BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UE 308

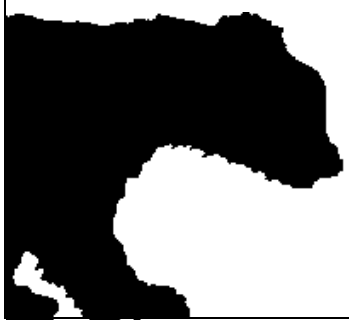
In the Matter of PORTLAND GENERAL ELECTRIC COMPANY,	)
2017 Annual Power Cost Update Tariff	)
(Schedule 125)	)

OPENING TESTIMONY (HEDGING)

OF THE

CITIZENS' UTILITY BOARD OF OREGON

August 12, 2016



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My name is Bob Jenks. My qualifications are listed in CUB Exhibit 101.

I. Introduction.

Pursuant to Administrative Law Judges ("ALJ") Arlow and Harper's prehearing conference memorandum of April 18, 2016, the Citizens' Utility Board of Oregon ("CUB") submits its opening testimony on the hedging issues contemplated in UE 308. In this docket, Portland General Electric ("PGE" or "the Company) is proposing a significant change in how it secures fuel for its power plants. Instead of purchasing in the competitive wholesale market, PGE is proposing to ratebase an investment in natural gas reserves which will be developed, allowing PGE to produce gas through cost-of-service ratemaking.

This docket is bifurcated. CUB took the bifurcation different than other parties. CUB viewed it as establishing a separate schedule for reviewing PGE's actual proposed "hedge," but that the earlier round of testimony included responding to PGE's April

Opening Testimony. Since their Opening testimony discussed long term hedging as a generic issue (as opposed to the specific contract), CUB addressed some portions of the issue from PGE's Opening Testimony in our Opening AUT testimony. CUB will attempt to avoid repeating ourselves in this testimony.

CUB notes that a hedge is an instrument designed to reduce risk. PGE is proposing to swap one set of risks (market prices) for another set of risks (production, environmental, corporate, regulatory). CUB believes that it is premature to use the term, "long-term hedge" to refer to this activity, since it has not been established that this reduces overall risk. Therefore CUB will refer to this using a more specific description, "ratebasing natural gas reserves."

CUB believes that PGE's request to ratebase gas reserves requires the Commission to make several findings, including:

(1) That exploration, drilling, and development of out-of-state natural gas wells is a legitimate activity associated with the production, transmission, and delivery of electric service to Oregon customers.
(2) Proposing a significant capital investment in natural gas reserves is an appropriate update to be proposed midway through the AUT net power cost process.
(3) That PGE's proposed guidelines, including requiring that at least 10% of natural gas supply be developed on a long-term basis, provide a reasonable basis for PGE to conduct this activity.
(4) That the specific Contract proposed here is reasonable and supports a five year drilling program.
(5) That the specific wells and rate-based treatment being proposed for the wells drilled in 2017 is prudent.

II. Overview of What PGE is Proposing

PGE is proposing a set of Guidelines that would require them to purchase at least 15% and not more than 30% of its gas supply under long term contracts.[1]

[1] UE 308/PGE/200/Sims – Outama/4.

Secondly, PGE is proposing a contract with [redacted][2] (drilling partner) that requires PGE to make a ratebased capital investment of [redacted][3] in a drilling program that includes [redacted][4] and [redacted].[5] In addition to the capital investment, PGE would pay a share of the operating costs. The contract allows for PGE and its drilling partner to continue to invest in subsequent wells over the four years, 2018, 2019, 2020 and 2021[6].

Finally, PGE is proposing that a prudence review of this investment be conducted in the AUT, with the gas that is produced sold to customer under traditional cost-of-service ratemaking.

III. PGE's Requested Finding: That Exploration, Drilling, and Development of Out-of-State Natural Gas Wells are a Legitimate Activity Associated with the Production, Transmission, and Delivery of Electric service to Oregon Customers

Oregon statues which define utilities refer to "production, transmission, delivery or furnishing" of power in the state. They are silent as to exploration, drilling, and development of fuel supply.[7] Is this a legitimate, prudent activity for an Oregon utility?

Generally, utility programs are judged by a series of regulatory principles:

- Is it used and useful?
- Is it necessary to supply customers?
- Is it prudently incurred?

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[2] To avoid the need to redact the name of the drilling partner every time we refer to it, CUB will generally refer to [redacted] as "the drilling partner."
[3] UE 308/PGE/600/Russell – Tooman/3.
[4] UE 308/PGE/600/Russell – Tooman/3.
[5] UE 308/PGE/600/Russell – Tooman/3.
[6] UE 308/PGE/703C. [redacted] page 17.
[7] *See generally* ORS 757.005 *et seq.*

A. Used and Useful

Because PGE needs natural gas as a fuel to burn at its power plants, there is little doubt that this meets the definition of used and useful. However, CUB notes that the contract anticipates a 35-year[8] fuel supply -- extending beyond the life of the current IRP and beyond the life of PGE's generating assets. There is no record relating to PGE's natural gas needs in 2051, so it is difficult to say with any real certainty whether the gas anticipated by this contract will be *fully* used and useful.

B. Necessary to Provide Service

Utilities are licensed monopolies that provide a public good. Generally, they are only allowed to recover costs that are necessary to provide service to customers. This protects customers from utilities spending money on things (such as excessive advertising) that may provide company benefits (such as corporate good will) but do not provide much value to customers. It protects customers from utilities taking risks in activities that do not provide value to customers, when that risk could financially damage the utility and, therefore, harm the customer who is footing the bill. Finally, this principle protects competitive markets from utilities that can use their monopoly power to harm someone else's business model.

On the one hand, natural gas is needed to run PGE's power plants, so securing fuel is necessary for the provision of electricity. On the other hand, fuel is available in the competitive market, so it is not necessary for PGE to make a capital investment in its only drilling program. Further, PGE typically procures its natural gas on the competitive

[8] Five year drilling program with 30 year production from wells. *See* CUB footnote 6.

market, and its proposed rate-based gas reserves contract would be not only ambitious, but a marked departure from its typical business practices.

i. A Competitive Natural Gas Market Was Created As a Matter of Policy

Natural gas is generally available through a competitive wholesale market. This market was created by public policy changes in the late 1980s and early 1990s:

> In the early 1970s, natural gas was regulated from the wellhead to the end user. Consumers' gas needs were met by their local distribution company, much as electric utilities serve their customers' needs now. The local distribution company had its gas supplies delivered to the city gate by natural gas pipeline companies that acquired the gas supply, transported it to the city gate, and shaped it to meet demand.
>
> Today, pipeline companies do not own or purchase any gas. They provide transportation and shaping services on an unbundled basis. Local distribution companies and many individual customers now purchase their own gas supplies, transportation, and other services as needed. There is now a fully developed natural gas commodity market. Financial instruments, such as natural gas futures, allow local distribution companies and customers to manage the risk of natural gas price fluctuations. A whole new industry of natural gas marketers now exists to help customers acquire gas supplies, transportation and other services on a bundled or separate basis to fit individual customer needs.
>
> These dramatic changes occurred through a series of restructuring initiatives beginning with the Natural Gas Policy Act of 1978 and culminating in Federal Energy Regulatory Commission Order 636 in April 1992. (See Figure 2-1.) The regulatory changes gradually deregulated natural gas prices at the wellhead (Natural Gas Policy Act, 1978 and Natural Gas Wellhead Decontrol Act, 1989), opened up pipelines for use by anyone wanting to transport gas (FERC Order 436, 1985 and Order 500, 1987), and eliminated the purchase and sale of natural gas by pipeline companies (FERC Order 636, 1992). Order 636 also put into place pricing principles that provided incentives to utilize pipeline capacity more efficiently.
>
> In April 1990, the New York Mercantile Exchange (NYMEX) began trading natural gas futures contracts, signaling the beginning of a complete natural gas commodity market. Finally, legislated restrictions on the use of natural gas for electricity generation contained in the Powerplant and Industrial Fuels Use Act were repealed.
>
> Taken together, these changes have put into place the necessary elements for an economically efficient natural gas market. These elements include

