

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

UE 196

In the Matter of)	
)	CITIZENS' UTILITY BOARD
PORTLAND GENERAL ELECTRIC,)	OF OREGON'S REVISED OPENING
)	BRIEF IN THE RE-OPENED
Application to Amortize the Boardman)	DOCKET
Deferral.)	REDACTED
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I. INTRODUCTION

This docket is about replacement power costs and prudence. The purpose of this docket is to review whether PGE's actions with regard to the installation of low-pressure rotors at the Boardman plant were prudent, and whether the Company took the proper and reasonable steps that could have prevented the 2005-2006 Boardman outage or at least mitigated its financial impact.

efficiency¹ was laudable; the question here is whether PGE's method of acting on that intent was prudent.

CUB's position is that PGE purchased untested, experimental technology for Boardman and failed to conduct significant analysis of the risks that were being incurred. PGE then failed to follow through on its plans to mitigate those risks that the Company had identified in its meager analysis. These failures directly contributed to the financial impact associated with the outage. Based on PGE's fundamental failures to conduct its

¹ PGE Brief at 33.

business practices in a prudent manner, it is CUB's position that there are no grounds to charge customers for the costs of the 2005-2006 Boardman outage.²

In this docket PGE would like the Commission only to assess whether it was prudent in acquiring replacement power. As indicated above, CUB respectfully requests that the Commission look at whether the actions leading up to, occurring during the time of, and taken in response to the LPI turbine outage, were prudent. A prudency review in this situation includes review of:

- Whether PGE was prudent when it designed its maintenance procedures for the LPI turbine?
- Whether PGE was prudent when it made the decision to upgrade its baseload resource?
- Whether PGE was prudent when it contracted for the installation of experimental technology to make the upgrade to its baseload resource?
- Whether PGE was prudent when its attorneys and other employees failed to negotiate and contract for adequate compensation should the experimental technology fail during the anticipated life of the plant?
- Whether PGE was prudent in its oversight of parts manufacturing?
- Whether PGE was prudent in its oversight of the installation of the parts?
- Whether PGE's response to the excess vibrations was prudent?
- Whether PGE was prudent in having the main Root Cause Analysis done by the manufacturer of the upgraded parts that failed?

Since CUB has already addressed most of these arguments in earlier rounds of testimony and briefing CUB will focus on its main arguments and upon new testimony and exhibits offered at the last hearing. CUB will also sign on to certain arguments previously made by other parties. For the arguments that CUB feels are most crucial to its case, CUB will rely extensively on its prior testimony. Rather than setting this testimony out in block quotes, CUB will incorporate it into the brief and provide appropriate citation.

² CUB/100, Jenks/I lines 3-13.

II. ARGUMENT

1. The Standard of Review.

The standard for reviewing prudence is what PGE knew or should have known at the time it chose to install the LPI turbine, and whether it maintained the turbine in a prudent manner.^{3 4}

2. PGE has the burden of proof (both persuasion and production). Nevertheless, throughout this docket, PGE has attempted to shift the burden of proof to Staff and Intervenors.

The Commission has previously explained the utility's burden of proof⁵ in deferred accounting proceedings:

[A]n applicant is initially responsible for both the burden of persuasion and the burden of production in support of a deferred accounting request. The burden of production shifts to other parties to present evidence that rebuts what an applicant presented. However, the burden of persuasion always rests with the applicant, regardless of opposition to the filing. Thus, for example, an applicant does not necessarily meet its burden merely by presenting unrebutted evidence. The evidence must be persuasive enough to satisfy all requirements required by statute.^{6 7}

The Commission has also held that the fact that a utility has a contract with another party that limits the amount of information it can disclose does not impact the utility's burden of proof and persuasion.⁸

³ See generally "In re Pacific Corp Order No. 02-469 at 30; In re Pacific Power and Light Co., UE 170, Order No. 05-1050("Prudence is determined by the reasonableness of the actions based on the information that was available (or could reasonably have been available) at the time")

⁴ OPUC Docket No. UM 1147, Order No. 05-1070 at 5-6.

