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**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UM 1744

In the Matter of
NORTHWEST NATURAL GAS
COMPANY, dba NW Natural
Emissions Reduction Program.

**NORTHWEST NATURAL GAS
COMPANY'S POST-HEARING**

I. INTRODUCTION

Northwest Natural Gas Company (“NW Natural” or “Company”) requests that the Oregon Public Utility Commission (the “Commission”) approve its Combined Heat and Power (“CHP”) Solicitation Program (“CHP Program”). NW Natural’s proposal is consistent with SB 844, the Commission’s rules and policies, and other Oregon policies to combat climate change. Specifically, NW Natural’s CHP Program aims to develop and implement a natural gas project in its service territory that reduces harmful carbon emissions, benefits customers, and is not in NW Natural’s ordinary course of business.

The CHP Program is intended to increase CHP investment by paying participating customers incentive payments for measured and verified carbon dioxide reductions that result when cogeneration they install displaces central station generation, and produces heat that is used by the customer. Incentives will not be paid until after projects have been installed and carbon emissions have been measured and verified, which ensures that payments are made only upon success of the projects, reduces risk, and protects ratepayers. Overall costs are also limited and more certain because the CHP Program will be initially capped at 240,000 metric tonnes of CO₂ equivalent MTCO₂(e) reductions and subject to re-authorization, if it is able to achieve a specified level of success. All of NW

1 Natural's Oregon customers can participate, and all customers will benefit because
2 installations will increase margins due to higher natural gas throughput, which results in a
3 larger base of gas usage over which the costs of NW Natural's system can be spread.

4 While small differences remain between the parties regarding the program details,
5 there is widespread support among all the non-electric utility parties for a CHP related
6 carbon emissions reduction program. Staff, the Northwest Industrial Gas Users
7 ("NWIGU"), the Citizens' Utility Board of Oregon ("CUB"), Climate Solutions, and the
8 Northwest Energy Coalition all support a SB 844 program that pays incentives to
9 customers for carbon emission reductions. The parties have genuinely attempted to
10 improve the CHP Program, and NW Natural has accepted many of their recommendations
11 in the stakeholder process and throughout the course of this proceeding. For example,
12 NW Natural has agreed to:

- 13 • Return all increased margins (the "customer benefit") associated with CHP
14 installations to NW Natural's customers through a deferred account between
rate cases, and through ordinary cost of service regulation after a rate case;
- 15 • A cap on participation and program costs which will initiate further
16 Commission review if the CHP Program is able to incentivize 240,000
17 MTCO₂(e) reductions per year. This provides certainty as to the upper limits
on program costs when the Commission approves this application;
- 18 • A full and comprehensive report after three years regardless of participation
19 levels; and
- 20 • Providing measurement and verification information to the Commission in the
21 same form and on the same timeline as provided to NW Natural, and being
willing to move to more summary reporting if Staff desires.

22 **II. STATUS OF PROGRAM DESIGN AT TIME OF HEARING**

23 At the time of the evidentiary hearing in this case, NW Natural and the non-electric
24 utility parties continued to have differing views on the design of the CHP Program. The two
25 main points of disagreement related to finding a method to determine the least-cost
26 appropriate customer incentive and the best method to accurately calculate carbon

1 emissions reductions. While these differences remain, these differences are aimed at
2 finding the best design for the CHP Program; they should not be viewed as unbridgeable
3 gaps to a successful program.

4 The other remaining differences among the non-electric utility parties center on
5 novel, first impression SB 844 policy issues that will need to be determined by the
6 Commission. These issues are the appropriate level of NW Natural's incentive payment
7 and whether an earnings test is appropriate for a voluntary program such as the CHP
8 Program. NW Natural has proposed an incentive of \$10 per measured and verified
9 MTCO₂(e) reductions, and believes this incentive provides a reasonable incentive to
10 promote maximum carbon reductions in the CHP Program and NW Natural's future carbon
11 reduction programs. The other non-electric parties have proposed cutting that number in
12 half, to \$5 per tonne. Regarding the earnings test, CUB (supported by Staff and NWIGU)
13 has proposed that both program costs and the company incentive be subject to an
14 earnings test. NW Natural does not believe it is sound policy to set up a construct that
15 could disallow recovery of prudent program expenses of a voluntary program, which could
16 result in financial harm to the Company. Such an approach would seem to be in direct
17 conflict with the purpose of SB 844 to incentivize utilities to take actions to reduce
18 emissions that are not otherwise required. Given this direct mismatch, and the risks of
19 CUB's proposal causing NW Natural to suffer negative financial consequences for
20 participating in an SB 844 program, NW Natural will not proceed with the CHP Program if
21 the Commission adopts CUB's earnings test.

22 III. BACKGROUND

23 The legislature passed SB 844 in 2013, and the Commission adopted implementing
24 rules that allow natural gas utilities to propose projects or investments to reduce emissions
25 that the utilities would not undertake in the ordinary course of business and that benefit
26

1 customers. *Re a Rulemaking to Implement SB 844*, Docket No. AR 580, Order No. 14-
2 417 (Dec. 3, 2014).

3
4 NW Natural selected CHP as the first SB 844 program to file because it “provides the
5 greatest natural gas-related opportunity to reduce carbon emissions in Oregon”.
6 (*NWN/100, Summers/3*). NW Natural reached this conclusion based on its own
7 investigation and the findings of Oregon Department of Energy (“ODOE”), the Center for
8 Climate Solutions, the Energy Trust of Oregon (“ETO”) and The Climate Trust. (*NWN/100,*
9 *Summers/3*).

10 CHP is a form of distributed generation, which allows the end use consumer to
11 produce energy on site rather than from the electric grid. (*NWN/100, Summers/2*). CHP
12 systems can range in size from hundreds of MWs in utility scale projects to one kilowatt for
13 residential systems. (*NWN/100, Summers/2*). NW Natural’s program is designed to
14 incentivize small- to mid-sized end use consumer CHP rather than large utility scale
15 systems.

16 CHP systems reduce carbon emissions over central station electric generation
17 because they use a more energy efficient process to meet the end use customer’s energy
18 needs. (*NWN/100, Summers/2*). CHP generates electricity and thermal energy using a
19 single process that can result in energy savings of up to 35 percent. (*NWN/100,*
20 *Summers/2*). The increased efficiency is primarily because CHP systems: 1) recover heat
21 normally lost in central station generation to provide useful heating on-site, or to generate
22 additional electricity; 2) eliminate transmission and distribution losses; and 3) recover
23 waste heat through the combustion process, which eliminates the need for conventional
24 thermal production equipment. (*NWN/100, Summers/2*).

25 NW Natural did not develop the CHP Program in isolation. NW Natural reached out
26 to Commission Staff, customers, environmental and climate change organizations, ODOE,

1 ETO, the Northwest CHP Technical Assistance Partnership (“TAP”), Washington State
2 University (“WSU”), the Climate Action Reserve (“CAR”), and ICF International to develop
3 the CHP Program. NW Natural then engaged additional interested parties in a formal
4 stakeholder process, made additional changes, and filed its application on June 24, 2015.

5 IV. ARGUMENT

6 A. NW Natural’s Dollar per MTCO₂(e) Customer Incentive Payment Provides the 7 Program with a Reasonable Opportunity to Succeed.

8 The fundamental structure of the CHP Program is that customers are paid a
9 monetary incentive using a pre-determined level of carbon savings, as they actually
10 achieve those carbon savings based on operation of their installed systems. The most
11 important factor in the program’s success is providing high enough incentives to break
12 down the economic and institutional barriers to CHP development. (*Tr. at 39-41*). The
13 CHP Program attempts to achieve this by paying customers incentive payments based on
14 carbon reductions for up to 40 operating quarters, with a total benefit capped at \$4.5
15 million annually per site. (*NWN/100, Summers/8*). Spreading the incentive over a ten-
16 year period protects ratepayers by ensuring that CHP customers are only paid for real
17 CHP measured and verified carbon savings. (*NWN/100, Summers/8*); (*NWN/300,*
18 *Summers/8*). Long-term payments also increase the chances of higher carbon savings by
19 requiring customers to operate to obtain full payments and offsetting customers’ ongoing
20 operations and maintenance (“O&M”) costs. (*NWN/100, Summers/8*); (*NWN/300,*
21 *Summers/8*).

22 In order to determine the correct level of economic incentive, NW Natural used the
23 simple “payback” period, which is a common investment metric. A simple payback
24 estimates how long it will take for a company to get its money back from an investment,
25 assuming everything goes as planned. It is important to note that while simple payback is
26 an important financial measure, achieving a simple payback for a company does not

1 represent a successful investment, in and of itself, given the risks the companies face of
2 pursuing the investment in CHP, and the returns that they are required to make to cover
3 their debt and equity financings. (*NWN/300, Summers/8-10*).

