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February 23, 2024

VIA ELECTRONIC FILING

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

Re: UG 490 – NW Natural's Request for a General Rate Revision
Supplemental Testimony

Northwest Natural Gas Company, dba NW Natural, hereby provides supplemental testimony by Zachary D. Kravitz and Gregg H. Therrien (NW Natural/2000, Kravitz-Therrien), and Kyle N. Griffiths (NW Natural/2100, Griffiths) for docket UG 490.

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Sincerely,

NW NATURAL

/s/ Ryan Sigurdson

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Enclosures

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

UG 490

NW Natural

Supplemental Testimony of Zachary D. Kravitz and Gregg H. Therrien

CLIMATE PROTECTION PROGRAM
EXHIBIT 2000

February 23, 2024

EXHIBIT 2000 – SUPPLEMENTAL TESTIMONY – CLIMATE PROTECTION PROGRAM

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I. INTRODUCTION AND SUMMARY

Q. Please state your names, affiliations, professional background, and education.

A. My name is Zachary D. Kravitz and I am Vice President of Rates and Regulatory Affairs at Northwest Natural Gas Company dba NW Natural ("NW Natural" or "the Company"). My professional background and education are described in the Direct Testimony that I co-sponsored, NW Natural/100, Palfreyman-Kravitz and NW Natural/1500, Kravitz-Chittum.

My name is Gregg H. Therrien and I am a Vice President at Concentric Energy Advisors ("Concentric"). I am appearing on behalf of NW Natural. My professional background and education are described in my Direct Testimony, NW Natural/1900, Therrien. My curriculum vitae is attached to my Direct Testimony, NW Natural/1901, Therrien.

Q. What sections of this testimony are you each sponsoring?

A. Mr. Kravitz is sponsoring all sections of this testimony (NW Natural/2000, Kravitz-Therrien). Mr. Therrien is co-sponsoring this first section of the testimony and Section V below. Section V revises NW Natural's proposal for a Line Extension Allowance ("LEA") that it originally made in Mr. Therrien's Direct Testimony, NW Natural/1900, Therrien.

Q. What is the purpose of this testimony?

A. The purpose of this testimony is to explain:

- Why the Oregon Court of Appeals' recent decision to invalidate the Climate Protection Program ("CPP") does not change the revenue

requirement the Company proposed in its application for a general rate revision ("Application");

- Why NW Natural's proposed changes to Schedule 198, Renewable Natural Gas Adjustment Mechanism ("Schedule 198") remain appropriate and necessary; and
- NW Natural's revised LEA proposal as a result of the CPP being invalidated.

II. BACKGROUND

Q. Please briefly describe the CPP.

A. In late 2021, the Oregon Department of Environmental Quality ("ODEQ") adopted the CPP. Under the CPP, the ODEQ required that covered entities, such as NW Natural, reduce the greenhouse gas ("GHG") emissions for which the CPP deems them to be responsible. For NW Natural, these "covered emissions" were the emissions that resulted from its sales customers' and transport customers' use of natural gas.[1]

Q. Have there been any updates to the CPP since the time the Company finalized this rate case for filing?

A. Yes. As the Company explained in its cover letter filed with the rate case, on December 20, 2023, the Oregon Court of Appeals invalidated the CPP.[2] The court held that the "[Oregon] Environmental Quality Commission ([O]EQC), in

[1] For a more comprehensive description of the invalidated CPP, please see Direct Testimony of Zachary D. Kravitz and Anna K. Chittum, NW Natural/1500, Kravitz-Chittum/Pages 4-12.

[2] N.W. Natural Gas Co. v. Environ. Quality Comm., 329 Or App 648, 652 (2023).

adopting the CPP rules, did not comply with the heightened disclosure requirements applicable to it when it adopts rules that apply to entities required to obtain Title V permits under the federal Clean Air Act" and, therefore, invalidated the CPP in its entirety.[3]

Q. In its Direct Testimony, did NW Natural incorporate the court's decision into its testimony?

A. No. Although the court made its decision on December 20, 2023, and NW Natural filed its rate Application, including Direct Testimony, on December 29, 2023, there was not sufficient time to incorporate the court's decision into its testimony. In the cover letter to its rate Application, NW Natural stated the "decision was issued after NW Natural's Application was finalized and printed," and that the Company "will address the impact, if any, of this decision on the Company's Application through the pendency of the proceeding." The parties to this proceeding have agreed that NW Natural would make this update by February 23, 2024, which is now formalized in the procedural schedule.[4]

Q. Will the OEQC appeal the decision to invalidate the CPP?

A. No. On January 22, 2024, the OEQC and the ODEQ stated that it will not appeal the court's decision to invalidate the CPP.[5] Rather it will begin a rulemaking

[3] *Id.*

[4] *In the Matter of Northwest Natural Gas Company, dba NW Natural, Request for a General Rate Revision*, Docket No. UG 490, Prehearing Conference Memorandum; Request for Comments (issued Feb. 5, 2024), at 2.

[5] ODEQ News Release Regarding CPP, (issued Jan. 22, 2024) available at: https://www.oregon.gov/newsroom/Pages/NewsDetail.aspx?newsid=215174.

process in the first quarter of 2024 to establish a new program.[6] ODEQ indicated that the rulemaking process typically takes twelve months to complete.[7]

Q. Does NW Natural intend to participate in this rulemaking?

A. Yes. In response to the ODEQ establishing a new rulemaking, the Company stated:

> "We believe in effective climate policy and remain committed to moving toward a low-carbon energy future while safely, reliably and affordably serving our customers. Last week's winter storm [January 12 through January 19, 2024] is the latest reminder of how Oregonians rely on and need two energy systems. . . [W]e look forward to reengaging with [ODEQ], our customers and the communities we serve to develop cost effective, constructive solutions that address our shared climate goals."

NW Natural seeks to work with all stakeholders to address climate change, while also seeking ways to enhance the reliability and resiliency of both the natural gas and the power systems to ensure that all Oregonians have access to energy, which is especially critical during severe winter weather.

Q. Does the invalidation of the CPP alter the revenue requirement that NW Natural is seeking in this proceeding?

A. No. NW Natural's revenue requirement is not affected by the invalidation of the CPP. In response to a question in Direct Testimony asking whether the Company is "seeking to recover any costs associated with meeting a projected CPP compliance gap in this proceeding," Mr. Palfreyman and Mr. Kravitz answered that

[6] *Id.*

[7] *Id.*

NW Natural was not seeking recovery of such costs in this rate case.[8] However, as explained in Section III below, NW Natural is continuing to seek recovery of five incremental full-time employees ("FTEs") to enhance its decarbonization efforts. Section IV explains why NW Natural continues to seek two changes to Schedule 198, Renewable Natural Gas Adjustment Mechanism. Finally, Section V explains NW Natural's revised LEA due to the invalidation of the CPP.

III. DECARBONIZATION EMPLOYEES

Q. Please summarize NW Natural's plans for an additional five FTEs focused on decarbonization and CPP compliance.

A. In Direct Testimony, NW Natural stated that it plans to hire five additional FTEs that are focused on decarbonization and CPP compliance.[9] Specifically, NW Natural plans to fill the following positions by the rate effective date in this proceeding (November 1, 2024):

1. Decarbonization Services Analyst;
2. Decarbonization Services Operations Support;
3. Decarbonization Portfolio Manager;
4. Decarbonization Compliance Rates Analyst; and
5. Peak Load Management Analyst.[10]

[8] Direct Testimony of Justin B. Palfreyman and Zachary D. Kravitz, NW Natural/100, Palfreyman-Kravitz/Page13.

[9] Direct Testimony of Zachary D. Kravitz and Anna K. Chittum, NW Natural/1500, Kravitz-Chittum/Page 20.

[10] *Id.*

Q. Does the invalidation of the CPP change NW Natural's plans to fill these five positions by November 1, 2024?

A. No. Even though the CPP has been invalidated, these five positions are still necessary for NW Natural to meet Oregon's increasing renewable natural gas ("RNG") targets under SB 98,[11] prepare for potential climate policies, and move forward with analysis for non-pipeline solutions. Therefore, NW Natural's plans to add these five FTEs are not affected by the recent invalidation of the CPP.