⁵ ORS 757.210(1)(a) "At the hearing the utility shall bear the burden of showing that the rate or schedule of rates proposed to be established or increased or changed is fair, just and reasonable."

⁶ OPUC Docket No. UM 1147, Order No. 05-1070 at 5-6.

⁷ See also, UE 196 Order No. 09-046 at 7. "[W]e clarify that ICNU and CUB are correct that PGE bears the burden of proof in this docket. There are two aspects to the burden of proof: the burden of persuasion and the burden of production. The burden of persuasion in a deferral amortization case is always with the utility. The ultimate burden of producing enough evidence to support its claims is also with the utility. Other parties in the case, however, have the burden of producing evidence to support their argument in opposition to the utility's position."

⁸ See Re Northwest Natural Gas., Co., UG 132, Order No. 99-697 at 58 (Nov. 12 1999).

Nevertheless, throughout this docket,⁹ PGE has attempted to shift the focus away from persuasion and solely onto production in an attempt to argue that Staff and Intervenors have failed to meet the burden of proof by failing to produce sufficient evidence to prove that the Company was imprudent. By ignoring the Commission’s interpretation of what the burden of proof means, PGE argues that it is not, therefore, imprudent. PGE misunderstands the burden of persuasion – the burden is the Company’s to show that it has been prudent. Presentation of “unrebutted evidence” is not enough.

3. Throughout this docket PGE has failed to exercise its authority to obtain documents requested of it that only PGE could obtain from its contractors.

CUB understands that the ALJ has previously noted that she does not think that PGE “purposefully omitted the information requested in the Bench Requests from the record.”¹⁰ It has, however, been CUB’s experience throughout this docket that PGE has failed to obtain documents that only PGE could request and obtain from its contractors.¹¹ CUB has pointed this out in the past.¹² Knowing that the Commission has “emphasiz[ed] that [it] expect[s] utilities to error on the side of producing too much information in response to data requests rather than too little”¹³, CUB respectfully requests that in the future the Commission require utility companies to produce all requested documents in a timely fashion. In a situation where the utility is not the “owner” of the document but the document is one prepared about the utility, or at the request of the utility, the utility should be required to obtain a copy from the “owning”

⁹ PGE Opening Brief in Re-Opened Docket at 15 and 16; PGE Reply Brief at 2; PGE Opening Brief at 13.

¹⁰ UE 196 Order No. 09-046 at 8.

¹¹ CUB/200, Jenks/5-12.

¹² CUB Surrebuttal Testimony (CUB/200/Jenks/5-7)

¹³ UE 196 Order No. 09-046 at 8.

source entity – even if this means that the utility itself cannot itself keep a copy or can only obtain a redacted copy for its own use from the source entity in question.

As noted above, the Commission has previously held that contracts limiting disclosure should have no effect on the requirement that the Company bears the burden of production and persuasion (the burden of proof). PGE should not be allowed to profit from its obstruction of the discovery portions of this docket. Limiting the ability of other parties to rebut proffered testimony is not a legal tactic that should be encouraged.

4. PGE’s record keeping appears spotty at best.

PGE states that it was “actively involved during the design phase of the upgraded LP turbines. . .”¹⁴ Mr. Quennoz stated that he would agree that record storage, retention and retrieval were important parts of a quality assurance program.¹⁵

Nevertheless, PGE claims that ICNU’s and CUB’s criticisms of PGE’s record keeping are unfounded. CUB begs to differ. If PGE was actively involved in the design phase, then why does it not have any documents that confirm this? Examples of PGE’s spotty record keeping are set forth below:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹⁴ PGE Opening Brief in Re-Opened Docket at 36.

¹⁵ Quennoz/Transcript 190:5-10.