4 **1. Incentive Payments Should Target a Three to Four Year Simple Payback**
5 **to Be High Enough to Cause Customers to Actually Invest in CHP.**

6 Customer owned CHP in Oregon is not cost effective and has not been effectively
7 developed in the state, even with the incentives from the ETO, ODOE, and federal
8 government. In order to overcome these obstacles, the customers must be paid an
9 incentive that will actually encourage them to install CHP. The evidence in this proceeding
10 demonstrates that the “payback” period needs to be reduced to three to four years to
11 achieve a small but modest amount of CHP investments.

12 “Simple payback” periods are a commonly used criterion for businesses to start their
13 process of evaluating investment risks. (*NWN/300, Summers/7-9*); (*Tr. at 42-44*). At its
14 core, simple payback estimates how long it might take for a company to get its money
15 back from an investment, if nothing goes wrong and ignoring certain other costs.
16 (*NWN/300, Summers/7-9*).

17 NW Natural chose the three to four year payback period based on a 2014 analysis
18 conducted by ICF International (“ICF Study”). (*NWN/100, Summers/6*); (*NWN/101,*
19 *Summers/15-17*); (*Tr. at 28-30*). The ICF Study is an assessment of the technical and
20 economic potential for CHP in Oregon. (*NWN/100, Summers/6*); (*NWN/101,*
21 *Summers/15*). On the request of ODOE, ICF International evaluated the potential for CHP
22 in Oregon, and identified 1,457 MW of technical CHP potential, with 319 MWs of
23 “economic” potential CHP. (*NWN/100, Summers/6*); (*NWN/101, Summers/7, 57-65*).

24 Despite ICF International identifying some Oregon CHP as being “economic,” the
25 study supports a conclusion that a simple payback of three to four years is required to
26

1 achieve a penetration of 30% to 40% of the economic CHP potential in Oregon. This will
2 not occur without additional incentives. (*NWN/100, Summers/7*).

3 Staff opposes the use of three to four year simple payback, and instead proposes
4 that the internal rate of return (“IRR”) method be used to determine the correct incentive
5 payments. (*Staff/400, St. Brown/8-12*). NW Natural is not opposed to comparing payback
6 periods to the IRR, and NW Natural in fact relied upon internal rate of return estimates
7 when developing the recommended customer incentive level. (*NWN/500, Summers/8-9*);
8 (*See NWN/504, Summers/8-9*). Staff, however does not use the IRR method correctly, as
9 it determined that the appropriate range for a customer incentive would be \$0 to \$10 per
10 MTCO₂(e) of carbon savings using 2010 eGRID. (*See Staff Prehearing Brief at 9-10*);
11 *Staff/400, St. Brown/19-20*). It is simply not credible to assume zero or extremely low
12 payments will incentivize any new CHP.

13 IRR can be a reasonable way to estimate certain investment decisions. IRR is the
14 interest rate at which the net present value of all the cash flows from a project or
15 investment equal zero. Staff argues that a potential CHP investor will “compare the IRR
16 on a project to its own cost of capital and accept any investment proposal with an IRR
17 equal to or greater than the investor’s cost of capital.” (*Staff Prehearing Brief at 9 citing*
18 *Staff/400, St. Brown/8*)(*emphasis added*). Staff then argues that CHP customer IRRs
19 under a three to four year payback could be 16-25%, which is higher than NW Natural’s
20 7.778% cost of capital or 10% to 15% IRR for energy efficiency investments. (*Staff*
21 *Prehearing Brief at 9*); (*Staff/400, St. Brown/4, 8-15*).

22 Staff’s analysis ignores that CHP investments are far more complex. Simply put,
23 companies will not invest in CHP unless their IRRs are significantly higher than the returns
24 that would attract investments in a regulated utility, bonds, or energy efficiency projects.
25 (*NWN/500, Summers/9, 12-13*). Companies need high forecasted returns because they
26 have more potential investments than available capital, IRRs are not the same for all

1 projects due to uncertain cash flows, and CHP represents significant risks associated with
2 making a long-term investment outside of their core business. (NWN/500, Summers/9);
3 (NWN/503, Summers/11).

4 Staff's estimate of an IRR of 10-15% for energy efficiency projects is simply not
5 supported. Staff relied upon samples from a Pew Survey was not designed to be
6 representative of typical businesses. The Pew Survey states that it "deliberately sought
7 larger companies with strong energy/climate commitments, because the goal is to elicit
8 best practices, not average practices. In this sense, the sample is intentionally not
9 representative of the U.S. corporate population." (NWN/503, Summers/2). Staff also
10 obtained its 10-15% IRR by selectively choosing the numbers for 5 out of 10 companies in
11 a sample of 48 companies that participated in the survey. (NWN/500, Summers/10-11).
12 The other responding companies reported IRR figures of 18% to 35%. (NWN/500,
13 Summers/11). Even more important, the Pew Survey supports using the simple payback
14 methodology as "91% of the respondents use a standard financial criterion to assess
15 energy efficiency projects, and that simple payback and internal rate of return were the
16 most common criteria." (NWN/500, Summers/10); (NWN/503, Summers/7).

17 Staff also suggested that incentive payments for customers be reduced after the end
18 of the three to four year payback period because paying customers over a ten-year period
19 could "overcompensate them." (Staff/100, Klotz/17-18). This recommendation appears to
20 have been based on a misunderstanding of how simple payback is used by companies in
21 their operations and financial decision making. Simple payback is only the start of the
22 analysis. Companies do not make risky investments outside of their core business simply
23 to break even and get their money back. Companies would have that option simply by
24 putting money in a secured checking account. Calculating the time for a company to be
25 made whole from an investment does not account for a myriad of other factors, costs, and
26 risks, including:

- 1 • The cost of capital to make that investment,
- 2 • Taxes and interest expense,
- 3 • Uncertainty regarding cash flows,
- 4 • Ongoing O&M expenses,
- 5 • Other competing internal capital needs,
- 6 • The hurdles regarding investing in CHP instead of the core business, and
- 7 • Risks in changes to key cost elements like electricity prices, offset electrical purchases, natural gas prices, offset natural gas purchases, purchased fuel costs, operating hours, and outages.

8 (*NWN/300, Summers/7-9*).

9 Finally, Staff argues that an incentive based on three to four year payback fails to
10 account for the fact that CHP customers benefit from improved power reliability. (*Staff*
11 *Pre-Hearing Brief at 8*); (*Staff/400, St. Brown/3-7*). NW Natural agrees that a cogeneration
12 customer's power reliability will be improved, but that benefit exists today and has been
13 insufficient to cause Oregon companies to invest in CHP. Additionally, this factor would
14 have already been included in the companies' considerations as they participated in the
15 study upon which NW Natural determined an appropriate target payback.

16 **2. NW Natural's Customer Incentive Assumes the Availability of, and is**
17 **Designed to be Collaborative with other Available Financial Incentives**
18 **for CHP, Including the Oregon Department of Energy's Incentive.**

19 The payback periods and incentive payments are based on an assumption of
20 customers using all other available financial incentives for CHP development. (*NWN/100,*
21 *Summers/8-9*); (*NWN/300, Summers/41-42*). These include the ODOE energy incentives
22 program ("EIP"), the ETO energy efficiency payment, and the federal business investment
23 tax credit. (*NWN/100, Summers/8-9*); (*NWN/101, Summers/5-10*). Depending on the size
24 of the CHP installation, these other incentives can make up a considerable share of the
25 overall costs. (*NWN/101, Summers/9-10*).

26 NW Natural will coordinate as much as possible ODOE's EIP. (*NWN/101,*
Summers/7-8); (*See Tr. at 55-56*). The EIP is a five-year tax credit worth a total of 35% of

1 the approved final certified project cost, although applicants may request less than the
2 maximum. The tax credit offsets state tax liability at 10% for the first two years and 5% for
3 the next three years. ODOE has allocated \$6 million in CHP tax credits for this biennium,
4 compared to \$8 million in CHP tax credits made available at 5/10/13 and \$1.5 million at
5 10/31/14. Prior ODOE EIP solicitations resulted in zero natural gas fueled CHP
6 installations. The total funding of tax credits for the program expires June 20, 2017. It is
7 unknown at this point if another opportunity announcement will take place for CHP or if the
8 EIP program in general will survive beyond the 2017 program sunset.

9 EIP applications are due by January 19, 2016. These applications will be reviewed
10 and scored and ranked according to an energy savings vs. incentive requested ratio,
11 energy savings calculations, project implementation plan, project integration plan and
12 project finance plan. Successful applicants will be selected for technical review by
13 February 5, 2016. Applications for the technical review along with a 0.9% of project cost
14 fee will be assessed prior to technical review. Preliminary certificates will be issued
15 following a successful technical review in April 2016, and NW Natural does not know if this
16 date can be moved.¹

17 NW Natural has encouraged potential CHP customers to apply for the EIP program,
18 and hopes to have an approved CHP Program in March 2016. This date is critical
19 because it is the time in which a customer needs to decide whether to spend 0.9% of their
20 project costs to obtain a ODOE technical review. (See *Tr. at 55*) (NW Natural is
21 “concerned about timing.”) Customers are unlikely to pay for this expensive review if
22 there is uncertainty associated with the CHP Program.