Q. Please explain why the Decarbonization Services Analyst position remains necessary, even though the CPP has been invalidated.

A. As described in Direct Testimony, the Decarbonization Services Analyst "will research and analyze new and emerging technologies and develop business cases for new decarbonization services, including district energy and geothermal energy in both residential and commercial and industrial applications, as well as negotiating agreements with large customers in hard-to-decarbonize sectors for siting hydrogen and carbon capture projects."[12] Although the CPP has been invalidated, NW Natural must continue to take these steps to decarbonize. District energy and ground-source heat pumps, which are specific types of electrification, will continue to be promising tools to balance winter peak demands and decarbonization goals. Moreover, as stated above, ODEQ intends to open a new

[11] ORS 757.390-398. Per ORS 757.396, the RNG acquisition target will double from 5 percent of sales load to 10 percent in 2025.

[12] Direct Testimony of Zachary D. Kravitz and Anna K. Chittum, NW Natural/1500, Kravitz-Chittum/Page 21.

rulemaking to establish new GHG regulations. These decarbonization tools will be helpful in meeting any compliance obligations that arise from any new GHG emissions laws or regulations, as well as helping Oregon achieve its 2050 goal of a 75 percent reduction in GHG emissions relative to 1990 levels per ORS 468A.205.

Q. Please explain why the Decarbonization Services Operations Support position remains necessary, even though the CPP has been invalidated.

A. The Decarbonization Services Operations Support position will "collect and manage details supporting operational contracts and finances for the Company's decarbonization projects."[13] Again, in the absence of the CPP, NW Natural intends to continue to take actions to decarbonize, including pursuing additional projects to meet SB 98 RNG acquisition targets that double to 10 percent of sales load in 2025,[14] as well as other technologies, such as district energy, geothermal, carbon capture, and hydrogen. All of these projects need the operational support that this FTE will provide. As stated above, these projects will better position the Company to meet both its own and Oregon's decarbonization goals[15] and comply with any new Oregon GHG emissions laws or regulations.

[13] *Id.*

[14] ORS 757.396.

[15] *See* VISION 2050, Destination Zero, available at: https://www.nwnatural.com/about-us/the-company/carbon-neutral-future#:~:text=Our%20vision%20is%20to%20champion,residents%20we%20serve%20every%20day; ORS 468A.205.

Q. Please explain why the Decarbonization Portfolio Manager position remains necessary, even though the CPP has been invalidated.

A. The Decarbonization Portfolio Manager will manage NW Natural's decarbonization portfolio. Although in Direct Testimony NW Natural indicated that this position will manage its CPP decarbonization portfolio, the role remains essentially the same.[16] This includes coordinating a multi-disciplinary, multi-department decarbonization team responsible for forecasting decarbonization resource needs, as well as representing NW Natural in various forums including with regulatory bodies, such as the Commission and ODEQ.[17] Prior to the CPP invalidation, NW Natural envisioned this role also managing CPP compliance workstreams and recommending CPP compliance actions.[18] While these duties may be incorporated into the Decarbonization Portfolio Manager position to comply with new Oregon GHG laws or regulations, they will not be part of the job initially. Instead, the role will initially focus on engagement in the upcoming rulemaking process and any implementation of new Oregon GHG emissions laws or regulations.

[16] Direct Testimony of Zachary D. Kravitz and Anna K. Chittum, NW Natural/1500, Kravitz-Chittum/Page 22.

[17] *Id.*

[18] *Id.*

Q. Please explain why the Decarbonization Compliance Rates Analyst remains necessary, even though the CPP has been invalidated.

A. In Direct Testimony, NW Natural stated that the Decarbonization Compliance Rates Analyst will "focus on providing ongoing regulatory analytical support for the Company's decarbonization efforts, including developing analytical models for ratemaking and bill impact analysis, recommending decarbonization actions to management, and preparing documents and analyses for regulatory proceedings."[19] Without the CPP, this role is still vital, as NW Natural intends to further pursue decarbonization, including developing RNG resources to meet increasing SB 98 targets,[20] as well as other projects to meet the Company's own decarbonization goals. Also, as stated above, NW Natural will have to pursue decarbonization projects to comply with any new Oregon GHG emissions laws or regulations and to help Oregon to meet its 2050 emissions reduction goal under ORS 468A.205.

Q. Please explain why the Peak Load Management Analyst remains necessary, even though the CPP has been invalidated.

A. As explained in Direct Testimony, "[t]he Peak Load Management Analyst will perform research, data collection, quantitative data analysis, and reporting tasks to support demand-side management ("DSM") programs and support analysis, including demand response potential or planning studies, and DSM program and

[19] *Id.*

[20] ORS 757.390-398.

policy evaluations."[21] Using DSM or non-pipeline solutions, where appropriate, to minimize investments in the expansion of the distribution system while still providing safe and reliable utility service is beneficial to customers regardless of the validity of the CPP. It is also in line with Commission's guidance from NW Natural's latest IRP where the Commission stated that it "expect[ed] companies to take very seriously our expectation that they mitigate growth where they reasonably can [to] avoid distribution system capital investments" while "taking very seriously the company's continuing obligation to maintain safe and reliable service."[22]

IV. SCHEDULE 198 REVISIONS

Q. Please describe Schedule 198.

A. The Commission approved Schedule 198 in the Company's last general rate case (UG 435). Schedule 198 is an AAC, which is defined in ORS 757.210(1)(b) as "a provision of a rate schedule that provides for rate increases or decreases or both, without prior hearing, reflecting increases or decreases or both in costs incurred, taxes paid to units of government or revenues earned by a utility . . ." More specifically, Schedule 198 authorizes NW Natural to recover the costs of RNG investments outside of a general rate case.

[21] Direct Testimony of Zachary D. Kravitz and Anna K. Chittum, NW Natural/1500, Kravitz-Chittum/Page 23.

[22] *Id.* (quoting *In the Matter of Northwest Natural Gas Co., dba NW Natural, 2022 Integrated Resource Plan*, Docket No. LC 79, Order No. 23-281, at 14 (Aug. 2, 2023)).

Q. In Direct Testimony, did NW Natural propose any changes to Schedule 198?

A. Yes. NW Natural proposed two changes to Schedule 198. The first change is to permit NW Natural to defer, for later cost recovery, the costs of its RNG investments between the investment's in-service date and the rate effective date. The second change is to set the Schedule 198 earnings test at NW Natural's authorized ROE, removing the current deadband of 50 basis points below and 50 basis points above authorized ROE.

Q. Please summarize NW Natural's proposal to defer, for later cost recovery, the costs of its RNG investments between the investment's in-service date and the rate effective date that it made in Direct Testimony.[23]

A. In Direct Testimony, NW Natural stated that a deferral was appropriate because it "plans to make these investments for compliance with the CPP" and that it must "make [these] investments to lower the emissions that are attributed to it under the CPP."[24] NW Natural also pointed out that electric utilities have Renewable Adjustment Clauses ("RACs") that already permit such a deferral for renewable electric generation projects to meet the state's renewable portfolio standard.[25]

Q. Is a deferral still appropriate, even though the CPP has been invalidated?

A. Yes. To both meet its own decarbonization goals and support the goals of the State of Oregon under ORS 468A.205, NW Natural must continue to pursue RNG.

[23] Direct Testimony of Zachary D. Kravitz and Anna K. Chittum, NW Natural/1500, Kravitz-Chittum/Page 15.

[24] *Id.*

[25] *Id.*

It is likely that NW Natural will be subject to new laws or regulations concerning its customers' use of natural gas. Given these ambitious goals and looking ahead to new requirements, NW Natural continues to seek ratemaking treatment that balances the interests of the Company and customers while also recognizing that NW Natural must acquire RNG to meet shared GHG emissions reductions goals. Much like the RACs for electric utilities, an RNG deferral will give NW Natural the opportunity to recover costs that it will incur to decarbonize. However, it does not guarantee cost recovery.

Q. In Direct Testimony, NW Natural mentioned there was another way of addressing its underlying cost recovery concern without granting a deferral.[26] Does the invalidation of the CPP alter the Company's position?

