July 23, 2021

Ms. Kim Herb
Mr. J.P. Batmale
Oregon Portland Utility Commission
Via email to kim.herb@puc.oregon.gov; jp.batmale@puc.oregon.gov

Re: Oregon PUC Natural Gas Fact Finding – Public Workshop #2

Dear Ms. Herb and Mr. Batmale:

Thank you for organizing and leading PUC Natural Gas Fact Finding Public Workshop #2 on July 20, 2021. I was sincerely impressed with PUC's ability to lead and facilitate a discussion with the diverse range of opinions and perspectives from all the attendees.

I understand the natural gas utilities' concerns over the time allowed them to complete the compliance modeling. In my career as an oil and natural gas operating unit manager, regional manager, vice president, and director for companies around the world, I gained extensive experience completing similar types of analysis.

In the oil and gas sector, long range plans (5 and 10 year periods) are completed annually for each business unit. These forecasts are updated during the year, when the oil and/or natural gas price changes dramatically, or a producing asset is purchased or sold.

Long range plan updates (LRP) require detailed reservoir modeling for hundreds of wells, OPEX and CAPEX forecasts, environmental assessments, probabilistic economic analysis, and in-depth justifications for all technical and economic variances from the previous long range plan. Companies usually give the operating units 15 to 30 calendar days to complete the LRP updates.

In my opinion, the analysis in an oil and gas long range plan is significantly more rigorous than a utility's integrated resource plan (IRP). **In my opinion, the natural gas companies can complete the compliance modeling, if the information requirements and deliverables are well defined.**

As the representative from the environmental nonprofit, Engineers for a Sustainable Future (ESF), I would respectfully submit the following comments to the PUC:

1. ***Probabilistic Price Forecast*** – The price of natural gas has been volatile over the past twenty years (*Attachment 1*). Natural gas price volatility is an almost certainty to continue for the foreseeable future. Natural gas price increases impact gas consumption for the residential consumer and will also accelerate the electric utilities move from natural gas power plants to renewable resources like wind, solar, and geothermal.

   In 2019, 7.3% of America's electrical power was generated by wind and 1.8% by solar[1]. The U.S. Department of Energy forecasts that by 2030 wind will generate over 20% and solar will generate over 17% of the electricity in America. As natural gas prices increase, the move to low-cost wind and solar power projects will accelerate.

   Deterministic, natural gas price forecasts do not capture the range of uncertainty for a volatile commodity like natural gas. ***ESF recommends that each utility provide probabilistic (P-90, P-50, and P-10) natural gas price forecasts.***

2. ***Natural Gas Forecast –*** In January 2021, the U.S. Energy Information Agency[2] wrote ***"***The electric power sector uses more than half of the natural gas delivered to consumers in Oregon. The industrial sector is the next largest natural gas consumer, but it uses less than half as much as the electric power sector and accounts for about one-fifth of state consumption. The residential sector, where almost two in five Oregon households use natural gas as their primary energy source for home heating, consumes slightly more than one-sixth of natural gas deliveries, and the commercial sector uses most of the rest."

   Oregon's net electricity generation from natural gas fueled power plants[3] for April 2021 was 1,687,000 MW Hours. Natural gas fueled power plants generated 35.8% of the state's electricity.

   ESF believes that electric utilities will continue to move from higher cost natural gas fueled power plants to onshore wind and solar over the next five to ten years. As a result, the demand for natural gas from the largest consumer of natural gas in Oregon, the electric utilities will decrease. ***ESF believes that the total consumption of natural gas in Oregon will decline by 10% to 20% over the next five years.***

3. Economic Metrics – If I understood it correctly, the PUC is requesting the natural gas utilities to only provide annual and cumulative Net Present Value (NPV) in the compliance modeling. NPV is certainly an important economic metric when comparing major capital projects and annual allocation of corporate funds.

   Providing a company's forecast NPV in a cumulative graph can give an inaccurate image to people in the workshop without in-depth experience with economic analysis. The graph of annual NPV will usually result in a "hockey stick" plot of ever increasing value to the utility. The reality is the margins

[1] U.S. Energy Information Agency What is U.S. electricity generation by energy source?

[2] U.S. EIA Oregon State Profile and Energy Estimates, Analysis – Natural Gas, Updated January 21, 2021.

[3] U.S. EIA Oregon State Profile and Energy Estimates, Analysis – Electricity by Source

for any utility are modest, compared to many companies in the information technology or energy industry.

Rate of Assets (ROA) and Return on Capital Employed (ROCE) are more useful in evaluating operations[4] which aren't required to make frequent and repeated major capital expenditures, annually. ***ESF recommends the PUC request the natural gas utilities to provide ROA, ROCE, and NPV in the economic modeling.***

4. ***Waste-To-Energy*** – Waste-To-Energy technology has been used by Sweden to turn 97% of the nation's annual wet and dry waste into energy. The technology has dramatically reduces the necessity for landfills and the emissions from the waste-to-energy technology are lower than emissions from landfills.