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26 ¹ <http://www.oregon.gov/energy/BUSINESS/Incentives/docs/EIP-OA-CHP.pdf>.

1 **3. Specific Incentive Payments Should Be Calculated Based on the**
2 **RELCOST Financial Model.**

3 NW Natural conducted an exhaustive analysis to determine the specific incentive
4 payments to achieve different paybacks for a variety of CHP units using the RELCOST
5 financial model. (*NWN/100, Summers/9*). The United States Department of Energy
6 Technical Assistance Project at Washington State University (“WSU”) developed and
7 modified the RELCOST model to account for the Company’s specific characteristics.
8 (*NWN/100, Summers/9*).

9 NW Natural and WSU used information regarding actual CHP installations, or when
10 not available, vendor-supplied data to accurately estimate the costs of CHP installations.
11 The CHP cost estimates for all sizes, except the 45 MW unit, are based upon vendor
12 supplied data and information from 281 monitored actual CHP sites gathered by the
13 Energy Information Agency (“EIA”). (*NWN/500, Summers/13*). EIA data was not available
14 for the 45 MW prototype, so WSU relied on data compiled by ICF International from
15 vendor-supplied data published in the 2014 Catalog of CHP Technologies.

16 Staff suggests that the historic and actual data relied upon by EIA and WSU may not
17 accurately estimate the costs of CHP. (*Staff Prehearing Brief at 8*); (*Staff/400, St.*
18 *Brown/5-6*). Staff also inaccurately claims that NW Natural “seems to concede in its last
19 round of testimony that it has inflated or misstated the CHP incremental costs” because
20 the 45 MW CHP system would not need a customer incentive if the costs were 70% of
21 EIA’s estimate. (*Staff Prehearing Brief at 8*). While Staff has not provided any evidence
22 that CHP cost estimates are overstated, NW Natural asked WSU to run the RELCOST
23 model with lower costs. (*NWN/500, Summers/12-16*). The Company’s attempt to provide
24 Staff with information that it requested should not be construed as an agreement that
25 CHP’s costs are inflated or misstated by the Company. Also, even with much lower costs,
26 payback periods for most CHP prototypes are greater than five years without Company

1 incentives. (*NWN/500, Summers/15-16*). Therefore, even assuming cheaper CHP costs
2 (which NW Natural does not believe to be the case), significant incentives are necessary
3 before CHP will be installed in Oregon. (*NWN/500, Summers/12-16*).

4 **4. A Reverse Auction Should Not Be Used Because It Is Unproven, Is Not a**
5 **Good Fit for CHP in the State, and Will Likely Make the CHP Program**
6 **Unsuccessful.**

7 NW Natural's program design is intended to achieve emissions reductions using the
8 minimum financial incentive necessary, but also providing the customer with certainty,
9 assistance, and ongoing payments to overcome both the economic and non-economic
10 CHP barriers. A "reverse auction" process is unlikely to successfully lower costs, but
11 equally importantly, would add considerable uncertainty that will create additional barriers,
12 reduce participation, result in lower emissions reductions, and potentially increase costs.
13 A reverse auction would add uncertainty as to whether a project would be funded at all
14 and, if it was, the level at which it would receive funding. This approach would make it
15 very difficult to stack ODOE EIP incentives, a fundamental building block for CHP and this
16 program.

17 Staff proposed a reverse auction based on its concern that it is difficult to determine
18 the correct amount of incentive to pay customers. (*Staff Prehearing Brief at 10*);
19 (*Staff/200, St. Brown/12-17*). Staff, however, "does not have a specific proposal for
20 creating a reverse auction for NWN's CHP Program." (*Staff Prehearing Brief at 10-11*).
21 Staff has proposed some basic criteria that have been used for generic and non-CHP
22 reverse auctions, but wants NW Natural to completely start over, work with an expert
23 consultant, and develop an entirely new program. (*Staff Prehearing Brief at 10-11*).
24 Essentially, a reverse auction is a cure to a non-existent problem that is likely to cause
25 significant unnecessary harm to the program.

26

1 NW Natural appreciates the sentiments behind Staff's efforts "to formulate a model
2 that could potentially, in theory, reduce the costs of the CHP Program" (*NWN/300,*
3 *Summers/5*). The concept behind a reverse auction is attractive, and NW Natural
4 investigated whether a reverse auction "would lead to additional CHP or carbon reductions
5 at lower costs." (*NWN/300, Summers/5*); (*NWN/101, Summers/10-11*).

6 The fundamental problems with a reverse auction are that it will raise additional
7 barriers, and CHP installations are a poor fit for an auction process. In addition to the
8 economic obstacles, CHP faces significant hurdles because "it is a long and complicated
9 process, and customers need a high level of certainty in the incentive to assess its risks,
10 costs, and benefits." (*NWN/300, Summers/6*). Before embarking on an analysis of
11 making an investment outside of their core business, potential customers need to know
12 what they will be paid based on reasonable estimates of performance to evaluate project
13 economics. (*NWN/300, Summers/5-6*). A reverse auction will have exactly the opposite
14 effect by increasing uncertainty, and causing customers to elect to not take time and effort
15 to even consider CHP.

16 Reverse auctions are only successful when there are simple requirements and highly
17 competitive markets, both of which are missing in the case of Oregon CHP. As explained
18 in a 2015 federal government report on reverse auctions:

19 Is the requirement suited for a reverse auction? Reverse auctions are
20 not a one-size-fits- all tool. Reverse auctions are likely to be most
21 effective in a highly competitive marketplace when requirements are
22 steady and relatively simple and might otherwise be acquired using
23 either a sealed bid or achieving best value through "low price
24 technically acceptable" source selection criteria, and result in fixed
25 price agreements. These circumstances would typically exist in
26 acquisitions for commercial items and simple services that often fall
under the [simplified acquisition threshold]. As with any procurement,
market research must be conducted to understand the marketplace
and to determine if it is reasonable to assume that the potential
benefits of a reverse auction can be achieved.

26 (*NWN/505, Summers/2*).

1 A CHP reverse auction suffers from other flaws. The goal of a reverse auction
2 concept is designed to have multiple bidders seek to drive prices down to a single winner.
3 (*NWN/500, Summers/18*). This is inconsistent with the CHP Program’s goals to
4 incentivize a broad number of diverse CHP projects. (*NWN/500, Summers/18*). A reverse
5 auction would also lead to an annual cycle that “may not match individual customers’
6 budgeting and planning cycles, could result in unnecessary delays, and would likely
7 reduce the number of CHP Program participants.” (*NWN/300, Summers/6*). Finally, a
8 reverse auction could increase costs by discouraging participation, and causing
9 participants to maximize payments. (*NWN/300, Summers/6-7*).

10 **B. eGRID Will Best Estimate Carbon Emissions Reductions.**

11 NW Natural continues to prefer that carbon emissions should be calculated using the
12 U.S. Environmental Protection Agency’s (“EPA”) Emissions & Generation Resource
13 Integrated Database (“eGRID”). The Company believes that methodology is specifically
14 suited to determining the emissions reductions from CHP installations, and that the EPA is
15 a credible and expert source of this information. NW Natural investigated multiple
16 methods of calculating the carbon emissions displaced by CHP, and NW Natural, ETO,
17 ODOE, Staff, and CUB all agreed that eGRID was the best option. (*NWN/100,*
18 *Summers/14*); (*NWN/101, Summers/27*); (*CUB/100, McGovern-Jenks/12*). In Staff’s
19 second round of testimony, Staff changed their position and now supports use of the
20 Northwest Power and Conservation Council’s (“NWPCC”) AURORA model. (*Staff*
21 *Prehearing Brief at 13*). CUB also changed its position to support NWPCC. (*CUB*
22 *Prehearing Brief at 11-12*). While there are now differences of opinions on this issue, it is
23 important to remember that the parties are driving toward a common goal of finding the
24 best method to count carbon emissions to ensure a successful CHP Program.

25 To evaluate which model should be utilized, Staff developed a list of criteria, which
26 NW Natural generally agrees are relevant. (*NWN/500, Summers/3-8*). Staff’s criteria

1 include: 1) purpose of the methodology; 2) geographic inclusion; 3) transparency; 4) broad
2 market support; and 5) frequency of updates. (*NWN/500, Summers/3-8*); (*Staff/300,*
3 *Klotz/9-21*). NW Natural added a sixth criterion: whether the model is currently available.
4 (*NWN/500, Summers/6-7*). Under these criteria, the eGRID model grades out best, with
5 the NWPCC a strong second. The utility specific model proposed by PGE is completely
6 unacceptable under the criteria.

