BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON
UM 1744

In the Matter of	)	
	)	
NORTHWEST NATURAL GAS	)	RESPONSE TESTIMONY OF
COMPANY, dba NW NATURAL,	)	NW ENERGY COALITION
	)	
Application for Approval of an Emission	)	
Reduction Program.	)	
_____	)	

NW Energy Coalition ("NWEC") appreciates the opportunity to present the following comments as its response testimony for this docket.

We begin with appreciation for the extensive effort made by NW Natural to document the proposed program and to engage stakeholders before presenting its application for a Combined Heat and Power ("CHP") emission reduction program yielding reduced emissions of greenhouse gases.

The documentation is comprehensive and clearly reflects that NW Natural has given in-depth consideration to the many aspects of the proposed CHP program. In addition, NW Natural, its consultants and stakeholders engaged in workshops with open give-and-take on many of the substantive aspects.

The prospect of substantial reductions in greenhouse gas emissions as a result of the proposed CHP program is an attractive possibility. However, NWEC is concerned about several foundational public policy questions raised by the application, within the context of Oregon law and especially the recent statute, ORS 757.539, providing for development of a voluntary emissions reduction program by natural gas utilities.

1. The Proposed Incentive Levels and Structure Raises Questions Concerning the Effective Marginal Abatement Costs

NW Natural proposes to pay participating customers an incentive of $30.00 per metric tonne of CO2 equivalent reduced through the use of CHP systems approved through the program, with a cap per facility of $4.5 million per year, and a quarterly payment stream for 10 years. In addition, NW Natural proposes to receive an incentive of $10.00 per MTCO2(e), which the Company believes is an appropriate level for emission reduction projects in general. Overall, counting other program costs, the CHP program is anticipated to cost approximately $42.59 per MTCO2(e). The program overall could cost $10.2 million in the peak year for program costs.

The effective cost per tonne of emissions reductions at facilities under the program could be less, to the extent that such facilities continue to operate and provide net reduced emissions after the 10th year. However, once all incentive payments have been received, there is a risk that such facilities may not continue to operate due to market conditions or replacement.

To be sure, any pilot or early-phase program will have startup and learning costs. But the questions raised by the anticipated marginal abatement cost levels here are magnified by the fact that the total number of such projects is very limited in Oregon, as indicated in the ICF market analysis. And as that analysis further shows, the economics favoring conversion to CHP are highly situationally dependent on facility configuration and hurdle rates for capital investment, and eventual market uptake of the proposed program is not a sure thing: "With a 3 to 4 year payback, ICF International, projects an expected customer adoption of about 30 to 40 percent of economic CHP potential in Oregon based on Primen's 2003 Distributed Energy Market Survey." NWN/100 Summers/8.

While the rules adopted by Commission Order No. 14-417 set an overall program limit of $85/tonne to distinguish Tier 1 and 2, it is still important to find the best configuration for each adopted program to promote least-cost emission reduction measures.

That puts a premium on making sure that the emissions reduction assessment methodology is sound, and that incentive payments to participating customers and NW Natural are sufficient and not excessive for accomplishing their purpose.

2. Selection of the EPA Nonbaseload Emissions Rate May Not be Appropriate

Subject to further review of evidence in this docket, NWEC is concerned about the adoption of the EPA nonbaseload value for regional aggregate electric power emissions (using the NW Power Pool footprint) in the emissions reduction methodology. NW Natural states:

> While CHP systems are expected to operate as baseload facilities, NW Natural elected to use the EPA recommendation for nonbaseload rather than baseload facilities. EPA recommends nonbaseload only for CHP units operating at less than 6,500 annual operating hours. While the Company based the recommended incentive levels on 8,322 operating hours, as described earlier, CHP units that operate less than 6,500 hours may still eligible for the program if they meet the eligibility criteria of exceeding the efficiency of a CCGT by 10 percent. Thus, the lower nonbaseload value is appropriate for commercial customers and industrial customers with lower capacity factors. Rather than using different eGRID numbers for different potential CHP projects, the Company opted to use the lower value for all projects.
>
> Direct Testimony of Barbara Summers, NWN/100 Summers/13.

Elsewhere, NW Natural stated, "EPA also recommends the eGRID "fossil rate" for CHP plants with a high capacity factor (operating at more than 6,500 hours per year, about 74%). This emissions rate was viewed as too high and flawed for these displacement purposes, and therefore not relevant to this process." NWN/101 Summers/53.

However, no justification is provided for the statement that the eGRID fossil rate is "too high and flawed" for CHP projects with high capacity factors.

The difference between the nonbaseload and baseload emissions rates is substantial. In addition, at the April 14 workshop, it was stated that PGE's gas emissions rate is about 800 lb/MWh compared to 1340 lb/MWh for the NW Power Pool region, a considerable difference.