¹⁶ CUB/200, Jenks 5-12.
¹⁷ Quennoz/Transcript 192:1-12.
¹⁸ Kahl/Transcript 291:24.
¹⁹ Transcript/Kahl 258:19-25.
²⁰ Transcript/Kahl 268 - 269:23-25 and 1-5.
²¹ Transcript/Kahl 269:12-19.
²² Kahl/Transcript 266:22-25.
²³ CUB Surrebuttal Testimony (CUB/200/Jenks/5-7)

[REDACTED]

5. PGE entered into a contract with Siemens Westinghouse (“Siemens”) to install unproven turbine upgrades at Boardman - PGE was imprudent in purchasing unproven upgrades for its base load plant. PGE’s attempt to downplay the experimental nature of the turbine upgrade defies common sense.
- a. PGE’s internal pre-contract management discussions demonstrate a lack of research and analysis.

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[REDACTED]

²⁴ Quennoz/Transcript 280:7

²⁵ CUB/100, Jenks/5-6; CUB Exhibit 105.

[REDACTED]

[REDACTED]

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b. The contract demonstrates that the upgrade was risky.

The Turbine Upgrade Contract states:

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[REDACTED]
See Confidential Exhibit ICNU/305 at 3. (emphasis added).

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

²⁶ Confidential Exhibit ICNU/103, Martin 9.

[REDACTED]

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For regulatory purposes, when the rotor was installed in 2000, its expected depreciation life was 35 years. In 2005 the rotor's depreciation life was extended to 2040.

installed, and after the equivalent of only 4 ½ years of operation.³⁵

²⁷ Confidential Exhibit, ICNU/100, Martin/4.

²⁸ UE 196 PGE/101/Quennoz/3; CUB/100, Jenks/2-3.

²⁹ *Id.* at 4; CUB/100, Jenks/2-3.

³⁰ CUB Exhibit 102. Excerpt: PGE & Siemens Westinghouse 2003 Contract, Article 1 page 1; CUB/100, Jenks/2-3.

³¹ UE 196 PGE/100/Quennoz/3; CUB/100, Jenks/2-3.

³² UE 196 PGE/105-D/Quennoz/1; CUB/100, Jenks/2-3.

³³ UE 196 ICNU/103/Martin/6. PGE & Siemens Westinghouse 1999 Contract, Part I, Section 3, 2.1.1; CUB/100, Jenks/2-3.

³⁴ CUB Exhibit 104. PGE response to CUB Data Request 9 re: turbine useful life; CUB/100, Jenks/2-3.

³⁵ UE 196 PGE/101/Quennoz/4 & PGE/105-D/Quennoz/1 (39,500 ÷ 8,760 = 4.5); CUB/100, Jenks/2-3.

Three root-cause analyses were conducted to determine the cause of the rotor failure.³⁶ PGE claims that “none of [the analyses] found any operational error that could cause the cracking,” thus suggesting that the Company cannot be held responsible for the costs resulting from the 2005-2006 outage.³⁷ CUB disagrees.

or causes of the rotor failure might be in dispute, the risk of new experimental technology failure was known and understood to be a critical risk of the project. Nevertheless, PGE failed to conduct any proper analysis of new experimental technology risk, and failed to protect itself contractually from the costs of experimental technology failure in any reasonable way.

Because

that it prudently monitored Siemens’ work and prudently mitigated the risk of the installation of the unproven technology.

c. PGE’s attempt to downplay the experimental nature of the turbine upgrade defies common sense.

PGE continues to argue in its Opening Brief in the Re-Opened Docket that it is not “accurate” to say that the upgraded LP turbines were “experimental” and “untested” at the time of the upgrade.

the upgraded LP turbines were that they had ruggedized (i.e. solid) shafts and elongated last-row blades.^{38 39} That is like saying that a car that has an experimental engine is not an experimental car because it has wheels, a regular chassis and standard superstructure.

³⁶ UE 196 PGE/100/Quennoz/6. The analyses were performed by Siemens, the manufacturer, Alstom, the repair contractor, and PGE; CUB/100, Jenks/2-3.

^{37 38} UE 196 PGE/100/Quennoz/7; CUB/100, Jenks/2-3.

³⁸ PGE/300; Quennoz/5; PGE Brief at 33.

³⁹ But Mr. Quennoz, in discussing the same issue in PGE 300, seems to suggest that “significant” and “experimental” really mean the same thing - “[a]s I previously testified, the only aspect of the upgraded LPI turbine that could be characterized as ‘experimental’ was the last-row blades. PGE 300 at 6.