7 **1. eGRID's Purpose Is to Estimate CHP-Related Carbon Reductions.**

8 A fundamental purpose of the eGRID is to calculate the greenhouse gas emissions
9 associated with electric generation displaced by CHP. (*NWN/300, Summers/19*);
10 (*NWN/101, Summers/27, 47*). eGRID determines CHP's carbon emissions reductions by
11 calculating the marginal resources that will be displaced when CHP operates. (*NWN/101,*
12 *Summers/47*). eGRID starts with the most comprehensive plant level electric power
13 generation available in the nation, including plant-specific heat rates that derive from over
14 forty fuel types. (*NWN/101, Summers/48-49*); (*Staff/300, Klotz/11-12*). eGRID then
15 estimates emissions reductions from various resources over the course of year.
16 (*NWN/101, Summers/47-48*). If eGRID is used, then there is generally agreement that the
17 "non-baseload" emissions rates should be used because they are related to emissions
18 from electric generation most likely to be backed down with the installation of CHP.
19 (*NWN/100, Summers/14*); (*NWN/101, Summers/27*); (*Staff/300, Klotz/12*). eGRID's 2010
20 non-baseload carbon dioxide emissions reductions are 1,340 lbs. per MWh, and eGRID's
21 2012 non-baseload carbon dioxide emissions reductions are 1,579 lbs. per MWh.

22 eGRID is the superior model because there is no need to design a new
23 methodology, use a method or data that was designed for a different purpose, or rely upon
24 utility models that are easily manipulated. Use of eGRID will also ensure nationally
25 consistent results of carbon emissions, which may be relevant in compliance with
26 environmental regulations or participating in carbon markets.

1 The NWPCC model is acceptable because it is used to evaluate the carbon
2 emissions displaced by end use customer energy efficiency, which is similar, but not
3 exactly the same as CHP. (*Staff/300, Klotz/19*). The NWPCC uses a version of the
4 proprietary AURORA to estimate carbon dioxide emissions rates for a marginal resource
5 and the market. (*Staff/300, Klotz/17-18*); (*Staff/302*). The NWPCC has a range of carbon
6 values between 700 and 1,800 lbs. per MWh, with Staff suggesting the use of 850 lbs. per
7 MWh. (*Staff/300, Klotz/17-18, 25*).

8 Utility integrated resource plan proprietary models are a deterministic estimate of
9 future generation conditions. (*Staff/300, Klotz/15*). These models typically produce a wide
10 range of potential outcomes, and are heavily dependent upon the utility's self selected
11 inputs, assumptions, and algorithms. Their carbon reduction values are unknown.
12 The utility models also fail this criterion because they were not designed for CHP or
13 energy efficiency. (*NWN/500, Summers/7*).

14 **2. eGRID and NWPCC Have Reasonable Geographic Inclusion.**

15 NW Natural and Staff agree that regional markets should be used, but Staff believes
16 that the eGRID geographic region is too broad because it incorporates plants outside of
17 the Pacific Northwest. (*Staff/300, Klotz/12*). NW Natural supports a broader region,
18 including states outside of the Pacific Northwest, because “[t]he boundaries of the
19 Northwest power system are porous – over the course of a year, the region imports and
20 exports power in large quantities, including coal and natural gas generation.” (*NWN/500,*
21 *Summers/4-5*). While a broader region is superior, both eGRID and the NWPCC's
22 geographic scopes are within the range of reasonable outcomes.

23 EPA strongly recommends calculating the greenhouse gas emissions benefits under
24 the Clean Power Plan using larger regions and not state or utility specific data because
25 there is no nationally consistent or complete utility specific important and export data.
26 (*NWN/300, Summers/20-21*); (*NWN/500, Summers/5*). This means that, due to different

1 inputs, assumptions, and modeling methodologies, use of utility specific models could
2 calculate significantly different carbon emissions reductions, even though actual emissions
3 reductions are exactly the same.

4 **3. eGRID Is the Most Transparent Model.**

5 eGRID is the most transparent and trusted source of information available as it is a
6 publically available model that can be easily reviewed by all stakeholders. (*NWN/500,*
7 *Summers/3-4*). Staff recognizes that “[t]he main advantage of this eGrid non-baseload
8 emissions rate approach is that it is somewhat straightforward and simple to calculate.”
9 (*Staff/300, Klotz/12*). Staff also testified that the NWPCC model “may not grant the kind of
10 accessibility that the EPA eGRID model does...[as it] does use a propriety licensed model
11 which is not easily understandable or accessible to those stakeholders uninitiated to
12 complex dispatch modeling.” (*Staff/300, Klotz/18*). Despite this, the NWPCC’s model is
13 acceptable because the Council is an independent and well respected third party that all
14 the parties are comfortable working with.

15 Both eGRID and NWPCC are far more transparent than any utility specific models.
16 Utility specific models use proprietary and commercial programs, require extensive and
17 accurate underlying data (which is often confidential), can be expensive to use, are labor
18 intensive and difficult for non-experts to evaluate, are non-transparent, complex, and are
19 highly dependent upon utility selected assumptions and algorithms. (*Staff/300, Klotz/15-*
20 *17*); (*NWN/300, Summers/20-21*). The Commission should not use a model developed by
21 an entity that is opposed to the development of CHP (the electric utilities) and is capable
22 of being greatly swayed by inputs provided from that entity.

23 **4. Both eGRID and the NWPCC Model Have Broad Market Support.**

24 National carbon offset projects will increase as federal and state carbon regulation
25 more aggressively limits the impacts of anthropogenic global warming, and it is important
26 that carbon reduction numbers be comparable. Staff notes that “[c]urrently these markets

1 rely on eGrid data.” (*Staff/300, Klotz/21*). The NWPC’s work field is nationally
2 recognized, has broad market support, but it is focused on energy efficiency. (*Staff/300,*
3 *Klotz/18-19*). While acceptable to NW Natural, the Commission should be aware that
4 reliance upon NWPC energy efficiency numbers could be at odds with other carbon
5 emissions reductions numbers that Oregon may need to use related to the Clean Power
6 Plan, regional carbon markets, or broader efforts that do not rely upon the NWPC.

7 **5. eGRID Will Be Frequently Updated.**

8 eGRID will be regularly updated, which ensures greater accuracy over the life of the
9 CHP Program. (*NWN/500, Summers/3*). The latest eGRID updates occurred in 2014 and
10 2015. The NWPC methodology, whenever it is finalized, may be updated as infrequently
11 as every five years. (*NWN/500, Summers/3*); (*Staff/300, Klotz/8-19*).

12 **6. eGRID Is Currently Available, and NWPC Is Close Enough.**

13 eGRID numbers are currently available to use in the CHP Program, and the NWPC
14 does not have a methodology to calculate regional carbon emissions specifically related to
15 CHP installations. (*NWN/500, Summers/6-7*). NW Natural, however, agrees that the
16 NWPC’s energy efficiency numbers can be used as a proxy for CHP-related emissions
17 while the Council develops a more specific methodology. Revising and adapting utility
18 specific models would likely lead to significant delays, major time investments, and
19 disputes with worse outcomes.

20 **C. The Customer Incentive and Carbon Reduction Methodology Must Be Set**
21 **Together to Achieve an Overall Payment that Reasonably Incentivizes CHP**
22 **Installation.**

23 As described above, there are two interdependent factors to determine if a three to
24 four year payback period can be reached: 1) the specific dollar per ton amount of the
25 customer incentive; and 2) the methodology to determine carbon emissions. Essentially,
26 the specific dollar per MTCO₂(e) is multiplied by the tonnes of carbon reductions to

1 achieve the overall incentive payment. This means that actual incentive amounts paid to
2 customers can be significantly different with the same dollar per MTCO₂(e) payment if a
3 different carbon savings assumption is used. In the case of CHP, this metric is usually
4 determined as an amount of MTCO₂(e) reduced from a number of factors, including
5 avoided grid supplied electricity, and avoided natural gas or heating fuel purchases
6 displaced by waste heat from CHP generation. The incentive payment to the customer is
7 calculated as the measured and verified MTCO₂(e) for its unique CHP operation multiplied
8 by the fixed incentive per MTCO₂(e). The CHP Program will likely fail if the Commission
9 does not approve a specific dollar incentive that takes into account the carbon reduction
10 methodology that is approved, in order to offer a reasonable payback period.

11 NW Natural urges the Commission to not resolve these two issues in isolation, and
12 to focus on the goal of providing an economic incentive that achieves a three to four year
13 payback. (*Tr. at 26-27, 57-58*). While NW Natural believes that using the 2012 eGRID
14 methodology is the best and most supported approach, the Company is willing to use
15 other dollar incentives or methodologies that bring about a successful result. For
16 example, NW Natural is willing to utilize the 2010 eGRID results, the 2012 eGRID results,
17 or NWPCC model, as long as the incentive is adjusted to be reasonably equal to the same
18 total annual incentive to the customer. The following incentive levels provide a reasonably
19 equal annual incentive to the customers under the three different sources for displaced
20 grid-supplied electricity:

- 21 \$30 per MTCO₂(e) using 2010 eGRID;
- 22 \$25 per MTCO₂(e) using 2012 eGRID; or
- 23 \$60 per MTCO₂(e) using NWPCC.