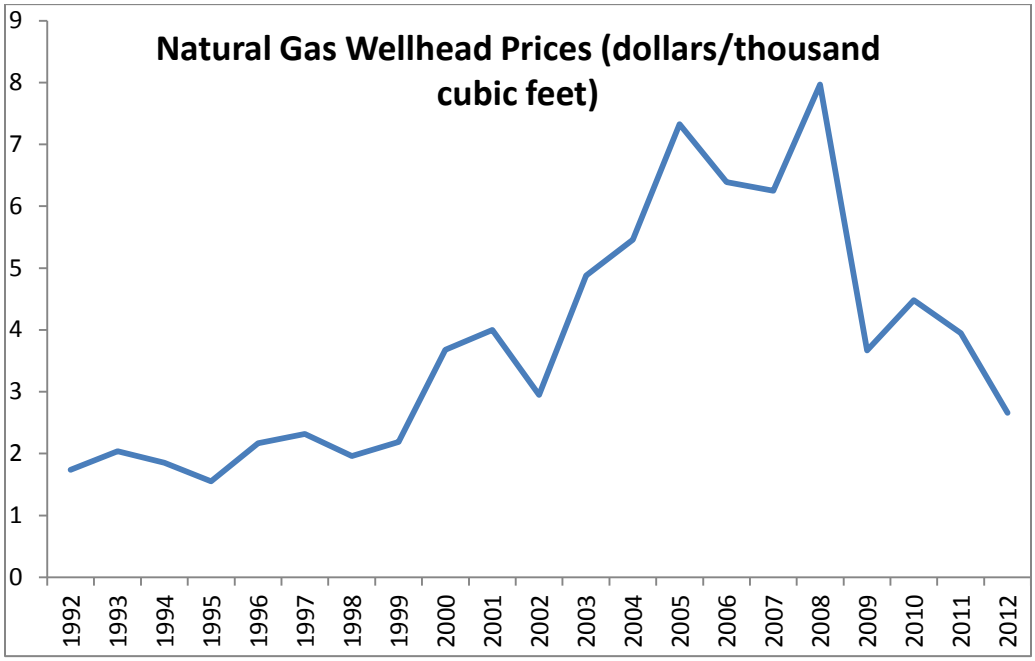
direct access to markets by both users and suppliers, a larger number of buyers and sellers participating in the market, proper pricing structures in the regulated portions of the industry, and price discovery and risk mitigation mechanisms provided by the spot and futures markets for the natural gas commodity.[9]

ii. Wholesale Gas Markets are Competitive

According to the Federal Energy Regulatory Commission ("FERC"):

> The natural gas industry in the United States is highly competitive, with thousands of producers, consumers and intermediate marketers. Some producers have the ability to market their natural gas and may sell it directly to LDCs, to large industrial buyers and to power plants. Other producers sell their gas to marketers who aggregate natural gas into quantities that fit the needs of different types of buyers and then transport the gas to their buyers.[10]

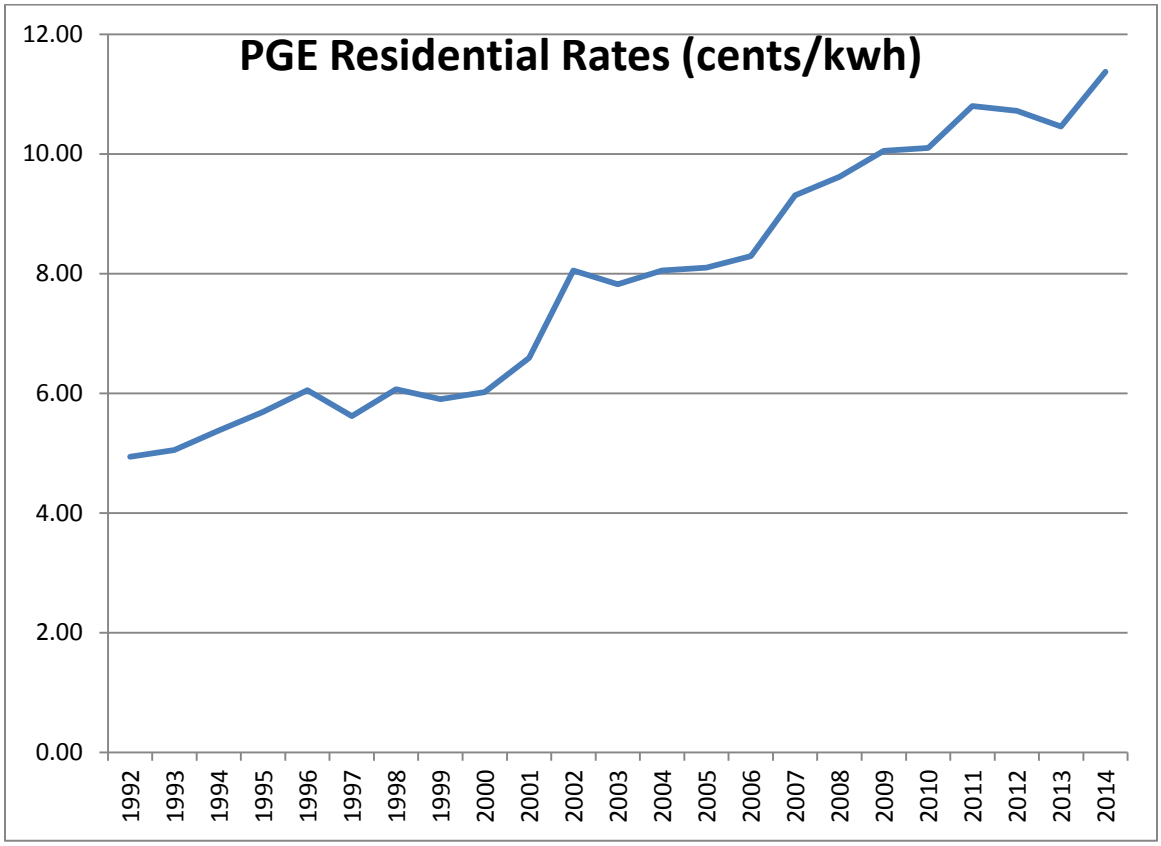
The chart below shows natural gas wellhead prices since FERC established Order 636 in 1992.[11]



[9] Fourth Power Plan, NW Power Planning Council, July 1, 1998.
[10] Energy Primer: A Handbook of Energy Market Basics, Federal Energy Regulatory Commission, November 2015, page 32.
[11] US Natural Gas Wellhead Price, Energy Information Agency, https://www.eia.gov/dnav/ng/hist/n9190us3a.htm

What this shows is that gas prices were relatively steady for the first few years after FERC established open access gas transmission. Gas prices went up between 1999 and 2008 and have fallen since then. Today gas prices are only a little bit higher than they were in 1992. While 10 years ago, it might have been arguable that wholesale markets were not working, it is hard to make that argument today.