As CUB stated in its surrebuttal testimony, though PGE downplays the experimental nature of the turbine upgrades at Boardman in its Rebuttal and in its Opening Brief in the Re-Opened Docket, the Company's protestations only reinforce the conclusion that PGE chose to proceed with components that were newly-designed, not yet commercially proven, and experimental in nature.⁴⁰

For example, PGE attempts to avoid the experimental nature of the Boardman installation by pointing out that the "last-row blades are a separate part of the LP 1 turbine and are not located at the site of crack initiation, which is on the shaft."⁴¹ This argument suggests that each component of a turbine works in isolation and could not, therefore, impact any other component of that turbine. grounding in common sense, and PGE provides no evidence to support it.⁴² Furthermore, the fact that PGE was to be paid compensation by Siemens for research and development related to the last row blades and ruggedized shaft, if it was able to sell the same thing to other parties, lends weight to the experimental nature of this project, which Mr. Quennoz described only as "moderately different".⁴³

In describing the extent of the new turbine design, ICNU's witness, John Martin, demonstrates the interconnected nature of the turbine's components.

⁴⁰ CUB/200, Jenks/13

⁴¹ UE 196 PGE/300/Quennoz/6; UE 196 CUB/200, Jenks 14.

⁴² CUB/200, Jenks 15.

⁴³ PGE/300, Quennoz/10.

The new LP turbines are a totally different design in all dimensional respects. stationary blades, seals, and bearings. The maximum diameter of the new rotor was increased from 100 inches on the original LP turbine to 126 inches on the new LP turbine. The weight of each new LP rotor was increased from 60,000 pounds to over 100,000 pounds.

- 6. PGE cannot contract away either its statutory burden to prudently operate and maintain its facilities nor its responsibility to prudently negotiate appropriate damages clauses - PGE imprudently assumed all responsibility for any consequential damages resulting from the failure of the turbine upgrades.**
 - a. PGE cannot contract away its statutory burden to prudently operate and maintain its facilities.**

ICNU argued in its Opening Brief that PGE should not be allowed to rely on the fact that it contracted with Siemens to install and maintain the LPI turbine to demonstrate prudence.⁴⁵ “Under Oregon law, there is a presumption ‘that contracts do not create immunity from liability.’”⁴⁶ CUB agrees with ICNU that if the Commission allows PGE to escape its burden of establishing that the LPI Rotor was prudently maintained simply because it had a contract for maintenance with Siemens, then PGE would essentially be granted immunity from the statutory requirement to demonstrate prudence. Furthermore, PGE should be held responsible even if it was Siemens’s actions which were imprudent, because Siemens was acting on behalf of PGE. PGE acknowledges this as fact.

- b. PGE abdicated its responsibility to prudently negotiate appropriate damages clauses or other mitigation features.**

⁴⁴ UE 196 ICNU/200/Martin/2; CUB/200, Jenks/14-15.

⁴⁵ Opening Brief of ICNU at 6.

⁴⁶ *Koch v. Spann*, 193 OR App 608, 619(2004).

⁴⁷ PGE’s Opening Brief at 13. “Although PGE contracted with Siemens for maintenance and alignment of the LPI Turbine, PGE is ultimately responsible for operation at the Boardman plant.”

In its Opening Brief in the Re-Opened Docket PGE claims that if the “turbines had not performed as expected, Siemens would have been required to remedy the underperformance or compensate PGE.”⁴⁸ That’s a nice statement, but completely irrelevant. It’s right up there with PGE’s other claims that it protected itself from “that risk”⁴⁹ – meaning the risk of a forced outage described in CUB’s testimony – through contractual provisions. But review of the contractual provisions shows that they only included:

[REDACTED]

Thus, none of the four risk mitigation measures listed by PGE as addressing the risk of replacement power costs from a forced outage actually applies. The only conclusion that can be drawn here is that PGE considered it sufficient to protect itself and its customers from the large potential risk of installing experimental equipment with a

⁴⁸ PGE Brief at 33.

⁴⁹ UE 196 PGE/300/Quennoz/7 at 22; CUB/200, Jenks/16..