The questions raised by the emissions factor issue are about the actual electric resources not used if a CHP conversion is accomplished. There seem to be two views: one is that the reduced electric load comes "off the top" of the electric utility mix as a marginal load reduction, usually from peaker or less efficient units that have higher greenhouse emissions per unit output. Alternately, CHP could be seen as replacement for baseload requiring around the clock dispatch (except during outages or seasonal or market-based shutdown), which in turn calls on more efficient units in the economic dispatch order.

We are not persuaded at this point that the issue is resolved, and it may have an important effect on program analysis. A sensitivity analysis should be run to assess the effect on program emission results and net costs from different assumptions about the effective alternative electric emissions rate.

3. The Question of Life Cycle Methane Emissions Remains to be Addressed

For a long time, consideration of methane (CH4) emissions was somewhat muted because of considerable data gaps and the predominance of carbon dioxide (CO2) emissions from natural gas during combustion, especially in electric power plants.

However, it has become increasingly evident that supply chain methane emissions are a very serious concern. The analysis is complicated by the fact that CO2 is a "long lived climate forcer" – while about half is reabsorbed by oceans and lands, especially forests, within a year, a large fraction stays aloft for over a century, and as much as 20% may persist for as long as 10,000 years.

Methane, however, is a short lived forcer with an average atmospheric residence of about 12 years. Nonetheless, during its time aloft it has a very strong impact per unit mass compared to CO2.[1]

The question of methane life cycle emissions has long been a fraught one. Data gaps are considerable, although substantial efforts are being made to collect and assess emissions from all parts of

[1] Although CO2, methane and other greenhouse gases are often normalized for cross-comparison purposes, for example in the Global Warming Potential (GWP) metric, the analytical issues are complex and we prefer not to compare CO2 and methane directly. See Smith, Stephen, et al., "Equivalence of greenhouse-gas emissions for peak temperature limits," *Nature Climate Change*, 2012, doi:10.1038/nclimate1496

the supply chain from exploration and production to pipeline transportation and local distribution. Most recently, a peer-reviewed report studying 114 natural-gas gathering facilities and 16 processing plants in 13 states concludes that the newly identified emissions could increase the US natural gas emissions inventory by as much as 25%. While these emissions are amenable to retrofits and changes in operational practices over time, the study indicates the upside of uncertainty in current assessments of methane life cycle emissions.[2]

NW Natural starts by noting that methane life-cycle emissions are not included in the analysis for the proposed program. However, to their credit, the company also states:

> In all cases, values express a rate associated with combustion, rather than a life-cycle look at emissions throughout the value chain. It is possible that on-going research will provide more accurate life-cycle emissions in the future, at which point the group can discuss the possibilities. Since NW Natural is increasingly using life-cycle values (for example, in analysis of biogas from wastewater treatment plants, and for natural gas in transportation applications), the company would like to work with stakeholders to achieve consistency across applications eventually. NWN/101 Summers/50.

In response, we note that "eventually" may well not be soon enough to assess a program that could have $10 million in costs and rate impacts, and where increased methane emissions could effectively cancel some of the value of carbon dioxide reductions. It should also be considered as an additional factor at play in the assessment of electric grid emission factors discussed in the previous section. And the issue of methane emissions will also come up with other program proposals that NW Natural is preparing to bring forward.

[2] "Methane Leaks in Natural-Gas Supply Chain Far Exceed Estimates, Study Says," New York Times, August 18, 2015. Also see Environmental Defense Fund, "Study Reveals Vast Unrecorded Oil and Gas Industry Methane Emissions," August 18, 2015, http://blogs.edf.org/energyexchange/2015/08/18/study-reveals-vast-unrecorded-oil-and-gas-industry-methane-emissions/

As a result, we strongly suggest that this issue be an ongoing focus in this docket and for any other voluntary emission reduction program applications NW Natural brings forward.

4. **Care Must Be Taken Concerning Effective Precedents**

By any measure, the NW Natural application for a CHP conversion and emissions reduction program is a bold proposal and will be a major undertaking from the very beginning.

As noted on p. 12 of the Application that led to the establishment of this docket, "Appendix C to the Business Plan shows that, based on NW Natural's assumed high utilization rate, the Program could reach 2.1% of the Company's last approved retail revenue requirement." As previously noted, costs could exceed $10 million in the peak program cost year.

If the program is approved in substantially the proposed form, it will create effective precedents in a number of ways, simply because of the program magnitude. This includes the incentive payment levels to participating customers converting to CHP, the incentive payment levels to NW Natural, and the methods by which the determination of affected customer classes, cost allocation and cost recovery are applied. To say the least, this could create considerable exposure for ratepayers, who would effectively take on the entire program risk since there is no capital investment required by NW Natural.

The merit of the proposal is that it anticipates a very substantial amount of emissions reduction. However, the magnitude of the costs and rate impacts, and the necessarily complex emissions reduction assessment method that informs those amounts, requires careful and thorough consideration which should be done in a measured and not hurried way.

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