This can be compared to PGE's residential prices.[12]



So, while the wholesale natural gas market has seen prices rise and fall, prices are nearing where they were nearly 25 years ago. PGE, on the other hand, also saw prices rise between 1999 and 2008, but prices have continued to rise and are currently more than

[12] OPUC Oregon Utility Statistics Book, http://www.puc.state.or.us/Pages/Oregon_Utility_Statistics_Book.aspx

twice what they were in 1992. While there are a lot of factors that go into these price comparisons, there is little reason to believe that a monopoly utility cost-of-service investment will produce lower prices than the competitive wholesale market over the long run.

C. Is it Prudent?

CUB will address the prudency of the individual contract with the drilling partner later in our testimony. However, the threshold question is whether it is a generally prudent strategy to exchange the risks of a *purchaser* on the competitive market for the different risks of a natural gas *developer*. In a production setting, unlike a normal hedge, a gas reserves drilling program does not lock in a price or an amount. The costs of drilling over the next several decades can be forecast, but are not fully known. But in addition to the cost risk, there are risks associated with production levels. There are also risks associated with environmental liability and remediation. 100 years ago, no one projected that manufacturing natural gas would leave a legacy of environmental costs, but today both NW Natural and Cascade Natural Gas face significant costs to clean up manufactured gas sites. There are risks associated with future climate regulation. This can be seen in what has happened to the value of coal reserves in the last decade. There are risks associated with technology changes that could change the utility business model over the next two decades. There are risks associated with the value of [redacted]. There are risks associated with the changing business plan of the drilling partner – NW Natural's first business partner decided to sell the gas reserves that NW Natural had invested in.

While some of these risks can be reduced by contract – and PGE has done some risk reduction in this case – these are risks that are inherent to long-term natural gas production. Impacts from earning a return on fueling a natural gas plant is a regulatory change that could have an impact on resource choices, and the build versus buy incentive.

i. Resource Choice

If each gas plant that the Company builds comes with an opportunity to earn a return on 30% of its fuel then this creates an added incentive for the Company to build gas generation. PGE notes that "gas generation will account for over 40% of our energy portfolio in 2017".[13] CUB is not sure that the appropriate regulatory solution to a growing dependence on natural gas is to increase the incentive to invest in gas plants.

It is also important to recognize that with the subsequent drilling program, the proposed contract extends beyond the expected useful life of PGE's gas plants, including Carty.[14] Therefore PGE will have to build additional gas plants in the future whose lives extend beyond the current assets. This creates a circular investment cycle: With so many gas plants, PGE must invest in long-term gas supply to hedge the price. With long-term owned gas supply, PGE must invest in gas plants to burn the fuel.

ii. Build Versus Buy Incentive

The PUC requires competitive bidding before a utility invests in a large, new power plant, such as a gas plant. However because it is recognized that the utility has an incentive to own their own plant, that competitive bidding process is overseen by an

[13] UE 308/ UE /PGE/ 100/Tinker – Sims/9.
[14] https://www.oregon.gov/energy/Siting/docs/CGS/Carty_Exhibits_W-DD.pdf, page W-1.

Independent Evaluator. Even so, there has been a great deal of controversy surrounding competitive bidding.

In 2006, the Commission opened a docket to examine the bias towards utility ownership and consider incentive regulatory structures that could reduce this incentive. That docket which lasted until 2011 was not successfully able to develop a suitable incentive.

Allowing a utility to ratebase 30% of its fuel supply will increase the bias towards utility ownership of gas plants.

iii. Different Than Utility Investment in Coal

While utilities have been allowed to make capital investments in long term coal supply, those investments are significantly different. Coal investments are tied to the resource choice evaluation. Coal is not sold in the same sort of transparent, liquid market as natural gas. At the time utilities were making the choice to invest in coal reserves, they faced a binary choice: (1) Build a coal plant near its load center and ship the coal by rail; (2) Build a coal plant near a coal mine, and ship the electricity using interstate transmission lines. Assumingly, utilities went through a least cost analysis and made the least cost/least risk resource choice. The equivalent in this circumstance would be if PGE was considering a gas plant located at the gas reserve location as a way to avoid pipeline charges.

E. PGE's Request: Find This as Appropriate for AUT

CUB addressed the issue of adding a rate-based natural gas investment through the AUT in our Opening testimony. CUB argued that Schedule 125 was never meant to include rate-base investments. CUB argued that most of the cost at issue here is not a

variable cost, but, instead, the primary cost is the fixed cost of capital investment depreciation and return on that depreciation, and that there simply is not enough time in this proceeding to effectively evaluate the unique risks that gas drilling investments bring.[15] CUB will not repeat those arguments, but will add to them.

F. There is Not Enough Time to Determine the Prudency of the 2017 Drilling

At the time of our Opening testimony, CUB did not believe there was adequate time to evaluate the risks of this deal. Ratebase investments are typically reviewed in a general rate case which has a nine-month timeline. With a seven-month timeline, the AUT is a shorter proceeding that is supposed to consist of simpler issues. However, it is important to note that PGE did not file any analysis of this proposed transaction with the original filing – this was all added as an AUT update. Below are the dates that some of the key documents were filed or received:

Document	Date filed	Review time before testimony (in weeks)
Supplemental Testimony	6/3/2016	10 weeks
Preliminary Revenue Requirement	6/3/2016	10 weeks
Draft Term Sheet	6/3/2016	10 weeks
Draft Agreement	7/8/2016	5 weeks
Road map to Due Diligence (CUB DR 41)	7/13/2016	4 weeks
Supplemental Testimony	7/22/2016	3 weeks
Definitive Agreement	7/22/2016	3 weeks
Analysis of cost effectiveness	7/22/2016	3 weeks

[15] UE 308/CUB/Jenks-Hanhan/4-9.

Due Diligence from outside contractors	7/23/2016	3 weeks
Guarantee	7/25/2016	2.5 weeks

It should be noted that no documents related to PGE's actual internal prudence review of the actual deal were made available until July 13th—one month before testimony was due. Many were not provided until July 23rd—three weeks before testimony was due.

i. Data Request 41

On June 20th, after CUB reviewed the Draft Term Sheet, CUB asked the Company a handful of questions relating to PGE's prudence – specifically, how it was conducting it due diligence. The first one was a simple, basic question to determine what PGE was doing with regards to due diligence. The question did not ask for the specific due diligence, just a list of activities:

> 41. Please provide a list of all actions PGE has taken, is currently taking, or plans to take with regards to its due diligence of the transaction discussed in Exhibit 600.

It took PGE 23 days to answer this question. CUB finally received an answer on July 13th—approximately four weeks before CUB's testimony was due. It is important to understand that this question's purpose was to get a roadmap of what PGE was considering. This allowed one month for CUB to investigate the prudence of a 30 year investment that has a completely different set of risks than PGE proposed in the past. And the roadmap was not very helpful. After 23 days, this is the answer PGE provided[16]:

[16] CUB Exhibit 201.

Response:

PGE objects to this request on the basis of undue burden. Without waiving this objection, PGE replies as follows:

PGE has retained and is working directly with a number of third-party, expert consultants (see PGE's response to CUB Data Request No. 042) to identify and address the risks associated with its long-term gas hedging proposal, including:

• Technical/commercial risks associated with estimated gas reserves, annual gas volume, costs and operations of gas drilling/production.

• Land/Legal risks associated with insurance, contracts, leases, liens, marketing agreements, and other legal considerations.

• Environmental risks associated with air, land, and water quality; spillage; waste disposal; permits; and site reclamation.

