2000	8/29/2030	20,000,000.00	7.740%	8.433%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RBH8	9/6/2000	9/1/2030	10,000,000.00	7.850%	8.551%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RBQ8	9/24/2002	9/24/2032	30,000,000.00	5.820%	5.913%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RBR6	2/25/2003	2/25/2033	40,000,000.00	5.660%	5.723%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RBV7	6/21/2005	6/21/2035	10,000,000.00	5.250%	5.316%
				Private Placement	667655B*4	10/30/2012	10/31/2042	50,000,000.00	4.000%	4.062%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RCD6	12/5/2016	12/5/2046	40,000,000.00	4.136%	4.226%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RCF1	9/13/2017	9/13/2047	75,000,000.00	3.685%	3.754%
				Private Placement	667655B@2	10/30/2012	10/31/2042	50,000,000.00	4.110%	4.147%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RCH7	6/17/2019	6/15/2049	90,000,000.00	3.869%	3.938%
NORGAS		Northwest Gas	MTNORGASB	MTN Series B Fixed	66765RCJ3	3/29/2020	3/15/2050	150,000,000.00	3.600%	3.690%
Total Outstanding 9/30/2021								864,700,000.00		