A. No. In Direct Testimony, NW Natural stated that its underlying cost recovery concern could be addressed by adding flexibility to the timing of a Schedule 198 filing so that rates go into effect shortly after a RNG project enters service.[27] Currently, the timing of a Schedule 198 filing is fixed such that NW Natural must make a filing by February 28th of each year to seek cost recovery of any new RNG investment, without regard to when the facility goes into service. Regardless of any subsequent Oregon GHG emissions laws or regulations, such treatment would largely address NW Natural's cost recovery concern without the need for a deferral, although, as stated in Direct Testimony, "a deferral is a more

[26] *Id.* at Pages 17-18.

[27] *Id.* at Page 17.

straightforward approach that would continue a predictable cadence of annual Schedule 198 filings throughout the year."[28]

Q. NW Natural is also seeking to set the Schedule 198 earnings test at its authorized ROE, thereby removing the current deadband of 50 basis points below and 50 basis points above authorized ROE. Does the invalidation of the CPP impact this proposal in any way?

A. No. The problem with the current earnings test deadband exists regardless of the now invalidated CPP. As explained in Direct Testimony, the issue with the deadband "is that higher than forecasted RNG production increases the project's overall revenue requirement, even though per-unit costs decline."[29] For example, the more RNG that is produced, the more that is paid to the supplier of the raw biogas to incentivize raw biogas production. While these additional costs increase the project's total revenue requirement, it decreases per-unit costs because the project's fixed costs are spread over a larger amount of RNG. Therefore, the earnings test deadband has the unintentional effect of discouraging NW Natural from producing as much RNG as possible. This disincentive exists regardless of any regulatory requirement.

Under NW Natural's proposal, the earnings test would only trigger if the Company were earning at or above its authorized ROE. Although this treatment still may result in NW Natural not fully recovering costs it incurs due to increased

[28] *Id.* at Pages 17-18.

[29] *Id.* at Page 18.

production, it nevertheless strikes a reasonable balance between the Company's and customers' interests. More details regarding this proposal can be found in the Direct Testimony of Zachary D. Kravitz and Anna K. Chittum, NW Natural/1500, Kravitz-Chittum/Pages 18-20.

V. LEA

Q. Please briefly summarize what an LEA is and why utilities have them.

A. An LEA is a monetary allowance to offset upfront connection costs when expected delivery revenues and benefits equal or exceed the connection cost on a net present value ("NPV") basis over a pre-defined period of time (e.g., 25 years). Importantly, a LEA is not a subsidy. Instead, as stated in Direct Testimony, "[t]he LEA is designed with the objective of avoiding subsidies by comparing the specific cost of connecting the new customer with the new customer's expected revenue."[30] The Commission has recognized this concept in Order No. 22-388, stating "LEAs are calculated to ensure that existing customers are not harmed by the addition of new customers to the utility's system while accounting for the benefits that are expected to accrue from new customers."[31] Further background on LEAs, including the various approaches of LEA policies adopted by natural gas utilities across the country and the benefits of adding new customers to NW Natural's gas distribution system, are provided in Sections I through III of Mr. Therrien's Direct Testimony, NW Natural/1900, Therrien.

[30] Direct Testimony of Gregg H. Therrien, NW Natural/1900, Therrien/Page 9.

[31] *In the Matter of Northwest Natural Gas Company, dba NW Natural, Request for a General Rate Revision*, Docket No. UG 435, Order No. 22-388, at 48-49 (Oct. 24, 2022).

Q. In making its LEA proposal in Direct Testimony, did NW Natural consider the CPP?

A. Yes. Consistent with Commission guidance provided in NW Natural's last general rate case, the Company proposed to include CPP costs in the DCF analysis that it used to calculate the LEA.[32] As discussed above, a DCF analysis determines the difference between the net present value of expected customer revenues and the net present value of expected costs related to the line extension over a pre-defined period. If the revenues exceed the costs, then the extension of service to the new customer is considered economical. NW Natural proposed to incorporate the CPP into its DCF analysis by recognizing that CPP compliance costs specific to the new customer would have been an incremental expense that was not currently included in base rates. Also, since new customers would have been subject to paying annual CPP costs, credit for those revenues were reflected in the DCF analysis.

Q. Please explain how NW Natural calculated CPP compliance costs in its DCF analysis.

A. NW Natural calculated its CPP costs by first maximizing the purchase of Community Climate Investment ("CCI") credits consistent with the Direct Testimony of Zachary D. Kravitz and Anna Chittum, and also reflecting broad stakeholder consensus during NW Natural's recent Integrated Resource Plan

[32] Direct Testimony of Gregg H. Therrien, NW Natural/1900, Therrien/Page 17.

proceeding.[33] Consistent with OAR 340-271-0820,[34] NW Natural escalated the costs of the CCI credits by increasing the cost per CCI credit by $1 each year and adding an inflation adjustment. NW Natural conservatively estimated that it could acquire RNG at $22 per dekatherm for its remaining CPP compliance needs. This amount was higher than the anticipated cost of RNG in its last IRP, and it did not include potentially lower cost decarbonization solutions such as energy efficiency and industrial decarbonization.

Q. Since the CPP is now invalidated, does NW Natural still propose to use the cost of CCI credits to calculate the LEA?

A. No, it does not. Since the CPP is invalidated, NW Natural does not believe that it is appropriate to continue to rely on the cost of CCI credits, given that the concept of CCI credits was a component of the invalidated CPP. As NW Natural pointed out in Direct Testimony, if the CPP were a legally valid program, CCI credits would have been "roughly twice as expensive as the most expensive emission allowances in the United States and Canada, and the costs increase each year."[35] Also, CCI credits were never available to actually purchase, even though the CPP was in existence for almost two years before it was invalidated, calling into question whether the CCI framework is workable from a practical perspective.

[33] *See* Direct Testimony of Zachary D. Kravitz and Anna K. Chittum, NW Natural/1500, Kravitz-Chittum/Page 7 (citing *In the Matter of Northwest Natural Gas Co., dba NW Natural, 2022 Integrated Resource Plan*, Docket No. LC 79, Order No. 23-281, at 5-6, 9-10 (Aug. 2, 2023)).

[34] This regulation is part of the CPP. Therefore, it has been invalidated and is no longer in effect.

[35] Direct Testimony of Justin B. Palfreyman and Zachary D. Kravitz, NW Natural/100, Palfreyman-Kravitz/Pages 10-11.

Q. Is NW Natural proposing to use another metric to account for potential GHG reduction program costs?

A. Yes. NW Natural is proposing to use Washington's Climate Commitment Act ("CCA") compliance allowances as a proxy for the cost of credits under a future GHG emissions reduction program in Oregon.

Q. What is the CCA?

A. The CCA establishes a cap-and-invest program in Washington. The cap-and-invest program sets a limit, or cap, on overall GHG emissions in the state. To meet their compliance obligations, businesses must obtain allowances equal to their covered GHG emissions. Businesses can reduce the amount of allowances they must acquire by taking actions to reduce their covered GHG emissions. Allowances can be obtained through auctions hosted by the Washington Department of Ecology or bought and sold on a secondary market.

Q. Why is it appropriate to use CCA allowances as a proxy for the cost of credits under a future GHG emissions program in Oregon?

A. As explained above, NW Natural cannot use CCI credits to calculate the LEA because the CPP is invalidated and there are concerns whether the CCI credits, as designed in the CPP, are even workable. However, rather than simply not including any GHG costs because there are currently no legally valid GHG regulations concerning NW Natural's customers use of natural gas in Oregon, NW Natural has decided to use the cost of an CCA allowance as a proxy for a future GHG emissions reduction program in Oregon. NW Natural is using the cost of a CCA allowance because it is from a neighboring state with a legally valid GHG

reduction program and is more expensive than any other comparable credit or allowance in the United States.[36]

Q. How does NW Natural plan to incorporate the CCA into its DCF analysis?

A. Instead of using the cost of CCI credits, which, again, would have been twice as expensive as any other emission allowances in the United States and Canada and were never actually available for purchase, NW Natural's revised proposal uses emissions allowances sold through Washington's quarterly CCA auctions. To conservatively estimate CCA allowance costs, NW Natural used the highest quarterly auction price of 2023—approximately $63/MT CO2e.[37] Although this amount is less than what a CCI credit would have cost ($123/MT CO2e, increasing by $1 each year plus inflation), it is, as stated above, more expensive than any other credit or allowance from comparable GHG reduction programs in the United States.[38]

Q. How has the DCF analysis incorporated CCA allowance costs?

A. Similar to how NW Natural calculated its proposed LEA in Direct Testimony, the Company utilizes credits priced at the cost of CCA allowances for three years. After three years, NW Natural continues to conservatively estimate that it will acquire RNG at $22 per dekatherm for its remaining compliance needs. Again,

[36] Direct Testimony of Justin B. Palfreyman and Zachary D. Kravitz, NW Natural/100, Palfreyman-Kravitz/Pages 10-11.