24 Attachment A to this brief provides additional detail regarding the incentive payments
25 necessary to obtain a three to four year payback under the 2012 eGRID and NWPCC.

26

1 For new customers, incentive payments should be updated as more current eGRID
2 or NWPCC information becomes available. For example, if the eGRID methodology is
3 used and there is a 2016 update, then those carbon emissions savings numbers should
4 be used to develop the customer incentive payment for new customers. This incentive
5 payment may be higher or lower, but still would be designed to achieve a three to four
6 year average payback period.

7 **D. Overall Incentive Payment Amounts Should Not Be Updated for Customers**
8 **Already Participating in the Program.**

9 Once a customer signs a contract to participate in the program, their specific
10 incentive payments should be set and not change for the entire ten-year period in order to
11 give the customers the certainty they would need to justify a long-term investment.
12 (*NWN/300, Summers/21-22*); (*Tr. at 27-28, 57*). PGE claims that it is inappropriate “lock-
13 in” incentive payments and emissions numbers for ten years because emissions may
14 decline over time. (*PGE Prehearing Brief at 7*). PGE states that it “understands the
15 desirability of a fixed project incentive,” but does not want it based on inaccurate and
16 “outdated information”. (*PGE Prehearing Brief at 7*). Locking in incentive payments is not
17 only desirable, but is absolutely necessary to ensure that customer can count on a specific
18 payment because of the significant capital investment required under the program.
19 (*NWN/300, Summers/21-22*).

20 Finally, NW Natural is willing to update the estimated emissions reductions for
21 reporting purposes, as long as the actual the customer incentive payment does not
22 change. (*NWN/300, Summers/22-23*). Over the life of the program more current and
23 accurate information regarding the actual carbon emissions savings could become
24 available. When that new information becomes available, then the amount of MTCO₂(e)
25 savings reported for that customer can be updated; however, the customer will continue to
26 “receive an incentive payment based on the estimated carbon reductions made at the time

1 of their proposed CHP installation.” (*NWN/300, Summers/22-23*). This approach would
2 provide customers with certainty regarding incentive payments but also accurately
3 estimate carbon savings using the most current information. (*NWN/300, Summers/23*).

4 **E. NW Natural Has Proposed a Reasonable Company Incentive.**

5 NW Natural’s proposed \$10.00 company incentive per measured and verified
6 reduction in MTCO₂(e) emissions is reasonable. This is an appropriate incentive for the
7 CHP Program and as a baseline for future emissions reduction projects because it is lower
8 than what the Company is allowed under the Commission’s rules, aligns the Company’s
9 interests with achieving emissions reductions, rewards the Company for seeking out the
10 most cost effective greenhouse gas emissions reductions program, and provides a fair
11 baseline for future SB 844 projects. All the parties in support of CHP carbon emissions
12 reductions support a company incentive, although Staff, CUB and NWIGU propose a \$5
13 per MTCO₂(e) incentive.

14 SB 844 contemplates that natural gas utilities would receive some sort of incentive
15 as the legislature’s direction is for the Commission to establish voluntary programs “for the
16 purposes of incentivizing public utilities” to invest in eligible projects. ORS § 757.539(2)
17 (emphasis added). NW Natural recognizes that the Commission’s rules state that the
18 Commission “may grant incentive payments”, with the conditions that the total costs may
19 not exceed 25% of the project cap, and that the incentives may be structured to be linked
20 to the amount of emissions reduced or vary depending on whether the project is recovered
21 as an expense or placed in ratebase. OAR § 860-085-0750.

22 NW Natural has tied the company’s incentive to actual carbon emissions reductions
23 to align “the Company’s financial interests with the goals of SB 844 - to reduce
24 greenhouse gas emissions.” (*NWN/100, Summers/17*); (*Tr. at 34*). **NW Natural can only**
25 **obtain a significant incentive if there are significant carbon savings.** (*NWN/100,*
26 *Summers/17*). Under NW Natural’s base case, the Company hopes to achieve savings of

1 up 240,000 MTCO₂(e) per year based on 80-120 MWs of installed capacity, depending on
2 the actual units installed and their operating characteristics. (*NWN/300, Summers/15*).
3 With a \$10 per MTCO₂(e) incentive, this could reach \$2.4 million per year, and \$24 million
4 over the ten years that incentive payments are made for each project. As it is extremely
5 unlikely that all 120 MWs will come on line in one year, it will take time for annual
6 incentives to reach \$2.4 million (if participation levels ever reach the base case). NW
7 Natural notes that under its proposal, it could also receive zero incentive if the program is
8 unsuccessful, despite the considerable work and investment in the project that the
9 company has made over the last two years.

10 The CHP Program in particular is worthy of a \$10 incentive because it represents the
11 potential for the SB 844 program with the highest level of carbon savings at the lowest
12 costs. (*NWN/100, Summers/17*); (*NWN/300, Summers/37*). This is “the very type of
13 program that ought to be highly incentivized under SB 844.” (*NWN/300, Summers/37*).

14 NW Natural also selected the \$10 incentive for both this specific program and as an
15 appropriate baseline, or default incentive for SB 844 projects future carbon reduction
16 programs because it will ensure that the cost cap is never exceeded. The Commission’s
17 rules appropriately limit incentives the Company can obtain for carbon emissions
18 reductions to no more than 25% of the total SB 844 costs included in rates. (*NWN/100,*
19 *Summers/18*); OAR § 860-085-0750(2). NW Natural believes that the CHP Program is
20 likely the lowest SB 844 cost carbon reduction measures, on a per ton basis. (*NWN/100,*
21 *Summers/18*). This means that the \$10 per MTCO₂(e) incentive will be lower than the
22 cost cap for the CHP Program and all future carbon emissions reduction programs.
23 (*NWN/100, Summers/18*); (*NWN/300, Summers/35-38*). As future programs with higher
24 costs are approved, the “\$10 per MTCO₂(e) incentive will represent less than 25 percent
25 of those programs’ costs included in rates.” (*NWN/100, Summers/18*). The incentive
26 structure is designed to signal an economic incentive to find the lowest cost and highest

1 potential carbon reduction opportunities available. (*NWN/100, Summers/18*).
2 Additionally, by setting the baseline incentive at \$10 per MTCO₂(e), the Company will
3 have a level of certainty regarding the benefits it could achieve if it developed and
4 implemented successful future carbon reduction programs. (*NWN/100, Summers/18*);
5 (*NWN/300, Summers/35*).

6 As is clear from the record, the parties have been unable to agree on the appropriate
7 Company incentive, which has been a controversial and difficult topic, even in the
8 Commission's rulemaking process for SB 844. NW Natural has proposed a \$10 per ton
9 incentive, and the other non-electric parties have proposed a \$5 per ton incentive. NW
10 Natural appreciates that this is a difficult issue because it raises issues of first impression
11 and important policy considerations, but is hopeful that the Commission will approve an
12 appropriate incentive in the context of this program that will further the successful
13 implementation of SB 844.

14 **F. NW Natural Has Minimized Uncertainty Regarding the CHP Program's Costs.**

15 Staff suggests that the average bill impact to residential customers may be as high
16 as \$2.50, and that industrial customers could experience a 9% rate increase. (*Staff*
17 *Prehearing Brief at 5*). This is simply incorrect. The potential rate impacts under NW
18 Natural's base case are laid out in the reply testimony and exhibits of Andrew Speer.
19 (*NWN/400, Speer/3-4*); (*NWN/401, Speer/1*); (*NWN/402, Speer/2*). These show that on
20 average under the base case total program costs will be about 1.5% of total revenues.
21 (*NWN/401, Speer/1*). The average monthly bill increase for residential customers would
22 be \$0.99.

23 While NW Natural has reduced cost uncertainty to the greatest degree possible, NW
24 Natural cannot eliminate all cost uncertainty given the fact that program costs are based
25 on unknown participation levels in the future. To provide greater clarity and boundaries
26 regarding program costs, NW Natural has agreed to modify the CHP Program to: 1) seek

1 Commission re-authorization if participation levels reach the base case, which is 240,000
2 MTCO₂(e) per year and 120 MWs of installed CHP capacity; and 2) make a full and
3 comprehensive informational report after three years, regardless of participation amounts.
4 This has the practical impact of imposing a cost cap at approximately 1.5% of NW
5 Natural's total revenues with an average monthly residential bill impact of about a dollar.
6 (*NWN/401, Speer/1.*) These recommendations are generally consistent with Staff's
7 recommendation that there be a cap on the overall costs of the CHP Program. (*Staff/300,*
8 *Klotz/5*).

9 **G. All of the CHP Program's Monetary Benefits Will Flow to Customers.**

10 NW Natural has identified significant customer economic benefits in the form of
11 increased margins related to higher throughput, all of which will be passed back to
12 customers. In addition, there are additional non-monetary customer benefits beyond the
13 increased margins. Similar to the program costs, exact level of benefits are tied to the
14 participation levels, and the more successful the program, the more customer benefits.
15 Since the benefits accrue to all customers on NW Natural's system, the Company will
16 allocate them on an equal percent margin basis.