To address these risks, PGE and the consultants have developed scoping plans, which are provided as Attachment 041-A. Attachment 041-A is protected information and subject to Protective Order No. 16-137.

ii. Data Request 44

CUB looked back at the NW Natural – Encana deal to identify the due diligence elements that we had requested from NW Natural. On June 20th CUB asked PGE to provide the due diligence analysis of the following risks:

A. Regulatory/Environmental Risk
--water
--ozone
--methane and other greenhouse gases
--spills
--cultural materials
B. Market Risk
C. Royalty and Tax Litigation Risk
D. Production Risk
E. Pre-existing Liens, Land Purchases and Surface Use Agreements Risk
F. Bankruptcy Risk
G. Ownership Change Risk
I. Cost Increase Risk
J. Dispute Resolution Risk

On July 13th, PGE provided an answer to that data request. While PGE provided a significant amount of information, it was incomplete and contained promises of supplements. PGE's answer is provided as CUB Exhibit 202. It is incomplete in the following areas:

1) Water Risk. PGE provided some information, but was clear that its final analysis was not available at this time:

> Final analysis will be performed following the completion of AECOM's comprehensive due diligence report. A supplemental response will be provided at that time.[17]

2) Methane Risk. PGE provide some information, but was clear that its final analysis was not available at this time:

> Final analysis will be performed following the completion of AECOM's comprehensive due diligence report. A supplemental response will be provided at that time.[18]

3) Spills. PGE provide some information, but was clear that its final analysis was not available at this time:

> Final analysis will be performed following the completion of AECOM's comprehensive due diligence report. A supplemental response will be provided at that time.[19]

4) Cultural Materials. Here is PGE's answer:

> Permitting the proposed transaction includes a requirement to conduct archeological survey activities. The purpose of these survey activities is to identify any cultural resources within the proposed transaction site and adjust development activities as needed to avoid impacts to cultural materials. Review of survey results is ongoing and will be summarized in AECOM's final due diligence report.

5) Royalty and Tax Litigation Risk. PGE answered:

[17] CUB Exhibit Exhibit 202.
[18] CUB Exhibit Exhibit 202.
[19] CUB Exhibit Exhibit 202.

This review is currently ongoing, but will be completed prior to signing a definitive agreement.

6) Pre-existing Liens, Land Purchases and Surface Use Agreements Risk. PGE answered:

This review is currently ongoing, but will be completed prior to signing a definitive agreement.

7) Bankruptcy Risk. PGE answered:

This review is currently ongoing, but will be completed prior to signing a definitive agreement.

Less than one month before CUB has to submit testimony providing our evaluation of PGE's prudence related to this capital investment, PGE still has not completed *seven* elements of its critical due diligence. On July 22nd, PGE supplemented its response to CUB DR 43, and this supplement contained some of this information. CUB discusses the comprehensive due diligence later in this testimony. However, regardless of how complete the supplement was or was not, receiving much of the due diligence three weeks before CUB needed to finish our evaluation does not allow ample time for either meaningful review or follow up data requests. This timeline is exacerbated by the heavy regulatory calendar in Oregon. These same three weeks where CUB was able to conduct its review of PGE's due diligence included five workshops, two special public meetings, testimony in the Cascade GRC and PacifiCorp's TAM, comments in UM 1758, and informal comments in NWN's IRP. The prudence review of this investment is therefore limited significantly by the calendar.

Bringing in a significant long-term capital investment with a unique set of risks as an update in the AUT process simply does not leave CUB and other parties the necessary time to conduct a proper prudence review. PGE itself was rushing to finish its review so

it could sign the contract. Trying to gain pre-approval of this rate-based investment through an AUT update is an attempt to put a large square peg through a tiny round hole.

G. PGE Should Use IRPs and GRCs to Plan and Demonstrate Prudence of Capital Investments

CUB believes that if PGE wants to make significant long term capital investments related to power supply, the regulatory treatment of those investments should be through the normal ratemaking process: IRPs for planning and GRCs for prudence reviews.

i. IRP

PGE is proposing a 30 year investment in gas supply. Examining this investment in an IRP would include looking at how it performs under various risk metrics. For example, as coal generation is reduced, base load natural gas could become the next target to reduce greenhouse gas emissions from the electric sector. An IRP review would examine how PGE's investment would look under various carbon and methane scenarios. It would take a close look at PGE's gas need under various carbon and methane regulatory futures. This investment requires customers to pay for this contract for 30 to 35 years. An IRP review would tell us a lot about how the value of this deal changes with different assumptions concerning future risks.

ii. GRC

Typically, a GRC is required to add a capital investment into ratebase. The Commission described the process:

> The Commission's ultimate goal is to set rates that provide the utility the opportunity to collect enough revenue to recover reasonable operating expenses and to earn a reasonable return on investments it has made to provide service. To determine how much revenue a utility should be allowed to receive, the Commission uses a standard ratemaking formula generally expressed as R = E + (V-d)r. "R" represents revenue requirement, "E" represents allowable operating expenses, "V" represents

rate base, "d" represents accumulated depreciation, and "r" represents the rate of return allowed on the rate base[20].

This formula demonstrate the need for a GRC:

$R=E + (V-d)r$.

PGE is proposing to add this capital investment to "V," but without any examination of the other variables. PGE has had depreciation (d) since its last GRC, but that is not being subtracted. Have the expenses (E) declined? If so, that could offset the effect of adding this investment to ratebase. Finally, has the rate of return changed? This is what is multiplied by rate base to determine revenue requirement. The rate of return establishes the cost of financing the capital investment. Adding the investment to rate-base, without determining the rate of return, does not allow us to determine the rate impact because the rate impact is the capital investment *times* its financing cost.

There is one primary exception to the rule that capital investments require GRCs to be added to rates. That is, capital investments that are reviewed in a GRC and become used and useful within a reasonable period of time after that case. Essentially, the PUC has established a policy that allows it to assume that the other parts of the ratemaking formula are fixed for a limited period of time following a GRC. PGE recently placed its Carty Generating Station into rates, outside of a GRC, but that investment was reviewed in PGE's last GRC and it was determined that if it came on line by July 31, 2016 it would be allowed. If it came on line after July 31, 2016, the Commission could have required a new rate case. The PUC Order from that GRC demonstrates the role of the IRP for prudence determination and the limited window to add the investment to rate-base:

> Staff conducted a detailed prudence review of the Carty plant from two perspectives. First, the Carty plant investment was examined with respect

[20] OPUC Order No 08-487, page 7.

to consistency with previous integrated resource plans (IRPs) and requests for proposal (RFPs). Secondly, Staff explored the question of whether the Carty plant was a prudent investment on the date PGE decided to proceed with the project. Staff concluded that Carty was consistent with previous IRPs and RFPs and was a prudent investment as of June 3, 2013, the date PGE decided to proceed with the project. The stipulating parties therefore agree for the purposes of settlement that the Carty plant was prudent and that the Commission should approve the tariff rider subject to the following conditions:

- For rates determined in this docket only, the gross plant for Carty, including GS, will be $514 million. If the actual capital costs are lower, PGE will refund the 2016 revenue requirement differences resulting from lower capital costs.

- The parties ask for Commission approval of specific accounting language for treatment of GS capital costs. The parties agree to remove $24.686 million from PGE's 2015 ratebase and construction work in progress will continue to accrue until Carty is placed in service.

- If Carty capital costs exceed $524 million, PGE may not recover those costs through the tariff rider, but the company will not be bound to that number in future rate proceedings, although it will have to demonstrate prudence for such additional costs.