⁵⁰ PGE states in its Opening Brief in the Re-Opened Docket at 34 that “CUB appears to misunderstand the terms of PGE’s contract with Siemens. The contract does not provide for PGE to recover replacement power costs in the event of an outage. The contract provides for liquidated damages in some circumstances during the first year of the turbine’s operation, and also provides for a 10-year warranty.”

⁵¹ CUB/200, Jenks 16.

liquidated damages clause [REDACTED] (for a plant with an expected useful life spanning decades).⁵²

In its briefs PGE chooses to tie performance to efficiency but this is only part of what “performance” should cover. Performance should be measured by did they work as well as before, did they keep working for the life of the plant in addition to did they use less fuel to produce the same amount of energy. If performance is gauged in that manner, as CUB believes it should be, then the turbines did not perform as expected and Siemens did not pay. PGE had imprudently put nothing in place that would require Siemens to pay for the costs of replacement electricity if the “untested” experimental turbine failed more than one year after its upgrade. While PGE argues that industry practice is not to cover replacement power costs, CUB is left wondering if that is industry practice for new, already proven turbines, or for experimental turbines such as this one.

Customers should not have to pay for PGE’s imprudent actions in installing experimental equipment and failing to procure appropriate guarantees and payments to protect itself from any resultant outages.

c. PGE imprudently assumed all responsibility for any consequential damages resulting from the failure of the turbine upgrades.

As PGE notes, “the cost of power during the LP outage was approximately \$45.7 million, which is much greater than the total cost of the upgraded LP turbines, which PGE purchased from Siemens for approximately \$12 million.”⁵³

PGE had a responsibility to rate payers not to contract for unproven experimental upgrades without requiring that the vendor appropriately indemnify PGE for severe outage costs. If PGE could not seek these protections from the vendor, then PGE should

⁵² CUB/200, Jenks 16.

⁵³ PGE Opening Brief in the Re-Opened Docket at 35.

have contracted for optional standby power contracts; have obtained business interruption insurance; boiler and machinery insurance, all of which are available in the marketplace.⁵⁴ PGE argues in its opening brief that such insurance does not exist.

ICNU has stated otherwise – see ICNU response to PGE Data Request 13; PGE Ex. 409 (included in Ex. 1 to Deposition of J.

PGE state that it has actually attempted to obtain that or any other kind of insurance, or that it was itself unable to do so. The real issue here is not just what insurance did PGE purchase, but whether PGE tried to get any insurance, and whether they tried in any other way to mitigate the potential for replacement power costs – the most expensive part of this whole fiasco and a known potential expense. For PGE to enter into a contract without appropriate protections was not prudent.^{56 57}

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[REDACTED]

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⁵⁴ Confidential Exhibit ICNU/100, Martin/4.

⁵⁵ PGE's Opening Brief at 12-13.

⁵⁶ ICNU/103/Martin/15. PGE & Siemens Westinghouse 1999 Contract, Part V, Section 2; CUB/300, Feighner/3.

⁵⁷ PGE Opening Brief on Re-Opening at 35.

⁵⁸ UE 196 PGE/300/Quennoz/7; CUB/200, Jenks/15-16.

⁵⁹ *Id.* at 7-8. CUB 200, Jenks/15-16.

⁶⁰ CUB Exhibit 106 at 3. PGE "Enron Risk Assessment And Control Deal Approval Sheet."

Subsequent to PGE's October 1998 analysis supporting the go-ahead for the project, discussed previously, PGE also provided a project analysis to Enron. CUB Exhibit 106 contains this analysis.

BEGIN CONFIDENTIAL MATERIAL⁶¹

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁶¹ The following section is taken from CUB/100, Jenks 6-10.
⁶² CUB Exhibit 106 at 2-3; CUB/100, Jenks 6-10.
⁶³ CUB Exhibit 106 at 3. PGE's "Enron Risk Assessment And Control Deal Approval Sheet."

[REDACTED]

[REDACTED]

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PGE's contract with Siemens Westinghouse shows that PGE completely failed to enact its risk mitigation strategy.