17 NW Natural is required to demonstrate that customers will receive some benefits
18 from the CHP Program. ORS § 757.539(2), (3)(c), (8)(a). One of the main purposes of
19 requiring the identification of benefits and the customers to which they flow is that
20 program costs should be allocated to those customers that benefit from the program.
21 ORS § 757.539(8)(a); OAR § 860-085-0600(2)(b). There is no requirement that the
22 benefits outweigh the program costs. It is unclear whether Staff believes that benefits
23 must outweigh costs, but Staff asserts that the identified benefits are insufficient to warrant
24 approval of the CHP Program. (*Staff Prehearing Brief at 6*). Staff's position raises an
25 impossible hurdle because the benefits will not outweigh the costs under any of the
26

1 potential natural gas related carbon emissions reduction programs, and CHP is likely the
2 lowest cost and highest monetary benefit SB 844 program.

3 The primary economic benefit is the sale of incremental therms from CHP usage. As
4 explained above, NW Natural has provided a plausible mix of resources to meet the
5 Company's base case of 120 MWs of installed CHP capacity. The actual benefits will, of
6 course, vary depending on the types of units installed, when they are installed, and the
7 cost of service related to investments for line extensions (which may or may not be
8 needed). (*NWN/600, Speer/1-2*); (*NWN/601, Speer/1*). This 120 MWs may occur in a
9 variety of ways, but one resource mix that meets the base case is two 45 MW, two 4.3
10 MW, and one 21.7 MW CHP units. (*NWN/600, Speer/1-2*). NW Natural has estimated the
11 total excess margin that would be returned to customers in year one at \$623,551 using
12 this resource mix, assuming they all come on line at the same time, and that five of the six
13 installations need line extensions. (*NWN/600, Speer/2-4*); (*NWN/601, Speer/1*). This
14 \$623,551 amount would increase each year because the cost of service related to line
15 extension investments would decline over time, and the forecasted ten year customer
16 benefit under these assumptions would be \$6,314,481. (*NWN/600, Speer/2-4*);
17 (*NWN/601, Speer/1*). Customer benefits will not match this exact number, due to the
18 variables described above, but this is a reasonable approximation of the monetary
19 benefits.

20 All benefits will be passed back in full to customers. Under ordinary regulatory
21 practice, any increased margins due to higher throughput between rate cases flow to the
22 utility and any increased margins flow to ratepayers after the utility's new revenue
23 requirement is set in a rate case. CUB raised concerns regarding the customer benefit
24 between rate cases, and NW Natural has agreed to open a deferred account to separately
25 track all the between-rate-case customer benefits. These monetary benefits will be
26 directly passed back to customers, which is easily accomplished through amortizing a

1 credit into rates at the time of the Company's annual Purchased Gas Adjustment. For
2 example, Exhibit/601 shows \$623,551 in customer benefits under year one after the
3 installation of the 120 MWs. (*NWN/601, Speer/1*). Assuming these CHP installations
4 occurred prior to NW Natural's next general rate case, NW Natural would track the entire
5 \$623,551 in a deferred account, and return the full amount to customers by including that
6 amount as a credit in rates set through the PGA process. This is a common practice for
7 providing a revenue credit to customers, and will ensure the full amount is passed back to
8 customers. These benefits will continue to be tracked and returned to customers in this
9 fashion until the next general rate case.

10 After a NW Natural general rate case, all the customer benefits will be passed back
11 to customers through the ordinary ratemaking process, and the deferral approach
12 described above would not need to be used (except to the extent a new CHP plant is
13 installed, leading to additional CHP throughput after that rate case). This effect of how a
14 rate case passes the benefits back to customers was described in NW Natural's original
15 application. (*Application at 5-6*). Higher revenues due to greater sales would be
16 accounted for similar to all other revenues in a general rate case, and reduce the amount
17 that would otherwise need to be recovered through rates to recover the utility's revenue
18 requirement. (*Application at 6*); (*NWN/200, Speer/2-3*); (*Tr. at 74, 79-83*). In other words,
19 the Company is only allowed to set rates at a level that recover its total revenue
20 requirement. To the extent there are any increased revenues because of CHP
21 installations, those amounts are counted toward the recovery of the company's revenue
22 requirement in the case---thus increased revenues from a CHP plant have the effect of
23 reducing other customers' rates through the standard ratemaking approach.

24 CUB repeatedly argues that line extensions can absorb the margins, resulting in
25 scenarios in which there are no benefits until the project has been operational for five
26

1 years. (*CUB Prehearing Brief at 4-5, 7-8*). This is incorrect and customers will benefit
2 regardless of the whether there are investments to recover line extension investments.

3 NW Natural's plausible range of CHP installations assumed that four of the five units
4 need line extensions, which require cost of service to recover that investment. (*NWN/601,*
5 *Speer/1*). NW Natural believes this is a high estimate of the number of units that will
6 require line extensions, but assumed that four units would require investments to produce
7 an estimate that included high level of cost of service and a conservative level of customer
8 benefits. (*Tr. at 70-71*); (*NWN/601, Speer/1*). When a customer needs a line extension,
9 NW Natural will pay for the costs, up to five times the customer's expected annual margin.
10 (*Tr. at 69-71*); (*NWN/601, Speer/1*). If the line extension costs exceed this five times
11 margin, then the customer pays the extra costs. (*Tr. at 69-71*); (*NWN/601, Speer/1*).

12 The costs related to these line extensions will not exceed the customer benefit under
13 expected conditions. NW Natural does not recover the full costs of the investment in any
14 year, but the costs are included in ratebase and recovered as "cost of service." (*Tr. at 69-*
15 *71*); (*NWN/601, Speer/1*). For example, under the 21.7 MW unit the margin per customer
16 is \$128,628, with five times the margin \$643,140. (*NWN/601, Speer/1*). The cost of
17 service that the company will charge ratepayers in the first year, however, is only \$15,146.
18 (*NWN/601, Speer/1*). Therefore, the excess margin that will be fully returned to customers
19 in the first year is \$113,482 (\$128,628 minus \$15,146). (*NWN/601, Speer/1*). As rate
20 base is recovered over time, the cost of service will decrease and the excess margin will
21 increase. There will be excess margin under all the prototypes because the expected cost
22 of service is always significantly lower than the margin. (*Tr. at 73*); (*NWN/601, Speer/1*).

23 Staff has argued that NW Natural should have identified additional customer
24 benefits, and provided examples. (*Staff/100, Klotz/8-11*). NW Natural agrees that there
25 are additional benefits from CHP installations, but these are difficult to quantify.
26 (*NWN/300, Summers/13*). These include individual CHP customers will benefit from more

1 reliable and fixed power costs, and better effective use of the heat produced by the plant.
2 All NW Natural customers indirectly benefit by an improved economy resulting from
3 additional CHP development, and lower carbon emissions. NW Natural's testimony
4 identifies these and other benefits that the Company cannot monetarily value. (*NWN/300,*
5 *Summers/13-14*).

6 **H. An Earnings Test Is Inconsistent with the Purpose of the CHP Program.**

7 The Commission should reject CUB's proposal to subject both the non-incentive
8 costs and incentive costs to an earnings test. Company incentives should not be included
9 as revenues in the earnings test because they can potentially eliminate the incentive
10 payment, which is the only monetary benefit NW Natural can obtain under the CHP
11 Program. This is inconsistent with and undermines the purposes of SB 844: which is to
12 encourage natural gas utilities to develop and administer effective greenhouse gas
13 emissions programs. In addition, program costs should not be included in the earnings
14 test because they could result in NW Natural not recovering its actual costs, and being in a
15 worse position because of its participation in a SB 844 program. NW Natural will not go
16 forward with the CHP Program if the Commission adopts CUB's proposal to apply the
17 earnings test to program costs.

18 The Commission concluded that it would make a case-by-case determination about
19 whether a project's incentive payments should be included in a utility's earnings test. *Re a*
20 *Rulemaking to Implement SB 844 (2013)*, Docket No. AR 580, Order No. 14-417 at 6
21 (Dec. 3, 2014). The traditional regulatory compact encourages utilities to reduce costs
22 and prudently manage their operations by allowing the utility to keep revenues in excess of
23 costs between rate cases. *In re Utility Reform Project and Ken Lewis*, Docket No. UM
24 1224, Order No. 09-316 at 13 (Aug. 18, 2009). Earnings tests are an exception to this
25 policy and are generally used to protect utilities and ratepayers regarding the cost
26 recovery associated with deferred amounts. Deferred amounts are usually costs that

1 would ordinarily be included rates, but are separately tracked and recovered to minimize
2 the rate changes, or to match costs and benefits received by ratepayers. ORS § 757.259.