   On July 6, 2021, the U.S. Department of Energy[5] announced a program for technical assistance for local governments on waste-to-energy. NW Natural Gas has initiated a renewable natural gas (RNG) program with the city of Portland. Although the magnitude of this type of project is insignificant, it may have significant potential over the next five to ten years. ***ESF believes the natural gas utilities should be encouraged to identify new technology that has the potential to reduce greenhouse gas emissions.***

Thank you again for organizing and leading PUC Natural Gas Fact Finding Public Workshop #2 . Please feel free to contact me if you have any questions on the aforementioned comments.

Sincerely,

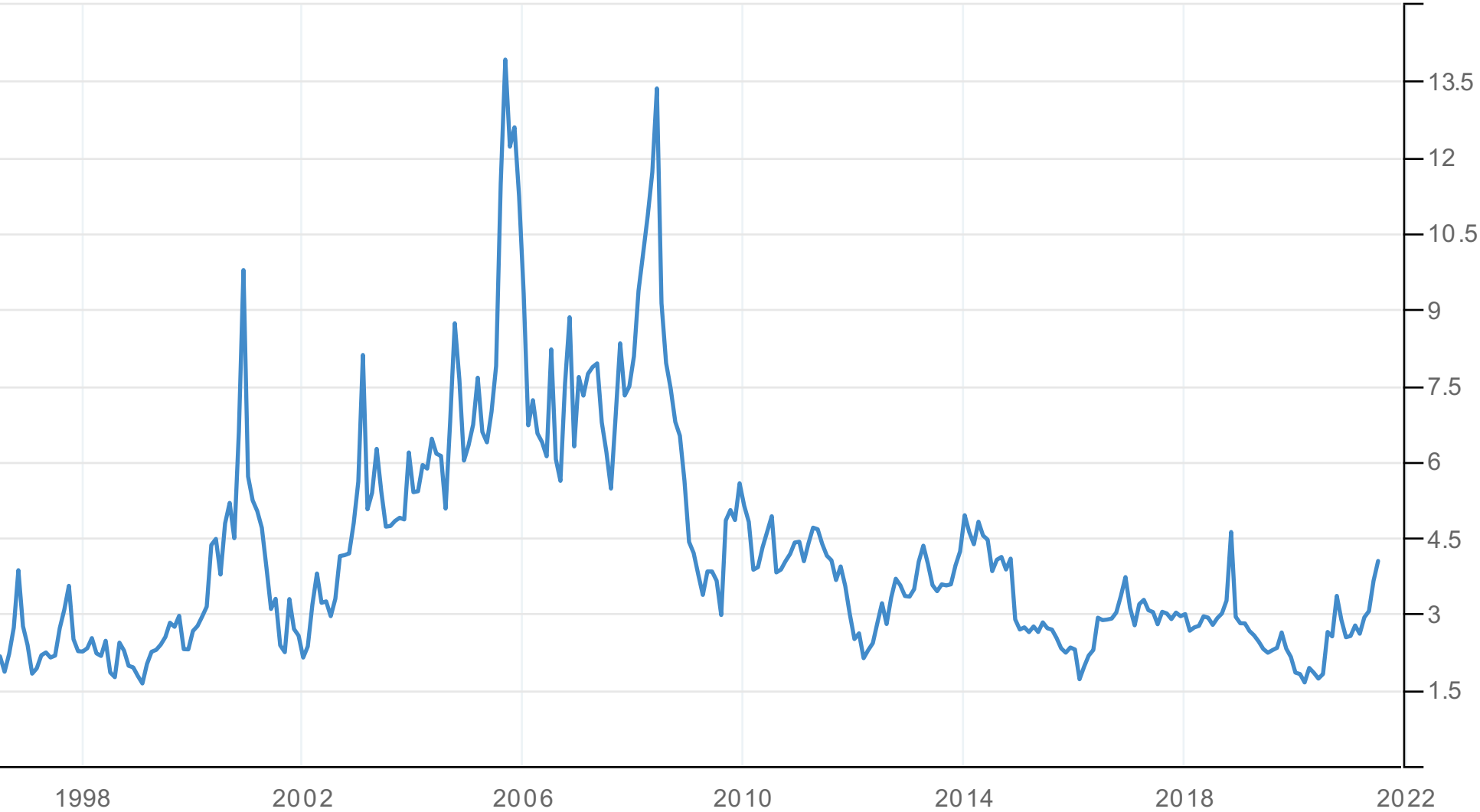
Jack L. Kerfoot

Engineers for a Sustainable Future

[4] https://www.investopedia.com/terms/r/returnonassets.asp

[5] U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, Bioenergy Technologies Office

Natural gas



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