[37] *Washington Cap-and-Invest Program, Auction #3, August 2023 Summary Report*, (issued on Sept. 6, 2023), available at: https://apps.ecology.wa.gov/publications/documents/2302060.pdf.

[38] Direct Testimony of Justin B. Palfreyman and Zachary D. Kravitz, NW Natural/100, Palfreyman-Kravitz/Pages 10-11.

this amount is higher than what NW Natural's last IRP anticipated and does not include the potential for lower cost decarbonization solutions, such as energy efficiency and industrial decarbonization.

Q. In Direct Testimony, NW Natural proposed three other changes to the DCF analysis. Does NW Natural's updated DCF analysis continue to incorporate these changes?

A. Yes. First, the DCF analysis continues to recognize future rate changes on a real dollar basis consistent with Direct Testimony. In other words, the DCF analysis recognizes that new customers contribute to the recovery of non-revenue generating future capital expenditures, thereby helping to reduce rates to the existing customer base through economies of scale.[39] We also continue to include the anticipated impact on future rates that may occur as the existing rate base is depreciated over time. This results in a net impact to revenues that reflects the benefit new customers provide to future non-growth capital expenditures (Exhibit NW Natural/1904, Therrien), and the impact in the reduction in the revenue requirement for existing rate base (on a real dollar basis).

Second, our updated DCF analysis also remains consistent with rate design changes that NW Natural has proposed in this proceeding. Specifically, the updated DCF analysis still utilizes the updated rate design for new residential

[39] *See* Direct Testimony of Gregg H. Therrien, NW Natural/1900, Therrien/Pages 18, 20-21 for further explanation.

customers added to the system after November 1, 2024, including a higher fixed monthly customer charge, resulting in higher revenues from all new customers.[40]

Finally, the DCF analysis continues to use a shorter term of 25 years, as opposed to the 30-year term used to calculate NW Natural's LEA prior to this proceeding. We made this change in Direct Testimony, and it remains in our updated DCF analysis in order to address apparent concerns in the last rate case about the appropriate term of a DCF analysis.[41] Using a 25-year term ensures that the investment is recovered during that period, as well as the return on the investment.[42]

Q. In Direct Testimony, NW Natural proposed setting the LEA based on usage tiers, where customers that used less natural gas would receive a higher LEA. Did NW Natural make any changes to these usage tiers in response to the invalidation of the CPP?

A. No. NW Natural made no changes to the usage tiers that it proposed in Direct Testimony. The usage tiers continue to be set at: 1) 0-250 therms, 2) 251-450 therms, 3) 451-650 therms, and 4) above 650 therms. These usage tiers and the rationale behind them are explained in Mr. Therrien's Direct Testimony, NW Natural/1900, Therrien/Pages 23-26.

[40] *See Id.* at Pages 18, 21 for further explanation; *see also* Direct Testimony of Robert J. Wyman, NW Natural/1800, Wyman.

[41] *In the Matter of Northwest Natural Gas Company, dba NW Natural, Request for a General Rate Revision*, Docket No. UG 435, Order No. 22-388, at 34 (Oct. 24, 2022).

[42] *See* Direct Testimony of Gregg H. Therrien, NW Natural/1900, Therrien/Pages 18, 21-22, 30-32 for further explanation.

Q. What are the results of NW Natural's updated DCF analysis?

A. NW Natural ran the DCF model for each tier. New customers that will use less than 250 therms will have a LEA of $3,700. Consistent with its Direct Testimony, NW Natural ran the DCF model with the most conservative (highest) assumption of therm usage at 250 therms.

New customers that will use between 251-450 therms will have a LEA of $3,300, which, again, assumes the highest therm usage at 450 therms consistent with Direct Testimony.

For new customers that will use between 451-650 therms, the LEA is $2,950, using the highest assumption of therm usage at 650 therms consistent with Direct Testimony.

Finally, customers using more than 650 therms will receive a LEA of $2,200. As in Direct Testimony, NW Natural utilized a conservative assumption of 1,000 therms for all new customers expected to use more than 650 therms.

Q. Did NW Natural also analyze what the LEA would have been had it included no GHG compliance costs?

A. Yes. Since the CPP is now invalidated and there are currently no Oregon GHG compliance costs, NW Natural analyzed what the LEA would have been had it not included any such costs. Using the same usage assumptions as those in the previous answer, the LEA would have been $6,300 for customers using no more than 250 therms, $7,900 for customers using between 251-450 therms, $9,600 for customers using between 451-650 therms, and $12,500 for customers using more than 650 therms.

Q. Why didn't NW Natural use these higher amounts for the LEA given that there are currently no GHG compliance costs in Oregon?

A. As stated above, NW Natural is committed to meeting its own decarbonization goals[43] and to help Oregon achieve its 2050 goal of a 75 percent reduction in GHG emissions relative to 1990 levels per ORS 468A.205. Therefore, NW Natural continues to believe that it is appropriate to model GHG compliance costs in its LEA, even though NW Natural's customers are not currently incurring any such costs. However, NW Natural also believes that its LEA should be set to not disadvantage either new or existing customers, which remains the basic economic principle behind its proposal.

Our revised proposal achieves both of these goals. It considers GHG compliance costs in light of legally valid state programs by using the United States' most expensive GHG allowance credit (the Washington CCA allowance) as a proxy for such costs while leaving other assumptions, including the conservative price of RNG, unchanged. By doing so, NW Natural has calculated a LEA that balances the interests of new and existing customers by analyzing the expected revenue and costs consistent with sound economic principles.

[43] See VISION 2050, Destination Zero, available at: https://www.nwnatural.com/about-us/the-company/carbon-neutral-future#:~:text=Our%20vision%20is%20to%20champion,residents%20we%20serve%20every%20day

Q. How does NW Natural's updated LEA compare to: 1) the LEA proposal NW Natural made in Direct Testimony, and 2) a LEA with no assumed GHG compliance costs?

A. Compared to the proposal we made in Direct Testimony, the updated DCF analysis results in a moderate increase to the LEA across all four tiers. Compared to a LEA with no assumed GHG compliance costs, both the updated proposal and the proposal we made in Direct Testimony result in a substantially smaller LEA for all four tiers, as the following tables show.

Supplemental Testimony Proposal				
Usage Tiers (therms)	0-250	251-450	451-650	650+
LEA	$3,700	$3,300	$2,950	$2,200

Direct Testimony Proposal				
Usage Tiers (therms)	0-250	251-450	451-650	650+
LEA	$3,600	$3,100	$2,600	$1,800

Results Assuming No GHG Compliance Costs				
Usage Tiers (therms)	0-250	251-450	451-650	650+
LEA	$6,300	$7,900	$9,600	$12,500

Q. Is NW Natural's updated DCF analysis responsive to Commission guidance in Order No. 22-388 concerning what NW Natural must demonstrate when seeking a modification to the LEA?

A. Yes. In Order No. 22-388, the Commission directed NW Natural to make the following demonstrations if it requests a modification to its LEA in a future rate request:

- The Company's best reasonable estimate of present and future CPP compliance costs;
- An analysis of how each new customer addition changes the costs of CPP compliance for other customers;
- An explanation of how the proposed LEA incorporates and recognizes the costs of CPP compliance;
- An analysis supporting the Company's assumptions about the expected timeframe over which new customers will remain on the system, and how changing policy dynamics were factored in; and
- A demonstration of the expected year-by-year economic impact on existing customers from the addition of new customers under the proposed LEA, such that the "breakeven" year is shown, along with the costs and benefits expected in other years, and a demonstration of when rate-based.

Although the CPP has been invalidated, by using an established cost metric as a proxy, NW Natural seeks to continue to apply Commission direction while using reasonable cost estimates of a future Oregon GHG emissions reduction program.