3 The logic behind the Commission's policies regarding earnings test do not apply to a
4 SB 844 program. SB 844 incentives are not an ordinary utility cost that is being separately
5 tracked for the usual regulatory purposes of minimizing rate changes or matching
6 customer costs and benefits. Instead, SB 844 incentives are a monetary payment directly
7 to shareholders to reward them for a well designed carbon emissions reduction program
8 regardless of the company's earnings level.

9 Subjecting incentive and non-incentives to an earnings test is also inconsistent with
10 the traditional regulatory compact because it will provide a disincentive to the utility to
11 reduce costs (which will ultimately lower customer rates) or to aggressively pursue carbon
12 reductions (which will undermine SB 844). The Commission will be signaling that NW
13 Natural should not aggressively pursue cost containment and efficiencies because it would
14 be "rewarded" for those actions by losing its SB 844 incentives and being unable to
15 recover its incentive payments and prudently incurred SB 844 program costs.

16 An earnings test is particularly inappropriate for the CHP Program in which the only
17 economic benefit NW Natural can obtain is from the company incentive. NW Natural does
18 not expect any material rate base investment under the program, and all the incremental
19 margin associated with increased throughput will be passed back to customers.
20 (*NWN/300, Summers/39*). An earnings test could result in NW Natural receiving no
21 benefits associated with this voluntary program, or even losing money if it is unable to
22 recover program costs because the Company happens to be earning slightly above its rate
23 case return on equity when it seeks their recovery.

24 **I. The CHP Program Does Not Result in Fuel Switching.**

25 NW Natural's CHP Program is not barred under any Commission policies
26 regarding fuel switching because it does not result in fuel switching. In addition, even if

1 there were any restrictions, they have been superseded by the plain meaning and
2 intention of SB 844.

3 The installation of CHP is not fuel switching because it is a form of electric
4 generation that simply replaces off site utility owned electric facilities with on site customer
5 owned electric facilities. Fuel switching occurs when there is a substitution of one type of
6 energy or fuel for another. OAR § 860-027-0310(1)(b). Electric utilities use natural gas to
7 generate electricity to serve their customers' loads, and a CHP facility similarly generates
8 electric energy to meet customer loads. (*NWN/100, Summers/2-3*). The fact that CHP is
9 located on site, is more efficient, and NW Natural supplies natural gas does not change
10 the fact that the load will continue to be served by electric energy.

11 The Legislature authorized emissions reductions programs that reduced carbon
12 emissions that result from the provision of natural gas, even if they result in fuel switching.
13 As natural gas is a fossil fuel, the only way that its increased use can result in carbon
14 reduction is by replacing another higher carbon emitting fuel or using a more efficient form
15 of electric generation. Other than needing to use natural gas, SB 844 imposes no
16 operational restrictions on the manner that carbon emissions are reduced.

17 While unsuccessful to date, the Commission has a long history of using electric
18 ratepayer funds to promote cogeneration, and NW Natural's program will benefit both
19 natural gas and electric customers. The Department of Justice has concluded that fuel
20 switching is not a bar to investing electric ratepayer energy efficiency funds in CHP. DOJ
21 Interoffice Memo from S. Andrus (May 18, 2005)("DOJ Memo"); (*PGE/101, Barra/1-4*).
22 The Commission has allowed the ETO to fund CHP as an electric conservation resource
23 because it benefits electric customers by reducing electric consumption through increased
24 efficiency in energy use, production or distribution. (*NWN/300, Summers/16*); (*DOJ Memo*
25 *at 2*); (*PGE/101, Barra/2*). The Commission should assume that the ETO will continue to
26 offer this lawful CHP conservation program that benefits electric customers.

1 **J. NW Natural Would Not Invest in CHP in the Ordinary Course of Business.**

2 NW Natural would not, and did not, develop the CHP Program in the ordinary course
3 of business. The eligibility criteria for SB 844 programs include “[t]hat the public utility,
4 without the emission reduction program, would not invest in the project in the ordinary
5 course of business” ORS § 757.539(3)(d). The Commission should conclude that
6 the CHP Program satisfies any requirements of ORS § 757.539(3)(d).

7 PGE and PacifiCorp argue that NW Natural will benefit from increased load and
8 margins, which means that NW Natural would invest in CHP in its ordinary business
9 activities. (*PacifiCorp Prehearing Brief at 3-4*); (*PGE Prehearing Brief at 3-4*). Specifically,
10 they argue that NW Natural must show that the program is designed to “incentivize
11 behavior the utility would not otherwise have an incentive to engage in.” (*PacifiCorp*
12 *Prehearing Brief at 3*); (*PGE Prehearing Brief at 3-4*).

13 Adoption of the electric utilities interpretation of SB 844 would defeat the purpose of
14 the law by effectively prevent NW Natural from developing any programs that even
15 marginally increased natural gas consumption. SB 844 does not restrict allowed
16 emissions reductions programs to those that only reduce end use natural gas
17 consumption.

18 The proper analysis is whether NW Natural would have proposed this program in the
19 ordinary course of business without authorization under SB 844. As the CHP Program in
20 an incentive based program, NW Natural would be unable to obtain cost recovery and
21 design a program that provides the proper incentives to reduce carbon emissions through
22 the installation of CHP absent SB 844. “Ordinary course of business” also means those
23 types activities that are not engaged in during normal operations. As NW Natural and
24 other natural gas utilities do not design and implement CHP incentive programs or buy
25 carbon allowances as part of their day-to-day business operations, and these activities are
26 not part of a gas utility’s “ordinary course of business.”

1 **K. All Carbon Emissions Reductions and Incentive Payments Will Be Subject to**
2 **Rigorous and Comprehensive Measurement and Verification.**

3 NW Natural's measurement and verification plan ("M&V Plan") is designed to exceed
4 international best industry practices to ensure that all carbon reductions and incentive
5 payments are accurately validated. NW Natural's M&V Plan is rigorous, thorough, and
6 comprehensive. First, there will be a customer specific plan that must be approved by NW
7 Natural and an independent third party. Next, NW Natural and the independent third party
8 will monitor all emissions reductions and incentive payments. Finally, the Commission will
9 be provided with timely and thorough information, and provided an opportunity to review
10 and audit all information and verification plans. NW Natural believes that it has fully
11 responded the parties few concerns regarding the M&V Plan.

12 NW Natural is seeking Commission approval of its overall approach to measurement
13 and verification in this proceeding, as well as the specific components included its M&V.
14 While no specific proposals have been made by the parties to improve the M&V Plan, NW
15 Natural emphasizes that it is willing to make whatever adjustments the Commission
16 believes may be necessary to improve the plan. NW Natural's overriding goal is to
17 provide the Commission with the information it needs to be confident all carbon reductions
18 and incentive payments have been demonstrated to be correctly measured and verified.

19 **1. NW Natural's M&V Plan Exceeds the Monitoring Requirements in SB**
20 **844 and the Commission's Rules.**

21 SB 844 contemplates that all carbon reductions and incentive payments will be
22 measured and verified. The goal of the statute is to achieve real carbon reductions, and
23 any carbon reduction proposal must explain how the utility will provide "updates on costs
24 and reduced emissions associated with the project" and "other information required by the
25 commission by rule or order." ORS § 757.539(4)(k), (l).

26

1 The Commission’s SB 844 rules require an application to include an “Emissions
2 Reduction Verification Plan.” OAR § 860-085-0600(3). This plan must include: 1) the
3 methodology used to calculate the projected emission reductions, including a project
4 baseline, identification of emissions leakage and project emissions, and a summary of the
5 emissions reduction verification methodology; and 2) a monitoring plan. OAR § 860-085-
6 0600(3)(a), (b). The monitoring plan will include ongoing collection and retention of data
7 for determining the project baseline, emissions, and emissions reductions attributable to
8 project. OAR § 860-085-0600(3)(b). NW Natural is required to “describe the methods and
9 equipment used, and identify the anticipated costs of monitoring and verifying emission
10 reductions.” OAR § 860-085-0600(3)(b).

11 **2. No Party Disputed NW Natural’s Application Complies with OAR § 860-**
12 **085-0600(3)(a).**

13 NW Natural assumes that CHP investments in its service territory would not occur
14 without incentive payments. This is a reasonable projection reflecting current laws,
15 regulations, economic conditions, technological trends, and historic CHP development.
16 (*Application at 10*); OAR § 860-085-0600(3)(a)(A).

17 There are no “emissions leakages,” which would include reductions “in greenhouse
18 gas emissions within the Project that is offset by an increase in greenhouse gas emissions
19 outside the Project.” OAR § 860-085-0600(3)(a)(B). Emissions leakages do not occur
20 because the use of CHP results in a decrease in greenhouse gas emissions based on a
21 substitution of a higher carbon intensity electric generation (utility scale gas plants) with a
22 lower carbon intensity electric generation (CHP).