PGE will file an attestation by an officer when Carty is placed in service. However, if Carty is not completed and in service by July 31, 2016, PGE will need to file a new ratemaking request to include Carty and GS in rates[21].

iii. PGE's Contract

PGE's contract with its drilling partner includes the current investment considered here and anticipates additional investments over the next 5 years. In the last GRC, the Commission left a window open until July 31, 2016 for a capital investment in Carty. It did not leave the window open for additional investments, and that window has closed. PGE anticipates adding additional capital investments over the next 5 years through AUT updates. Even if there is agreement that the investment is prudent, without updating the

[21] OPUC Order No: 15-356, pages 5-6.

depreciation, the rate of return, and the expense level, the ratemaking impact of the investment cannot be determined

IV. PGE's Request: PGE's Proposed Guidelines, Including Requiring at Least 10% of Natural Gas Supply to be Developed on a Long Term Basis, Provide a Reasonable Basis for PGE to Conduct This Activity

PGE proposed a set of guidelines in its Opening Testimony. CUB addressed these in our AUT testimony and will not repeat ourselves. CUB does not believe that the guidelines are even close to adequate. Rather than self-serving guidelines that require PGE to continue to make ratebased investments in fuel supply, a new set of guidelines should be developed which ensure that PGE is taking the steps necessary to ensure the investments are prudent if this activity is going to be authorized as an on-going, standard utility practice.

V. PGE's Request: The Specific Wells and Rate Based Treatment Being Proposed for the Wells Drilled in 2017 is Prudent

CUB Data Request 44 was CUB's roadmap to prudency.[22] In it, we used our experience from the NW Natural-Encanna deal to identify the potential risks that CUB believed needed to be examined, in order to determine whether this investment is prudent. Let's begin with that list of risks:

Regulatory/Environmental Risk
--water
--ozone
--methane and other greenhouse gases
--spills
--cultural materials
Market Risk
Royalty and Tax Litigation Risk
Production Risk

[22] CUB Exhibit 202

Pre-existing Liens, Land Purchases and Surface Use Agreements Risk
Bankruptcy Risk
Ownership Change Risk
Cost Increase Risk
Dispute Resolution Risk

After reviewing PGE's Data Responses to this and other Data Requests, CUB is satisfied with the Company's due diligence with regards to:

Market Risk
Royalty and Tax Litigation Risk
Pre-existing Liens, Land Purchases and Surface Use Agreements Risk.
Dispute Resolution Risk

Below is a discussion of the other risks.

A. Regulatory/Environmental Risk

i. Water

PGE answered CUB's data request concerning due diligence related to water with the following:

Risks related to water include the potential counterparty's operational procedures and resulting likelihood to contaminate groundwater and surface water, the natural quality of water that could potentially be contaminated in the event of an incident, and the likelihood of water in the vicinity of the project site to have a beneficial use.

Due diligence activities include an assessment of hydrogeological conditions and water use in the vicinity of the proposed transaction site. This assessment is summarized in a memorandum prepared by AECOM and provided in PGE's response to CUB Data Request No. 043, Attachment 043-B. AECOM is also in the process of reviewing the potential counterparty's environmental policies and procedures including but not limited to those associated with protecting groundwater and surface water. The potential counterparty's environmental handbook provides a summary of environmental procedures and is included in Attachment 044-A. Analyses to date indicates the following:

- Natural water quality in the vicinity of the project site is generally poor.
- Water use in the area is limited with little to no water used as potable water.
- The nearest residence is over eight miles away.
- The potential counterparty's policies and procedures include spill prevention and response, voluntary baseline groundwater sampling, and regular inspections of equipment for leaks and failure.

Final analysis will be performed following the completion of AECOM's comprehensive due diligence report. A supplemental response will be provided at that time.[23]

The final AECOM report concluded that:

[redacted].

However, that report found that:

[redacted]

ii. Ozone

PGE's identifies non-attainment as an ozone-related risk:

> Risks associated with ozone, methane, and greenhouse gas emissions includes considering the potential counterparty's operational procedures and the resulting likelihood for non-compliance of emissions related regulations, and impacts to PGE in the event that non-compliance occurs[26].

PGE's consultant makes clear that this is a very real risk:

[redacted].

[23] CUB Exhibit 202.
[24] CUB Confidential Exhibit 204.
[25] CUB Confidential Exhibit 204.
[26] CUB Exhibit 202.

[redacted]

PGE identifies ozone non-compliance as a risk, including the "impacts to PGE in the event that non-compliance occurs."[28] PGE's consultant discussion of attainment/non-attainment demonstrates that this risk is a real one. However, CUB is unable to find discussion of the impacts to PGE in the event that non-compliance occurs.

iii. Methane and Other Greenhouse Gases

PGE contract with its drilling partner contemplates a 35 year relationship. This relationship will overlap a period of time when this country will likely put into place a series of responses to climate change. Currently, the EPA has issued regulations related to power plants (Clean Power Plan) and more recently methane releases due to natural gas exploration and production. However, by 2052 it is likely that significant new and additional regulations will be put in place.

[27] CUB Confidential Exhibit 204, *See* Appendix G.
[28] CUB Exhibit 202.

Generally, over the last decade, coal has had a target on its back by citizens concerned about climate change. Regulations related to emissions (mercury, air toxics, SO_2, NO_x, and carbon), ash, water discharge, mining on public lands, transportation and shipping. As use of coal as an energy source declines, it is likely that natural gas will become the new target of regulatory scrutiny. Any long term contract will extend into a regulatory regime that does not exist today.

As part of its environmental due diligence, PGE hired a consultant to produce an analysis of environmental risks. That consultant identified a need to comply with new methane regulations that go into effect in February:

[redacted][29].

There is a concern [redacted]. More concerning is that there is no analysis of the impact of future carbon/methane regulations that will likely be put in place during the life of the contract. [redacted] which is supposed to [redacted] fails to discuss the impacts that a government response to climate change could have on this project.

[29] CUB Confidential Exhibit 204

iv. Spills

PGE responded to CUB's initial data request concerning the risk associated with spills:

> Both PGE and AECOM are in the process of reviewing the potential counterparty's environmental policies and procedures including those associated with spill prevention and response. The potential counterparty's environmental handbook provides a summary of environmental procedures and is included in Attachment 044-A. Analyses to date indicate the following:
>
> • The potential counterparty has policies and procedures in place to prevent spills and respond to any spills that may occur.
>
> • Information provided by the potential counterparty does not indicate systemic negligence that has resulted in a significant number of avoidable spills.
>
> • The potential counterparty's general record keeping, procedures, waste disposal methods, and data management appear to either satisfy or exceed industry standards.
>
> Final analysis will be performed following the completion of AECOM's comprehensive due diligence report. A supplemental response will be provided at that time.[30]

PGE's drilling partner has procedures in its Environmental Handbook relating to spills, and spill reduction. The Environmental Due Diligence found [redacted] at the single operating well.[31]

v. Cultural Materials

The environmental due diligence examined the risk of cultural materials affected by the site and concluded:

[redacted]

[30] CUB Exhibit 202.
[31] CUB Confidential Exhibit 204.

[redacted]

[redacted]

[redacted]

B. Production Risk

The NW Natural/Encana gas reserves investment demonstrated that production risk is real, even for reserves that are "proved" and "probable." PGE and its drilling partner agreed to some contract terms designed to reduce this risk. And while they do reduce the risk, CUB has concerns about the remaining production risk.

i. "Proved" and "Probable" Reserves

PGE proposed Guideline 3 in order to minimize production risk:

> Enter into transactions for properties that contain "Proved Reserves" or "Probable Reserves". Proved reserves are those quantities of gas, which can be estimated with reasonable certainty to be economically producible from known reservoirs and under existing economic conditions, operating methods, and government regulations. Probable reserves are those additional reserves that are less certain to be recovered than proved reserves but which, together with proved reserves, are as likely as not to be recovered.[33]

[32] CUB Confidential Exhibit 204.
[33] UE 308/PGE/200/Sims-Outama/3.