Q. Per Commission direction, are the GHG compliance costs incorporated into the DCF analysis NW Natural's best reasonable estimate?

A. Yes. As explained above, these compliance costs are conservative estimates of a future Oregon GHG reduction program that uses the highest 2023 quarterly

Washington CCA allowance auction price of approximately $63/MT CO2e and continues to use the same high price to acquire RNG ($22 per dekatherm).

Q. Per Commission guidance, has NW Natural provided an updated analysis showing how each new customer addition changes the costs of compliance for existing customers?

A. Yes. Exhibits 1902, 1905, 1906 and 1907 have been updated and included as NW Natural/2001, Kravitz-Therrien (1902R), NW Natural/2002, Kravitz-Therrien (1905R), NW Natural/2003, Kravitz-Therrien (1906R) and NW Natural/2004, Kravitz-Therrien (1907R) to this testimony. Similar to Mr. Therrien's analysis in Direct Testimony, the DCF analysis assumes that new customers bear immediately their full compliance costs by application of the LEA and the effect on any required contribution amount, whereas existing customers' compliance is phased in over time. Again, the only difference is that NW Natural is not using the cost of CCI credits to calculate compliance costs because the CPP has been invalidated. Rather, NW Natural is using the established cost of CCA allowances as a proxy for the cost of invalidated CCI credits.

Q. Per Commission guidance, please explain how the proposed LEA incorporates and recognizes the costs of CPP compliance.

A. As explained above, the Company substitutes the cost of CCA as a proxy for the now invalidated CCI credits in the first three years of the revised LEA model in recognition of the Company's commitment to its decarbonization goals, as well as Oregon's goals per ORS 468A.205. After that period, NW Natural conservatively estimates that it will acquire RNG at $22 per dekatherm for its remaining

decarbonization needs. Again, this estimate does not include the potential for lower cost decarbonization solutions, such as energy efficiency and industrial decarbonization.

Q. Per Commission guidance, what is the expected timeframe over which new customers will remain on the system, and how does changing policy affect NW Natural's proposal to modify the LEA?

A. The Company continues to propose a 25-year analysis period for new customers. This assumption is based on a combination of historical experience, appliance lives, and expected future use of the natural gas distribution system. The Company intends to update the LEA in future rate cases as necessary. The Direct Testimony of Mr. Therrien, NW Natural/1900, Therrien/Pages 21-22, 30-32, further discusses this issue.

Q. Per Commission guidance, does NW Natural's updated DCF model change the expected year-by-year economic impact on existing customers, such that the "breakeven" year is shown, along with the costs and benefits expected in other years, and a demonstration of when rate-based?

A. The revised Exhibits 1902R through 1907R (NW Natural/2001 through NW Natural/2004) result in an overall modest increase to proposed LEA amounts, and subsequently a modest reduction in the break-even point for existing customers. This is demonstrated on line 21 of Exhibit NW Natural/2004, Kravitz-Therrien (1907R).

Q. Does NW Natural's updated LEA proposal achieve the same policy goals as its proposal made in Direct Testimony?

A. Yes. Our updated proposal continues to ensure that no subsidy is created between new and existing customers, which is the primary goal of any LEA policy. More broadly, it also continues to be consistent with NW Natural's decarbonization transition where the natural gas system will remain crucial to meeting winter heating peaks but may ultimately have less total throughput across all months of the year. By incorporating a future Oregon GHG regulation program, NW Natural is seeking to incentivize the use of its system as a peaking resource through its LEA where new customers receive higher allowances if they use less natural gas.

Q. What is your recommendation regarding NW Natural's updated LEA proposal?

A. We recommend that the Commission adopt NW Natural's updated LEA proposal. Its results are consistent with the proposal we made in Direct Testimony, but it is updated to account for the invalidation of the CPP. Similar to our original proposal, low-use customers will receive a higher LEA than high-use customers, thereby appropriately aligning the incentives for joining NW Natural's gas distribution system with both the Company's and Oregon's decarbonization goals.

Q. Does this conclude your supplemental testimony?

A. Yes.

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NW Natural

Exhibits of Zachary D. Kravitz and Gregg H. Therrien

CLIMATE PROTECTION PROGRAM EXHIBITS 2001 - 2004

February 23, 2024

EXHIBITS 2001-2004 – CLIMATE PROTECTION PROGRAM

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CLIMATE PROTECTION PROGRAM EXHIBIT 2001

February 23, 2024

			Year 1	Year 2	Year 3	Year 4	Year 5
1	Revenue from New Connection Tariff	*Exh 1905R*	542	542	542	542	542
2	Proxy CPP Revenue	*Exh 1906R*	7	10	90	99	122
3	Proxy CPP Cost	*Exh 1906R*	(84)	(84)	(550)	(550)	(550)
4	Nominal Change in Base Rate Revenue per Customer	*Exh 1903*	0	(14)	(27)	(41)	(54)
5	Contribution to New Non-Growth Capex	*Exh 1904*	39	93	139	180	219
6	Operations & Maintenance		(79)	(79)	(79)	(79)	(79)
7	Franchise Tax	2.74%	(15)	(15)	(15)	(15)	(15)
8	Property Tax	1.50%	(56)	(54)	(51)	(49)	(47)
9	Net Before Taxes		354	400	48	87	138
10	Income Tax	27.00%	95	108	13	23	37
11	Net After Tax		258	292	35	63	101
12	Tax Benefit on Investment		38	73	67	62	57
13	Total Operating Cash (ROR Analysis)	($3,724)	296	365	102	126	158

		Rate	Year 1	Year 2	Year 3	Year 4	Year 5
1	Plant		3,724	3,724	3,724	3,724	3,724
2	Depreciation (per model term)	4.000%	(149)	(298)	(447)	(596)	(745)
3	Net Plant		3,575	3,426	3,277	3,128	2,979
4	Deferred Taxes		(3)	30	57	79	96
5	Net Rate Base		3,578	3,396	3,220	3,049	2,883
6	Average Rate Base		3,651	3,487	3,308	3,135	2,966
	Basis for interest expense		1,825	1,743	1,654	1,567	1,483

Tax Depreciation			Year 1	Year 2	Year 3	Year 4	Year 5
1	Tax Depreciation Rate		3.75%	7.22%	6.68%	6.18%	5.71%
2	Plant Additions		3,724				
3	Total Tax Depreciation		140	269	249	230	213
4	Tax Benefit @	27.00%	38	73	67	62	57

Book Depreciation							
1	Book Depreciation Rate		4.00%	4.00%	4.00%	4.00%	4.00%
2	Plant Additions		3,724				
3	Book Depreciation		149	149	149	149	149
4	Total Book Depreciation		149	149	149	149	149
5	Total Tax Depreciation		140	269	249	230	213
6	Difference		(9)	120	100	81	64
7	Deferred Taxes	27.00%	(3)	32	27	22	17
	20 year MACRS		3.75%	7.22%	6.68%	6.18%	5.71%

			Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15
1	Revenue from New Connection Tariff	*Exh 1905R*	542	542	542	542	542	542	542	542	542	542
2	Proxy CPP Revenue	*Exh 1906R*	145	160	184	208	232	256	271	287	303	319
3	Proxy CPP Cost	*Exh 1906R*	(550)	(550)	(550)	(550)	(550)	(550)	(550)	(550)	(550)	(550)
4	Nominal Change in Base Rate Revenue per Customer	*Exh 1903*	(68)	(81)	(95)	(109)	(122)	(136)	(149)	(163)	(176)	(190)
5	Contribution to New Non-Growth Capex	*Exh 1904*	255	287	319	349	378	405	432	457	480	503
6	Operations & Maintenance		(79)	(79)	(79)	(79)	(79)	(79)	(79)	(79)	(79)	(79)
7	Franchise Tax	2.74%	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
8	Property Tax	1.50%	(45)	(42)	(40)	(38)	(36)	(34)	(31)	(29)	(27)	(25)
9	Net Before Taxes		185	221	265	308	349	389	420	449	478	504
10	Income Tax	27.00%	50	60	72	83	94	105	113	121	129	136
11	Net After Tax		135	161	193	225	255	284	307	328	349	368
12	Tax Benefit on Investment		53	49	45	45	45	45	45	45	45	45
13	Total Operating Cash (ROR Analysis)	($3,724)	188	211	239	270	300	329	352	373	393	413