23 NW Natural has accounted for any emissions attributable to the implementation of
24 the CHP program. The net natural gas usage at a site is determined using an industry
25 standard methodology that accounts for any “additional gas required to generate electricity
26

1 incremental to what the site would normally use to satisfy thermal loads.” (*Application at*
2 *10*); (*NWN/100, Summers/10*).

3 NW Natural developed its M&V plan in consultation with Energy 350, which is a
4 Portland, Oregon energy efficiency consulting firm with expertise in CHP performance
5 measurement and verification. (*Application at 10*); (*NWN/101, Summers/82*). Energy 350
6 was selected because they have a strong track record of providing these services, and
7 they are the contractor for the ETO’s CHP program, which will result in standardization
8 and cost savings. (*NWN/300, Summers/30*).

9 **3. The M&V Plan Will Accurately Monitor and Review Carbon Reductions**
10 **and Incentive Payments.**

11 NW Natural’s M&V Plan meets or exceeds state, national, and international best
12 practices, and will ensure all customer specific plans will accurately monitor and verify
13 emissions reductions and incentive payments. (*NWN/100, Summers/14-16*); (*NWN/101,*
14 *Summers/38-40, 82*); (*NWN/300, Summers/26-31*). This will include reviewing any CHP
15 installation proposals and documenting all savings and payments, and providing the
16 Commission with timely and thorough information regarding all aspects of project
17 measurement and verification.

18 Energy 350, which helped develop the M&V Plan, will also measure and verify
19 emissions reductions for each specific project. No party raised any specific concerns with
20 Energy 350, but Commission Staff initially raised the issue that NW Natural’s working
21 relationship with Energy 350 could lead to the firm not working truly independently of NW
22 Natural. (*Staff/100, Klotz/15-16*). Staff wanted to ensure that Energy 350 was free to
23 identify any and all concerns with the CHP Program. (*NWN/300, Summers/29*). NW
24 Natural believes that this issue has been fully addressed as Energy 350 will have no
25 financial stake in the performance of the CHP systems, has a strong track record of
26 providing these services, will be paid based on time and materials, and is encouraged and

1 able to identify and raise any and all concerns with the CHP Program. (*NWN/300,*
2 *Summers/29-30*). Staff's Prehearing Brief notes that NW Natural responded to its
3 concerns, but states that it still may have a vague "concern" related to the independent
4 third party. (*Staff Prehearing Brief at 14*). While Staff has not proposed any changes, NW
5 Natural remains willing to make changes to the independent third party verifier. (*See*
6 *NWN/300, Summers/29-30*).

7 Energy 350 will be required to conduct a thorough technical assessment of the
8 potential CHP system and its estimated performance, approve the project specific
9 measurement and verification, and recommend whether NW Natural should approve the
10 project. (*NWN/100, Summers/15*); (*NWN/300, Summers/26-28*). Custom analysis will be
11 performed to ensure that complex facilities will result in verifiable emissions reductions.
12 (*NWN/300, Summers/28-29*). NW Natural will review the independent third party's
13 recommendation and any other information before approving any specific customer plan.

14 The third party will conduct periodic inspections following installation, which is
15 consistent with best measurement and verification practices. (*NWN/100, Summers/14-*
16 *15*). First, there will be a pre-operational inspection and report to validate the installed
17 system, the measurement and verification equipment, and the method of reporting.
18 (*NWN/300, Summers/27*). Second, there will be ongoing site inspections to ensure
19 performance is being correctly reported. (*NWN/100, Summers/15-16*); (*NWN/300,*
20 *Summers/27*). This will include a post-operational memorandum outlining the project
21 specific methodology used to evaluate performance, and summarizing the recommended
22 emissions reductions and payments. (*NWN/300, Summers/27*).

23 In addition to project reporting, NW Natural will provide annual reporting on
24 participants, CHP size and technology, and incentive and program amounts spent.
25 (*NWN/100, Summers/23*); (*NWN/300, Summers/27*). NW Natural has not pre-determined
26

1 all aspects of the annual report, but has left the specific format to be agreed upon by the
2 stakeholders. Finally, there will a comprehensive program review after three years.

3 Staff initially raised a concern regarding how frequently information will be provided
4 to the Commission. (*Staff Prehearing Brief at 14*); (*Staff/100, Klotz/2-3, 16*). NW Natural
5 proposed minor changes in the M&V Plan to ensure that the Commission receives
6 information more quickly, including providing “all information to the Commission promptly
7 after the independent third party provides the information to NW Natural.” (*NWN/300,*
8 *Summers/27-28*). NW Natural will report all information to the Commission at whatever
9 intervals Staff and the Commission prefer, and can provide information less frequently if
10 desired. (*NWN/300, Summers/27*). NW Natural is open to make changes to the
11 informational reporting requirements, if the Commission believes any are warranted.

12 NW Natural’s M&V Plan was reviewed by the Climate Action Reserve (“CAR”), which
13 is an internationally recognized organization that ensures integrity, transparency, and
14 financial value in evaluating greenhouse gas emissions. The M&V Plan meets or exceeds
15 the standards of CAR or the United Nations Clean Development Mechanism. (*NWN/100,*
16 *Summers/16*); (*NWN/101, Summers/67-73*).

17 NW Natural does not believe any party has specific concerns with the technical
18 details of the M&V Plan. Staff originally raised concerns regarding the baseline
19 methodology for current steam usage, and the costs for M&V. (*Staff/100, Klotz/2-3, 16*).
20 NW Natural explained that it is difficult to develop a generic methodology for steam usage,
21 and that it will be determined using a technical analysis for each site. (*NWN/300,*
22 *Summers/28*). NW Natural also explained that the \$25,000 budget for M&V costs per
23 customer per year is not fixed, but based on time and materials for specific contracted
24 tasks. (*NWN/300, Summers/30-31*). NW Natural understands that these explanations
25 have addressed Staff’s concerns. (*See Staff Prehearing Brief at 14*).

26

1 **L. NW Natural Held a Robust Stakeholder Process.**

2 SB 844 requires NW Natural to involve stakeholders prior to the filing of an
3 application. ORS § 757.539(d). NW Natural has met this standard by seeking and
4 obtaining stakeholder involvement prior to the filing of the application from interested
5 stakeholders. Initially, NW Natural held informal conversations and meetings with technical
6 and policy stakeholders during the program development process. NW Natural solicited
7 assistance from Staff, ODOE, ETO, the Northwest CHP Technical Assistance Partnership
8 (“TAP”), and Washington State University (“WSU”). (*NWN/101, Summers/5, 7, 47*). NW
9 Natural also conducted a formal stakeholder process with three engagement workshops
10 for interested parties. (*NWN/100, Summers/21-22*); (*NWN/101, Summers/72-81*). At
11 these workshops, the Company provided drafts of the CHP Program, financial models,
12 and analysis by CAR and WSU regarding the M&V Plan, emissions analysis, and
13 incentive structures. (*NWN/100, Summers/21-22*). NW Natural also made changes
14 recommended by the stakeholders. (*NWN/100, Summers/21-22*).

15 **V. CONCLUSION**

16 For the reasons explained in this Post-Hearing Brief and NW Natural’s testimony, the
17 Commission should approve NW Natural’s CHP Program.
18 Respectfully submitted this 8th day of January, 2016.

19 **NW NATURAL**

20
21 /s/ Zachary D. Kravitz
22 Zachary D. Kravitz,
23 OSB# 152870
24 Associate Counsel
25 Northwest Natural Gas Company
26 220 NW Second Ave.
Portland, Oregon 97209
Email: zdk@nwnatural.com
Phone: (503) 220-2379

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/s/ Irion Sanger
Irion A. Sanger
OSB# 003750
Sanger Law, PC
1117 SE 53rd Avenue
Portland, OR 97215
Telephone: 503-756-7533
Fax: 503-334-2235
Email: irion@sanger-law.com

Of Attorneys for Northwest Natural Gas
Company

Attachment A

Comparison of Incentive Levels assuming Base Case

Prototype	No NWN CHP Program		\$30/MTCO ₂ (e) 2010 eGRID		\$25/MTCO ₂ (e) 2012 eGRID		\$60/MTCO ₂ (e) 950 lbs	
	Simple Payback	IRR	Simple Payback	IRR	Simple Payback	IRR	Simple Payback	IRR
1.6 MW (2 Each 800 kW Recip Engines)	8.9	4.9%	6.2	10.6%	5.9	11.3%	6.5	9.7%
500 kW Recip Engine	8.7	5.2%	5.7	12.2%	5.4	13.2%	6.2	10.5%
4.3 kW Recip Engine	3.9	18.7%	2.9	28.9%	2.9	29.6%	2.9	29.8%
21.7 MW Gas Turbine (without Compression)	5.4	13.7%	4.1	22.3%	4.2	21.6%	4.2	22.0%
21.7 MW Gas Turbine (with Compression)	5.7	12.7%	4.3	20.9%	4.4	20.1%	4.4	20.5%
45 MW Gas Turbine (with Compression)	6.0	11.2%	4.5	19.9%	4.7	18.4%	4.6	18.9%