On June 20th, two weeks after PGE filed its draft term sheet with its drilling partner, CUB asked PGE to demonstrate that Guideline 3 had been met. On July 6th, PGE answered, "not yet:"

> PGE has contracted with Netherland, Sewell, and Associates, Inc., (NSAI) to provide independent estimates of proved and probable reserves for the proposed transaction. Their report is currently under development and should be provided later in July, 2016. PGE will supplement this response with that report when it is available.[34]

According to the guidelines, PGE will only enter into reserved with "proved" and "probable" reserves. However, more than one month after PGE had signed a term sheet with its drilling partner and had entered that "term sheet" to the record in this case, it still could not confirm that it met this guideline. When PGE filed the term sheet on June 3rd, it testified that Netherland, Sewell, and Associates, Inc. ("NSAI") had "confirmed the estimated amount of gas production and reserves."[35] But the guideline did not concern the estimated amount of gas production and reserves, it concerned the amount of reserves that were "proved" and "probable." This means that PGE negotiated this deal, and agreed to the term sheet without knowing whether the contract met PGE's proposed guidelines. In addition, while the agreement did have Conditions Precedent, including approval by the PUC, it did not require that PGE's guideline was met.

Finally, on July 21st, NSAI presented their analysis to PGE which estimated the amount of "proved" and "probable" reserves. While the analysis did offer support that the reserves are "proved" and "probable," CUB notes that the reserves associated with the NWN/Encana agreement also had NSAI analysis to support that they were "proved" and "probable" but the actual production was significantly below forecast.

[34] CUB Exhibit 205.
[35] UE 308/PGE/600/Russell-Tooman/3.

ii. Contact Terms: [redacted]

PGE reduced the risk of under production by negotiating a contract with its drilling partner that contains [redacted]

The key elements of the [redacted]

- [redacted]
- [redacted]

This is a significant reduction in risk and PGE should be applauded for negotiating this term. However, it still leaves a significant amount of production risk for customers:

- PGE customers take the full risk that production is overestimated by up to [redacted]
- The contract contemplates 5 years of drilling, but [redacted] This means that each additional drilling year has less protection. For the final year of drilling under the contract, [redacted].

- [redacted] The risk associated with the depletion curve – how fast gas production declines sill largely rests with PGE.
- There is an incentive for PGE's drilling partner to offer the best reserves in the earlier years of the contract and the poorer reserves in the latter years, since the drilling partner [redacted]

While PGE has provide contract terms that reduce the production risk, there is still production risk for customers, and that production risk increases with every year that PGE elects to conduct more drilling.

C. Bankruptcy Risk and Ownership Change Risk

In response to CUB Data Request 44, PGE provided this answer to CUB concerning bankruptcy risk:

As stated in PGE's response to CUB Data Request 024:

> PGE will conduct reasonable due diligence regarding the financial condition of any counterparty to assess counter-party and bankruptcy risk. Depending upon the results of such due diligence efforts, the terms and conditions of the final definitive agreement may address and mitigate this risk.

> PGE is contracting with a fiscally strong counterparty and will have a perfected property interest in the mineral rights. In addition, there will be a lien/security interest in the counter party's working interest for any of their obligation under the various agreements.
>
> This review is currently ongoing, but will be completed prior to signing a definitive agreement.[36]

And this about Ownership Change risk:

> As stated in PGE's response to CUB Data Request 024:
>
> The definitive agreements will include assignment provisions governing the assignment of contractual rights and will be subject to negotiation, agreement, and final documentation in the definitive agreements. In addition, the definitive agreements will reflect binding contractual obligations that will be binding upon any assignee or successor entity.
>
> As reflected in the draft definitive agreement:
>
> • In the event the counterparty sells its interest in the jointly owned assets, PGE has the right (but not the obligation) to sell its interest at the same price that the counterparty received. This is known as a 'tag along' right.
>
> • In the event PGE opts not to use its tag along right, and the successor's credit rating is no longer investment grade, then PGE may opt to request annual changes to working interest percentage in addition to cash settlements of the production collar.[37]

NWN testified as to the fiscal strength of its counter party, but it did not stop the counterparty from selling its share of the reserves that NWN was investing in, leaving NWN with a different drilling partner who assigned a greater share of risk to NWN for further drilling[38]

The risk that the drilling partner could go bankrupt or would want to sell its interest in these reserves is very real. While contract terms that allow PGE to tag along or gain a lien are helpful, they don't eliminate the risk. PGE offers support for its drilling

[36] CUB Exhibit 202.
[37] CUB Exhibit 202.
[38] *See* Docket UM 1717.

partners' expertise and financial condition, but the simple fact is that PGE may have a different drilling partner in three years.

It is important to recognize that this contract contemplates a thirty-five year relationship, [redacted].

i. The Ownership Change Risk is Real

Consider:

[redacted].[39]

And,

[redacted].

[redacted]

[39] [redacted]

[redacted]

And,

[redacted]

D. Cost Increase Risk

The contract limits PGE's capital investment from the first year of drilling, but other costs are not capped. While the capital investment is shared 50/50, and the gas production is shared 50/50, the operating costs fall more heavily on PGE. According to PGE Exhibit 601C, PGE will bear [redacted] of the costs for subsequent drilling[42]. While these costs are not projected to be as great as the capital costs, it is worrisome. PGE's drilling partner will operate the drilling program, but PGE will bear the bulk of the costs. In addition, CUB has concerns with the lack of analysis regarding future carbon/methane regulations. If these add costs to the program, PGE customers will bear a great deal of these costs.

[40] [redacted]

[42] UE 308 / PGE 601C Russell - Tooman / 3.

E. CUB's Conclusion About Prudence, After Reviewing Due Diligence

First, CUB notes that there has not been adequate time to review the due diligence that PGE has provided and there has not been enough time to ask follow up data requests concerning the missing elements. However, CUB believes that PGE has failed to prove that this contract is prudent and after reviewing the due diligence that PGE provided, CUB believes that the overall risk analysis that PGE conducted was incomplete and does not support approval of this contract. Specifically:

- CUB has serious concerns regarding the environmental due diligence. This is a long- term deal and there needs to be some attempt to consider how environmental regulations will change during the course of the contract. CUB doubts whether the environmental analysis here would allow for an IRP acknowledgment of an investment in a gas plant with a 30 year life.
- While PGE has done a good job reducing the production risk associated with this contract, significant production risk remains with customers. [redacted]. Finally, customers still take a significant risk associated with the depletion curve of the drilling.
- Bankruptcy and Ownership Change Risk. PGE is currently dealing with the bankruptcy of its construction partner at the Carty Generating Station. The oil and gas industry has seen a lot of mergers, acquisitions and bankruptcies. Because this is a long term partnership, there is a significant risk that PGE's partner will not be the same throughout the contract.

VI. PGE's Request: The Specific Contract Proposed is Reasonable and Supports a Five Year Drilling Program

CUB is very concerned with the subsequent drilling contemplated by the agreement. There is little discussion as to the size of those investments or the volumes of gas involved. It is clear that each additional year of subsequent drilling has increasing production risk. It is clear that the subsequent drilling will be proposed as updates to the AUT, even as we get further and further from a GRC. By the time we get to the end of the drilling contemplated by this contract, it will have been years since PGE's cost of capital, depreciation and non-power costs have been examined. It will no longer be reasonable to establish ratemaking for a capital investment.

CUB is concerned that if this contract is approved, PGE will perceive it as a go ahead for a multi-year program – remember they are asking for guidelines that require them to drill beyond the first year's wells. PGE has offered no evidence as to size, cost, rate impact, or prudence of subsequent drilling.