		Rate	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15
1	Plant		3,724	3,724	3,724	3,724	3,724	3,724	3,724	3,724	3,724	3,724
2	Depreciation (per model term)	4.000%	(894)	(1,043)	(1,192)	(1,341)	(1,490)	(1,639)	(1,788)	(1,936)	(2,085)	(2,234)
3	Net Plant		2,830	2,681	2,532	2,383	2,234	2,085	1,936	1,788	1,639	1,490
4	Deferred Taxes		109	118	123	128	132	137	142	146	151	155
5	Net Rate Base		2,721	2,564	2,409	2,256	2,102	1,949	1,795	1,641	1,488	1,334
6	Average Rate Base		2,802	2,642	2,486	2,333	2,179	2,025	1,872	1,718	1,565	1,411
	Basis for interest expense		1,401	1,321	1,243	1,166	1,089	1,013	936	859	782	705

Tax Depreciation			Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15
1	Tax Depreciation Rate		5.29%	4.89%	4.52%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%
2	Plant Additions											
3	Total Tax Depreciation		197	182	168	166	166	166	166	166	166	166
4	Tax Benefit @	27.00%	53	49	45	45	45	45	45	45	45	45

Book Depreciation												
1	Book Depreciation Rate		4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
2	Plant Additions											
3	Book Depreciation		149	149	149	149	149	149	149	149	149	149
4	Total Book Depreciation		149	149	149	149	149	149	149	149	149	149
5	Total Tax Depreciation		197	182	168	166	166	166	166	166	166	166
6	Difference		48	33	19	17	17	17	17	17	17	17
7	Deferred Taxes	27.00%	13	9	5	5	5	5	5	5	5	5
	20 year MACRS		5.29%	4.89%	4.52%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%	4.46%

			Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25
1	Revenue from New Connection Tariff	*Exh 1905R*	542	542	542	542	542	542	542	542	542	542
2	Proxy CPP Revenue	*Exh 1906R*	334	350	366	381	397	413	428	444	460	475
3	Proxy CPP Cost	*Exh 1906R*	(550)	(550)	(550)	(550)	(550)	(550)	(550)	(550)	(550)	(550)
4	Nominal Change in Base Rate Revenue per Customer	*Exh 1903*	(204)	(217)	(231)	(244)	(258)	(271)	(285)	(298)	(312)	(326)
5	Contribution to New Non-Growth Capex	*Exh 1904*	524	544	562	580	596	611	625	640	653	666
6	Operations & Maintenance		(79)	(79)	(79)	(79)	(79)	(79)	(79)	(79)	(79)	(79)
7	Franchise Tax	2.74%	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
8	Property Tax	1.50%	(22)	(20)	(18)	(16)	(13)	(11)	(9)	(7)	(4)	(2)
9	Net Before Taxes		530	554	577	599	619	639	658	676	694	712
10	Income Tax	27.00%	143	150	156	162	167	172	178	183	187	192
11	Net After Tax		387	405	421	437	452	466	480	493	507	519
12	Tax Benefit on Investment		45	45	45	45	45	22	0	0	0	0
13	Total Operating Cash (ROR Analysis)	($3,724)	432	449	466	482	497	489	480	493	507	519

		Rate	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25
1	Plant		3,724	3,724	3,724	3,724	3,724	3,724	3,724	3,724	3,724	3,724
2	Depreciation (per model term)	4.000%	(2,383)	(2,532)	(2,681)	(2,830)	(2,979)	(3,128)	(3,277)	(3,426)	(3,575)	(3,724)
3	Net Plant		1,341	1,192	1,043	894	745	596	447	298	149	0
4	Deferred Taxes		160	165	169	174	179	161	121	80	40	(0)
5	Net Rate Base		1,181	1,027	873	720	566	435	326	217	109	0
6	Average Rate Base		1,257	1,104	950	797	643	501	381	272	163	54
	Basis for interest expense		629	552	475	398	321	250	190	136	82	27

Tax Depreciation			Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25
1	Tax Depreciation Rate		4.46%	4.46%	4.46%	4.46%	4.46%	2.23%	0.00%	0.00%	0.00%	0.00%
2	Plant Additions											
3	Total Tax Depreciation		166	166	166	166	166	83	0	0	0	0
4	Tax Benefit @	27.00%	45	45	45	45	45	22	0	0	0	0

Book Depreciation												
1	Book Depreciation Rate		4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
2	Plant Additions											
3	Book Depreciation		149	149	149	149	149	149	149	149	149	149
4	Total Book Depreciation		149	149	149	149	149	149	149	149	149	149
5	Total Tax Depreciation		166	166	166	166	166	83	0	0	0	0
6	Difference		17	17	17	17	17	(66)	(149)	(149)	(149)	(149)
7	Deferred Taxes	27.00%	5	5	5	5	5	(18)	(40)	(40)	(40)	(40)
	20 year MACRS		4.46%	4.46%	4.46%	4.46%	4.46%	2.23%	0.00%	0.00%	0.00%	0.00%

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NW Natural

Exhibit of Zachary D. Kravitz and Gregg H. Therrien

CLIMATE PROTECTION PROGRAM EXHIBIT 2002

February 23, 2024

General Inputs:

Start Date:	11/1/2024	<-- *input*
Year 1:	2025	<-- *input*
UPC Therms - New Customers	250	<-- *input*
NPV Number of Years:	25	<-- *input*
Model depreciation assumption	4.00%	

Distribution Revenue Calculation:

UPC (therms)	250	
Customer Charge	**$26.25**	<-- *input (tariff)*
Rate per Therm	0.90649	<-- *input (tariff)*
Annual Distribution Revenue (Real $)	**$541.62**	

NPV	($0)
Construction Costs	**$3,724**
Times Margin	6.9

Goal seek to produce 0 NPV

Model Results at Proposed Consumption Levels (Therms)

UPC (Therms)	250	450	650	1,000
LEA	$3,724	$3,338	$2,952	$2,227
Times Margin	6.9	4.6	3.3	1.9
Rev Req B/E Year	Year 10	Year 11	Year 11	Year 11

Cost of Capital

	% of Capital	Cost	Weighted Cost	After-tax Cost
Debt	50.00%	4.271%	2.136%	1.559%
Common Equity	50.00%	10.100%	5.050%	5.050%
	100.00%		**7.186%**	**6.609%**

Other Costs:

State Tax Rate	7.60%	<-- *input*
Federal Tax Rate	21.00%	<-- *input*
Revenue Sensitive Rate (Franchise tax, Comm fee)	2.741%	<-- *input*
Property Tax Rate	1.50%	<-- *input*
Incremental O&M	79.19	<-- *input*

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CLIMATE PROTECTION PROGRAM EXHIBIT 2003

February 23, 2024

Growth Rate	0.15%
2022-24 CCI Cap	10.00%
2025-27 CCI Cap	15.00%
Beyond 2027	20.00%

		Source	2024	2025	2026	2027	2028	2029	2030	2031
1	**Normalized Load**	NWN internal data	1,088,444,642	1,090,264,509	1,091,897,976	1,093,353,861	1,094,995,193	1,096,638,989	1,098,285,253	1,099,933,988
2	**Non-Combustion Exclusion**	NWN internal data	20,733,841	20,733,841	20,733,841	20,733,841	20,733,841	20,733,841	20,733,841	20,733,841
3	**RNG**	NWN internal data	11,540,147	11,540,147	11,540,147	11,540,147	11,540,147	11,540,147	11,540,147	11,540,147
4	**MT CO2e**	NWN internal data	5,609,893	5,619,559	5,628,235	5,635,968	5,644,686	5,653,417	5,662,161	5,670,918
5	**Compliance Curve (MT CO2e)**	NWN internal data	5,316,897	5,095,359	4,873,822	4,652,285	4,430,747	4,209,210	3,987,673	3,766,135
6	**Over (Under) Compliance**		292,996	524,200	754,413	983,683	1,213,939	1,444,207	1,674,488	1,904,783
7	**CCI Cap**		560,989	842,934	844,235	845,395	1,128,937	1,130,683	1,132,432	1,134,184
8	**Over (Under) CCI Cap**		(267,994)	(318,734)	(89,822)	138,288	85,002	313,523	542,056	770,599
9	**Accumulated Over (Under) CCI Cap**		(267,994)	(586,728)	(676,550)	(538,263)	(453,261)	(139,738)	402,318	1,172,917
10	**New Customer Therms**	NWN internal data	450	450	450	450	450	450	450	450
11	**New Customer MT CO2e**	NWN internal data	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39
12	**CPP Proxy Cost of New Customer**	NWN internal data - Revised	$ 150.65	$ 150.65	$ 150.65	$ 990.00	$ 990.00	$ 990.00	$ 990.00	$ 990.00
13	**CPP Proxy Cost per Therm**		$ 0.33	$ 0.33	$ 0.33	$ 2.20	$ 2.20	$ 2.20	$ 2.20	$ 2.20
14	**CPP Proxy Cost**		$ 83.69	$ 83.69	$ 83.69	$ 550.00	$ 550.00	$ 550.00	$ 550.00	$ 550.00
15	**2022 CPP Annual Cap (MT CO2e)**	DEQ Greenhouse Gas Emissions Calculations to supplement rulemaking GHGCR2021, Calculation for proposed OAR 340-271-9000 Table 2: Oregon Climate Protection Program Caps	28,081,335							
16	**CPP Annual Caps (MT CO2e)**	DEQ Greenhouse Gas Emissions Calculations to supplement rulemaking GHGCR2021, Calculation for proposed OAR 340-271-9000 Table 2: Oregon Climate Protection Program Caps	25,921,232	25,763,209	24,637,057	23,510,904	23,013,190	21,842,149	20,671,108	19,910,424
17	**CPP Revenue Multiplier**		-7.69%	-8.26%	-12.27%	-16.28%	-18.05%	-22.22%	-26.39%	-29.10%
18	**CPP Revenue**		$ 6.44	$ 6.91	$ 10.27	$ 89.52	$ 99.26	$ 122.20	$ 145.14	$ 160.04

		2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
1	**Normalized Load**	1,101,585,198	1,103,238,887	1,104,895,059	1,106,553,717	1,108,214,864	1,109,878,506	1,111,544,645	1,113,213,285	1,114,884,430	1,116,558,083	1,118,234,249
2	**Non-Combustion Exclusion**	20,733,841	20,733,841	20,733,841	20,733,841	20,733,841	20,733,841	20,733,841	20,733,841	20,733,841	20,733,841	20,733,841
3	**RNG**	11,540,147	11,540,147	11,540,147	11,540,147	11,540,147	11,540,147	11,540,147	11,540,147	11,540,147	11,540,147	11,540,147
4	**MT CO2e**	5,679,688	5,688,472	5,697,269	5,706,079	5,714,902	5,723,738	5,732,588	5,741,451	5,750,327	5,759,217	5,768,119
5	**Compliance Curve (MT CO2e)**	3,544,598	3,323,061	3,101,523	2,879,986	2,726,387	2,572,787	2,419,188	2,265,589	2,111,990	1,958,390	1,804,791
6	**Over (Under) Compliance**	2,135,090	2,365,411	2,595,746	2,826,093	2,988,515	3,150,951	3,313,400	3,475,862	3,638,337	3,800,827	3,963,328
7	**CCI Cap**	1,135,938	1,137,694	1,139,454	1,141,216	1,142,980	1,144,748	1,146,518	1,148,290	1,150,065	1,151,843	1,153,624
8	**Over (Under) CCI Cap**	999,153	1,227,717	1,456,292	1,684,877	1,845,534	2,006,203	2,166,882	2,327,572	2,488,272	2,648,983	2,809,705
9	**Accumulated Over (Under) CCI Cap**	2,172,070	3,399,786	4,856,078	6,540,955	8,386,490	10,392,693	12,559,575	14,887,147	17,375,418	20,024,402	22,834,106
10	**New Customer Therms**	450	450	450	450	450	450	450	450	450	450	450
11	**New Customer MT CO2e**	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39
12	**CPP Proxy Cost of New Customer**	$ 990.00	$ 990.00	$ 990.00	$ 990.00	$ 990.00	$ 990.00	$ 990.00	$ 990.00	$ 990.00	$ 990.00	$ 990.00
13	**CPP Proxy Cost per Therm**	$ 2.20	$ 2.20	$ 2.20	$ 2.20	$ 2.20	$ 2.20	$ 2.20	$ 2.20	$ 2.20	$ 2.20	$ 2.20
14	**CPP Proxy Cost**	$ 550.00	$ 550.00	$ 550.00	$ 550.00	$ 550.00	$ 550.00	$ 550.00	$ 550.00	$ 550.00	$ 550.00	$ 550.00
15	**2022 CPP Annual Cap (MT CO2e)**											
16	**CPP Annual Caps (MT CO2e)**	18,688,088	17,465,752	16,243,416	15,021,080	14,219,956	13,418,831	12,617,707	11,816,583	11,015,459	10,214,334	9,413,210
17	**CPP Revenue Multiplier**	-33.45%	-37.80%	-42.16%	-46.51%	-49.36%	-52.21%	-55.07%	-57.92%	-60.77%	-63.63%	-66.48%
18	**CPP Revenue**	$ 183.98	$ 207.92	$ 231.86	$ 255.80	$ 271.49	$ 287.18	$ 302.87	$ 318.56	$ 334.25	$ 349.94	$ 365.63

		2043	2044	2045	2046	2047	2048	2049
1	**Normalized Load**	1,119,912,932	1,121,594,134					
2	**Non-Combustion Exclusion**	20,733,841	20,733,841					
3	**RNG**	11,540,147	11,540,147					
4	**MT CO2e**	5,777,036	5,785,965					
5	**Compliance Curve (MT CO2e)**	1,651,192	1,497,593					
6	**Over (Under) Compliance**	4,125,844	4,288,372					
7	**CCI Cap**	1,155,407	1,157,193					
8	**Over (Under) CCI Cap**	2,970,437	3,131,179					
9	**Accumulated Over (Under) CCI Cap**	25,804,543	28,935,722					
10	**New Customer Therms**	450	450	450	450	450	450	450
11	**New Customer MT CO2e**	2.39	2.39	2.39	2.39	2.39	2.39	2.39
12	**CPP Proxy Cost of New Customer**	$ 990.00	$ 990.00	$ 990.00	$ 990.00	$ 990.00	$ 990.00	$ 990.00
13	**CPP Proxy Cost per Therm**	$ 2.20	$ 2.20	$ 2.20	$ 2.20	$ 2.20	$ 2.20	$ 2.20
14	**CPP Proxy Cost**	$ 550.00	$ 550.00	$ 550.00	$ 550.00	$ 550.00	$ 550.00	$ 550.00
15	**2022 CPP Annual Cap (MT CO2e)**							
16	**CPP Annual Caps (MT CO2e)**	8,612,086	7,810,962	7,009,837	6,208,713	5,407,589	4,606,465	3,805,340
17	**CPP Revenue Multiplier**	-69.33%	-72.18%	-75.04%	-77.89%	-80.74%	-83.60%	-86.45%
18	**CPP Revenue**	$ 381.32	$ 397.01	$ 412.71	$ 428.40	$ 444.09	$ 459.78	$ 475.47

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

UG 490

NW Natural

Exhibit of Zachary D. Kravitz and Gregg H. Therrien

CLIMATE PROTECTION PROGRAM EXHIBIT 2004

February 23, 2024

NW Natural
Exhibit NW Natural/1907R, Therrien - Economic Impact on Existing Customers