VII. Ratemaking Treatment

In CUB's Opening AUT Testimony, CUB discussed how cost-of-service ratemaking was front-loaded. PGE has done a good job of negotiating a deal that reduces the front loading of costs. The generic deal PGE proposed in Opening Testimony had front loaded costs beginning at $5 and declining over time. This new contract avoids that.

It does so, [redacted]. But CUB remains concerned that future drilling will not have this

feature. The revenue requirement shape of ratebased fuel investments continues to be a concern of CUB.

Even with PGE's efforts to improve the revenue requirement shape through the negotiated contract language, it should be noted that the shape of the cost of gas produced by this contract is much different than the gas price curve that PGE used to create its benchmark prices. CUB Confidential Exhibit 206 compares PGE's forward price curve to the prices that are expected (but not guaranteed) under this contract. It shows that for many years, this contract will produce gas at a price that is expected to be greater than market prices.

VIII. Conclusion

CUB has to admit that the price of PGE's investment does make the first year of drilling attractive. If PGE had brought the first year of drilling forward as a unique opportunity, CUB evaluation might have turned out differently.

But the first year drilling cannot be separated from the additional drilling under the contract, PGE's guidelines that require additional drilling, PGE's desire to layer on long term rate based investments in natural gas for the indefinite future and the lack of normal ratemaking treatment for a capital investment (IRP and GRC).

CUB appreciates PGE's efforts to negotiate a "good deal," but urges the Commission to reject this investment.

July 13, 2015

TO: Sarah Knox-Ryan
Citizens Utility Board of Oregon (CUB)

FROM: Patrick Hager
Manager, Regulatory Affairs

PORTLAND GENERAL ELECTRIC
UE 308
PGE Response to CUB Data Request No. 041
Received June 20, 2016

Request:

Please provide a list of all actions PGE has taken, is currently taking, or plans to take with regards to its due diligence of the transaction discussed in Exhibit 600.

Response:

PGE objects to this request on the basis of undue burden. Without waiving this objection, PGE replies as follows:

PGE has retained and is working directly with a number of third-party, expert consultants (see PGE's response to CUB Data Request No. 042) to identify and address the risks associated with its long-term gas hedging proposal, including:

- Technical/commercial risks associated with estimated gas reserves, annual gas volume, costs and operations of gas drilling/production.
- Land/Legal risks associated with insurance, contracts, leases, liens, marketing agreements, and other legal considerations.
- Environmental risks associated with air, land, and water quality; spillage; waste disposal; permits; and site reclamation.

To address these risks, PGE and the consultants have developed scoping plans, which are provided as Attachment 041-A. Attachment 041-A is protected information and subject to Protective Order No. 16-137.

UE 308

Attachment 041-A

Provided in Electronic Format only

Protected Information Subject to Protective Order No. 16-137

Scoping Plans for Due Diligence

July 13, 2015

TO: Sarah Knox-Ryan
Citizens Utility Board of Oregon (CUB)

FROM: Patrick Hager
Manager, Regulatory Affairs

PORTLAND GENERAL ELECTRIC
UE 308
PGE Response to CUB Data Request No. 044
Received June 20, 2016

Request:

Please provide PGE's due diligence analysis of the following risks:

A. Regulatory/Environmental Risk
--water
--ozone
--methane and other greenhouse gases
--spills
--cultural materials
B. Market Risk
C. Royalty and Tax Litigation Risk
D. Production Risk
E. Pre-existing Leins, Land Purchases and Surface Use Agreements Risk
F. Bankruptcy Risk
G. Ownership Change Risk
I. Cost Increase Risk UE 308 - CUB Data Requests to PGE
J. Dispute Resolution Risk

Response:

A. Regulatory/Environmental Risk

PGE has contracted with AECOM to provide environmental due diligence for the proposed transaction. Due diligence is ongoing; a final environmental due diligence report will be provided as a supplemental response when the report is completed. Some information is

available at this time and discussed below; other material will be provided in a Supplemental response when it is available.

Water

Risks related to water include the potential counterparty's operational procedures and resulting likelihood to contaminate groundwater and surface water, the natural quality of water that could potentially be contaminated in the event of an incident, and the likelihood of water in the vicinity of the project site to have a beneficial use.

Due diligence activities include an assessment of hydrogeological conditions and water use in the vicinity of the proposed transaction site. This assessment is summarized in a memorandum prepared by AECOM and provided in PGE's response to CUB Data Request No. 043, Attachment 043-B. AECOM is also in the process of reviewing the potential counterparty's environmental policies and procedures including but not limited to those associated with protecting groundwater and surface water. The potential counterparty's environmental handbook provides a summary of environmental procedures and is included in Attachment 044-A. Analyses to date indicates the following:

- Natural water quality in the vicinity of the project site is generally poor.
- Water use in the area is limited with little to no water used as potable water.
- The nearest residence is over eight miles away.
- The potential counterparty's policies and procedures include spill prevention and response, voluntary baseline groundwater sampling, and regular inspections of equipment for leaks and failure.

Final analysis will be performed following the completion of AECOM's comprehensive due diligence report. A supplemental response will be provided at that time.

Ozone
Methane and other greenhouse gases

Risks associated with ozone, methane, and greenhouse gas emissions includes considering the potential counterparty's operational procedures and the resulting likelihood for non-compliance of emissions related regulations, and impacts to PGE in the event that non-compliance occurs.

Due diligence activities include an assessment of existing, new and some potential future regulatory requirements associated with emissions of greenhouse gases and ozone forming gases. This assessment is summarized in a memorandum prepared by AECOM and provided PGE's response to CUB Data Request No. 043, Attachment 043-B. AECOM is also in the process of reviewing the potential counterparty's environmental policies and procedures including but not limited to those associated with emissions controls and leak detection. The potential counterparty's environmental handbook provides a summary of environmental procedures and is included in Attachment 044-A. A supplemental Environmental Impact Statement (EIS), provided in Attachment 044-B summarizes a general strategy for development that will result in a net zero change in emissions due to the use of centralized gathering facilities and pipelines (instead of trucks) to transport produced liquids. It should be noted that this EIS

includes the proposed transaction as well as additional planned development. Analyses to date indicates the following:

- The proposed design of infrastructure to be constructed as part of this project will minimize the number of emission sources; use of centralized gathering facilities will centralize a number of the required emissions controls.
- Because this is new construction, emissions controls will be designed to comply with existing regulations (including recently published regulations).
- The proposed design of infrastructure will reduce other emissions sources, most notably use of trucking to transport produced liquids.

Final analysis will be performed following the completion of AECOM's comprehensive due diligence report. A supplemental response will be provided at that time.

Spills

Both PGE and AECOM are in the process of reviewing the potential counterparty's environmental policies and procedures including those associated with spill prevention and response. The potential counterparty's environmental handbook provides a summary of environmental procedures and is included in Attachment 044-A. Analyses to date indicate the following:

- The potential counterparty has policies and procedures in place to prevent spills and respond to any spills that may occur.
- Information provided by the potential counterparty does not indicate systemic negligence that has resulted in a significant number of avoidable spills.
- The potential counterparty's general record keeping, procedures, waste disposal methods, and data management appear to either satisfy or exceed industry standards.

Final analysis will be performed following the completion of AECOM's comprehensive due diligence report. A supplemental response will be provided at that time.

Cultural Materials

Permitting the proposed transaction includes a requirement to conduct archeological survey activities. The purpose of these survey activities is to identify any cultural resources within the proposed transaction site and adjust development activities as needed to avoid impacts to cultural materials. Review of survey results is ongoing and will be summarized in AECOM's final due diligence report.

B. Market Risk

Investment in a non-operating working interest provides gas at a cost-of-service over the life of the asset. To minimize the need for incremental staff to market the produced gas, natural gas liquids (NGLs), and oil, PGE will contract with the counterparty to provide all marketing services on behalf of the jointly owned assets. In an effort to minimize costs to PGE customers, the counterparty will leverage their existing staff and transport assets to provide this service at

no cost to PGE. The counterparty will send Portland General Gas Supply Company (PGGSC) a net revenue check that will be used to purchase physical gas for PGE customers.

The jointly owned property is directly connected to interstate gas pipelines located in the Rockies (e.g., Northwest Pipeline and Questar Pipeline). This physical location will enable the counterparty to make the optimal decision to sell the jointly marketed production into either the Northwest Pipeline market, or markets accessable via the Questar Pipeline. For Northwest Pipeline market sales, there are no incremental pipeline costs as the jointly owned property is directly connected to the pipeline. To account for days on which the counterparty decides to sell gas into markets accessed via the Questar Pipeline, PGE has included a full incremental leg of transport in its lifecycle, cost-of-service model.

The intent of the marketing agreement is to minimize costs to PGE customers by avoiding the need for a new marketing, trading, and risk management function at PGE/PGGSC. However, to ensure access to physical supply as a reliability hedge, PGGSC has the unilateral ability to cancel this marketing arrangement at any time and take physical possession of its share of production by giving notice to the counterparty.

The proposed structure enables PGE to mitigate exposure to natural gas market price volatility by paying cost-of-service prices for the physical gas associated with wells in which a subsidiary would hold a property interest. PGE will use the long-term hedge to offset shorter-term physical gas purchases at market rates. This will insulate customers from market risks for the quantity of gas that is produced from the long-term hedge.

C. Royalty and Tax Litigation Risk

As stated in PGE's response to CUB Data Request 024:

> PGE will conduct reasonable due diligence regarding land and title issues, including a review of the land records, recorded liens, leases and royalty interest holders.
>
> PGE will conduct reasonable due diligence regarding any pending litigation and tax implications of the transaction.

This review is currently ongoing, but will be completed prior to signing a definitive agreement.

D. Production Risk

Protection for volumetric production risk is discussed in detail in PGE Exhibit 300, Page 6, lines 5-1:

> As described in Section IV below, the originally projected cost and volume of gas will be incorporated into PGE's power cost forecast for 2017. To the extent that actual costs and/or gas volumes are different, they will be reflected in PGE's 2017 actual power costs and will flow through our power cost adjustment mechanism (PCAM). The PCAM, in turn, has both power cost deadbands and earnings deadbands, which given their respective sizes, means that a positive power cost variance and earnings shortfall will have to be significant before any collections would occur (i.e., the authorized PCAM is structured to

produce infrequent refunds and collections). Consequently, risk of intra-year variances in projected gas volumes would generally be borne by PGE.

In addition, in PGE Exhibt 300, page 7, lines 10-15 is the following inter-year volume risk:

> Under existing treatment, PGE updates its power cost forecast each year, along with all specified components, as part of the annual AUT filing. Our proposal, as described in Section IV below, would include floor and ceiling bands within which the cost of the long-term gas (as largely affected by production volume) would be included in the AUT forecast. Actual power costs and the approved baseline forecast will still flow through the PCAM as currently structured.

Further, PGE and the counterparty have agreed to an additional measure to address production risk as described in confidential testimony in PGE Exhibit 600, page 3, line 13 through page 4, line 22.

Finally, the best method (which is PGE's current approach) to reduce production risk is to invest in properties located in mature, predictable basins with a history of low production variability.

E. Pre-existing Leins, Land Purchases and Surface Use Agreements Risk

As stated in PGE's response to CUB Data Request 024:

> PGE will conduct reasonable due diligence regarding land and title issues, including a review of the land records, recorded liens, leases and royalty interest holders.

This review is currently ongoing, but will be completed prior to signing a definitive agreement.

F. Bankruptcy Risk

As stated in PGE's response to CUB Data Request 024:

> PGE will conduct reasonable due diligence regarding the financial condition of any counterparty to assess counter-party and bankruptcy risk. Depending upon the results of such due diligence efforts, the terms and conditions of the final definitive agreement may address and mitigate this risk.

PGE is contracting with a fiscally strong counterparty and will have a perfected property interest in the mineral rights. In addition, there will be a lien/security interest in the counter party's working interest for any of their obligation under the various agreements

This review is currently ongoing, but will be completed prior to signing a definitive agreement.

G. Ownership Change Risk

As stated in PGE's respons to CUB Data Request 024:

> The definitive agreements will include assignment provisions governing the assignment of contractual rights and will be subject to negotiation, agreement, and final documentation in the definitive agreements. In addition, the definitive agreements will reflect binding contractual obligations that will be binding upon any assignee or successor entity.

As reflected in the draft definitive agreement:

- In the event the counterparty sells its interest in the jointly owned assets, PGE has the right (but not the obligation) to sell its interest at the same price that the counterparty received. This is known as a 'tag along' right.
- In the event PGE opts not to use its tag along right, and the successor's credit rating is no longer investment grade, then PGE may opt to request annual changes to working interest percentage in addition to cash settlements of the production collar.

I. Cost Increase Risk

PGE used a methodology consistent with its IRP when developing the lifecycle cost-of-service model, which includes a projection of inflation for each applicable cost. The agreement requires the counterparty to operate under a cost-of-service budget. On a percentage basis, non-transport/gathering/processing operating costs are expected to make up approximately 10% of the real-levelized cost of service.

J. Dispute Resolution Risk

The definitive agreement attemps to minimize any such risk by thoroughly addressing the rights and obligations of the contracting parties. Further, the definitive agreements will include provisions governing dispute resolution.

Attachments 044-A and 044-B are protected information subject to Protective Order No. 16-137.

UE 308

Attachment 044-A

Provided in Electronic Format only

Protected Information Subject to Protective Order No. 16-137

Environmental Handbook

UE 308

Attachment 044-B

Provided in Electronic Format only

Protected Information Subject to Protective Order No. 16-137

Environmental Impact Statement

CUB Exhibit 203 is confidential and was submitted to each party designated to receive confidential information pursuant to Order 16-137.

CUB Exhibit 204 is confidential and was submitted to each party designated to receive confidential information pursuant to Order 16-137.

July 6, 2015

TO: Sarah Knox-Ryan
Citizens Utility Board of Oregon (CUB)

FROM: Patrick Hager
Manager, Regulatory Affairs

PORTLAND GENERAL ELECTRIC
UE 308
PGE Response to CUB Data Request No. 048
Received June 20, 2016

Request:

PGE's filing discusses the benchmark price, but does not discuss Guideline 3, that the transaction contains "Proved Reserves" or "Probable Reserves." Please demonstrate that this transaction is consistent with Guideline 3.

Response:

PGE has contracted with Netherland, Sewell, and Associates, Inc., (NSAI) to provide independent estimates of proved and probable reserves for the proposed transaction. Their report is currently under development and should be provided later in July, 2016. PGE will supplement this response with that report when it is available.

Currently available, however, is a representative estimate for a single well. Please see Attachment 048-A for the 1P (proved) and 2P (proved + probable) reserve estimates from NSAI, compared with the projected production estimate from PGE's proposed counterparty.

Attachment 048-A is protected information and subject to Protective Order No. 16-137.

UE 308

Attachment 048-A

Provided in Electronic Format only

Protected Information Subject to Protective Order No. 16-137

NSAI Representative Estimate For A Single Well

CUB Exhibit 206 is confidential and was submitted to each party designated to receive confidential information pursuant to Order 16-137.