LEA Determined $3,724

			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
1	**Depreciation (using book depreciation rates)**	4.00%	149	149	149	149	149	149	149	149	149
2	**O&M**		79	79	79	79	79	79	79	79	79
3	**Property Taxes**		55	52	50	48	46	44	41	39	37
	Taxes on Equity Return										
4	**State**		19	18	17	16	16	15	14	13	12
5	**Federal**		49	47	44	42	40	38	35	33	31
6	**Total Taxes**		68	65	62	59	55	52	49	46	44
	Return on Rate Base										
7	**Debt**		78	74	71	67	63	60	56	53	50
8	**Common Equity**		184	176	167	158	150	142	133	126	118
9	**Total Return**		262	251	238	225	213	201	190	179	168
10	**Subtotal Cost of Service**		613	596	578	560	543	525	509	492	476
11	**Revenue Sensitive Items**		17	17	16	16	15	15	14	14	13
12	**Total Cost of Service**		631	613	594	576	558	540	523	506	490
13	**Cost of Proxy CPP ($/Therm)**		0.33	0.33	2.20	2.20	2.20	2.20	2.20	2.20	2.20
14	**UPC (Therms)**		250	250	250	250	250	250	250	250	250
15	**New Customer Proxy Cost of CPP**		84	84	550	550	550	550	550	550	550
16	**Less: New Customer Recovery of CPP (re class WACOD)**		-7	-10	-90	-99	-122	-145	-160	-184	-208
17	**Nominal Change in Base Rate Revenue per Customer (Rate Base)**		0	14	27	41	54	68	81	95	109
18	**Less: Contribution to New Non-Growth Capex**		-39	-93	-139	-180	-219	-255	-287	-319	-349
19	**Total Cost of Service (Net)**		669	607	943	887	820	758	707	649	591
20	**New Customer Revenue**		$542	$542	$542	$542	$542	$542	$542	$542	$542
21	**Revenue less cost of service (impact on existing customers)**		($127)	($65)	($401)	($346)	($279)	($217)	($165)	($107)	($50)

NW Natural
Exhibit NW Natural/1907R, Therrien - Economic Impact on Existing Customers

			Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18
1	**Depreciation (using book depreciation rates)**	4.00%	149	149	149	149	149	149	149	149	149
2	**O&M**		79	79	79	79	79	79	79	79	79
3	**Property Taxes**		35	32	30	28	26	23	21	19	17
	Taxes on Equity Return										
4	**State**		11	11	10	9	8	7	7	6	5
5	**Federal**		29	27	25	23	21	19	17	15	13
6	**Total Taxes**		41	38	35	32	29	26	23	21	18
	Return on Rate Base										
7	**Debt**		47	43	40	37	33	30	27	24	20
8	**Common Equity**		110	102	95	87	79	71	63	56	48
9	**Total Return**		157	146	134	123	112	101	90	79	68
10	**Subtotal Cost of Service**		460	444	428	412	395	379	363	347	331
11	**Revenue Sensitive Items**		13	13	12	12	11	11	10	10	9
12	**Total Cost of Service**		473	456	440	423	407	390	373	357	340
13	**Cost of Proxy CPP ($/Therm)**		2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
14	**UPC (Therms)**		250	250	250	250	250	250	250	250	250
15	**New Customer Proxy Cost of CPP**		550	550	550	550	550	550	550	550	550
16	**Less: New Customer Recovery of CPP (re class WACOD)**		-232	-256	-271	-287	-303	-319	-334	-350	-366
17	**Nominal Change in Base Rate Revenue per Customer (Rate Base)**		122	136	149	163	176	190	204	217	231
18	**Less: Contribution to New Non-Growth Capex**		-378	-405	-432	-457	-480	-503	-524	-544	-562
19	**Total Cost of Service (Net)**		536	481	436	392	350	309	269	230	193
20	**New Customer Revenue**		$542	$542	$542	$542	$542	$542	$542	$542	$542
21	**Revenue less cost of service (impact on existing customers)**		$6	$61	$106	$149	$192	$233	$273	$312	$349

NW Natural
Exhibit NW Natural/1907R, Therrien - Economic Impact on Existing Customers

			Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25
1	**Depreciation (using book depreciation rates)**	4.00%	149	149	149	149	149	149	149
2	**O&M**		79	79	79	79	79	79	79
3	**Property Taxes**		15	12	10	8	6	3	1
	Taxes on Equity Return								
4	**State**		4	3	3	2	1	1	0
5	**Federal**		11	9	7	5	4	2	1
6	**Total Taxes**		15	12	9	7	5	3	1
	Return on Rate Base								
7	**Debt**		17	14	11	8	6	3	1
8	**Common Equity**		40	32	25	19	14	8	3
9	**Total Return**		57	46	36	27	20	12	4
10	**Subtotal Cost of Service**		315	299	284	270	258	246	234
11	**Revenue Sensitive Items**		9	8	8	8	7	7	7
12	**Total Cost of Service**		324	307	291	278	266	253	241
13	**Cost of Proxy CPP ($/Therm)**		2.20	2.20	2.20	2.20	2.20	2.20	2.20
14	**UPC (Therms)**		250	250	250	250	250	250	250
15	**New Customer Proxy Cost of CPP**		550	550	550	550	550	550	550
16	**Less: New Customer Recovery of CPP (re class WACOD)**		-381	-397	-413	-428	-444	-460	-475
17	**Nominal Change in Base Rate Revenue per Customer (Rate Base)**		244	258	271	285	298	312	326
18	**Less: Contribution to New Non-Growth Capex**		-580	-596	-611	-625	-640	-653	-666
19	**Total Cost of Service (Net)**		157	122	89	59	30	2	-25
20	**New Customer Revenue**		$542	$542	$542	$542	$542	$542	$542
21	**Revenue less cost of service (impact on existing customers)**		$385	$420	$452	$483	$511	$539	$567

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

UG 490

NW Natural

Supplemental Testimony of Kyle N. Griffiths

DECARBONIZATION PLANNING & RENEWABLE NATURAL GAS AUTOMATIC ADJUSTMENT CLAUSE EXHIBIT 2100

February 23, 2024

EXHIBIT 2100 – SUPPLEMENTAL TESTIMONY – DECARBONIZATION PLANNING & RENEWABLE NATURAL GAS AUTOMATIC ADJUSTMENT CLAUSE

Table of Contents

I. INTRODUCTION AND SUMMARY

Q. Please state your name and position with Northwest Natural Gas Company dba NW Natural ("NW Natural" or "Company").

A. My name is Kyle N. Griffiths. I am a business consultant concentrating on financial analysis for the Renewable Resources Group at NW Natural.

Q. Please describe your relevant educational background and experience.

A. I received a Bachelor of Science in Finance from Portland State University and a Master of Science Business Administration from the University of Memphis. I have held the position of business consultant for the Renewable Resource Group since joining NW Natural in 2022. Prior to my work at NW Natural, I held various finance positions in the health care industry. Additionally, I have done similar work in the engineering, surveying, and manufacturing fields.

Q. What is the purpose of this testimony?

A. The purpose of this testimony is to advise the Public Utility Commission of Oregon, administrative law judge, and parties to this proceeding that I am adopting the Direct Testimony of Anna K. Chittum (joint sponsored with Zachary D. Kravitz) regarding decarbonization and the renewable natural gas ("RNG") automatic adjustment clause currently ("AAC") in exhibit NW Natural/1500, Kravitz-Chittum, and will serve as NW Natural's witness on these issues, jointly with Mr. Kravitz.

II. SCOPE OF TESTIMONY

Q. Did you review Ms. Chittum's testimony?

A. Yes, I have reviewed Ms. Chittum's testimony, NW Natural/1500, Kravitz-Chittum.

Q. Do you adopt Ms. Chittum's testimony?

A. Yes, I adopt her testimony as my own.

Q. Do you agree with the recommendations and conclusions presented by Ms. Chittum in NW Natural/1500, Kravitz-Chittum?

A. Yes, I adopt the conclusions presented in Ms. Chittum's testimony in full and recommend the same actions outlined at NW Natural/1500, Kravitz-Chittum/Page 20, except as modified and supplemented in NW Natural's supplemental testimony, NW Natural/2000, Kravitz-Therrien.

Q. Will Zachary Kravitz continue to jointly sponsor NW Natural/1500, Kravitz-Chittum?

A. Yes, Mr. Kravitz will continue to jointly sponsor this testimony.

Q. Will Anna Chittum continue to be available as a witness in this proceeding?

A. No, Ms. Chittum is not available to participate in this proceeding, and it is for that reason that I am adopting her testimony.

Q. Are you presenting any other issues or recommendations in your testimony?

A. No, however, I will be available in this proceeding to address the issues raised in Ms. Chittum's testimony to the extent necessary in NW Natural's subsequent rounds of testimony and at the evidentiary hearing.

Q. Does this conclude your testimony?

A. Yes.