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁶⁴ CUB Exhibit 106 at 3; CUB/100, Jenks 6-10..

⁶⁵ ICNU/103/Martin/15. PGE & Siemens Westinghouse 1999 Contract, Part V, Section 2

⁶⁶ CUB Exhibit 103 & ICNU/103/Martin/15; CUB/100, Jenks 6-10..

⁶⁷ UE 196 PGE/202/Tooman-Hager/1 and 20; CUB/100, Jenks 6-10.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁶⁸ICNU/103/Martin/8. PGE & Siemens Westinghouse 1999 Contract, Part III, Section GC 10. Emphasis added.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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This means that the contract for the upgrade contained significantly larger risk than PGE seriously considered or attempted to model in its analysis. PGE has provided no information in response to our data requests that shows that the Company considered the implications of a contract that failed to mitigate a significant risk that PGE's presentation to its own and Enron's management suggested would be mitigated.⁷¹

This failure to account for and mitigate the risk of a forced outage – in this case, an extended one – due to the failure of a new technology, and the corresponding risk of replacement power costs, demonstrates a reckless approach to a major capital project.⁷²

As noted in CUB's Surrebuttal testimony, the parties disagree as to what risk mitigation protections were available, practical, and/or economical for the Company to have procured when installing experimental technology at Boardman.⁷³ However, regardless of that disagreement, even if one were to completely agree with the Company that such coverage was not available, not used, not affordable, or, for whatever reason, not a reasonable or prudent option,⁷⁴ it further brings into question PGE's choice to

⁶⁹ CUB Exhibit 106 at 3; CUB/100, Jenks 6-10.
⁷⁰ UE 196 ICNU/103/Martin/1. PGE & Siemens Westinghouse 1999 Contract, Part I, Section I; CUB/100, Jenks 6-10.
⁷¹ CUB/100, Jenks/10.
⁷² CUB 100, Jenks/10.
⁷³ CUB/200/Jenks/ 17-18.
⁷⁴ UE 196 PGE/300/Quennoz/11.

proceed with the installation of experimental equipment without having even modeled the forced outage risk.⁷⁵ The Company clearly states that the project was:

[REDACTED]

Therefore, faced with the choice of [REDACTED] at Boardman or risking the installation of experimental equipment with only a one-year liquidated damages clause as protection from the potentially greatest financial risk, PGE chose to install experimental equipment.⁷⁷

7. **PGE did not provide effective oversight of the project – it abdicated control of the QA/QC work to Siemens; it failed to keep a parts inventory; it did not put in place a document retention policy; it failed to retain important documents; and it failed to contract for a third party to monitor Siemens - a third party could have shared in the proprietary information held by Siemens but not shared with PGE.**

PGE must demonstrate that it prudently monitored Siemens' work.

- a. **PGE did not put in place a document retention policy.**

PGE did not put in place a document retention policy.⁷⁸ [REDACTED]

[REDACTED]⁷⁹ The company has an engineer who has testified that it was her job to do QA/QC, but whose notes and reports are spotty at best.⁸⁰

- b. **Neither does PGE have a documented Siemens' QA/QC policy for this Project.**

⁷⁵ CUB/200/Jenks/17-18.

⁷⁶ UE 196 ICNU/103/Martin/3

⁷⁷ CUB/200/Jenks/ 18.

⁷⁸ Kahl/Transcript 269: 12-19

⁷⁹ Quennoz/Transcript 192: 1-2; Kahl/Transcript 291: 24.

⁸⁰ Kahl/Transcript 268-269: 23-25 and 1-5; Kahl/Transcript 276: 12-16

Neither does PGE have a [REDACTED]

[REDACTED]

[REDACTED]

c. PGE did not have a parts inventory.

PGE did not have a written parts inventory.⁸¹ It is hard to see how PGE could conduct a proper parts inventory without proper documentation.

d. Being present is not enough.

PGE states that its employees were present for turbine alignments and measurements.⁸² Being present and being allowed to watch are a far cry from “monitoring” for accuracy, when PGE had no knowledge of the most critical alignment measurement/calculations.⁸³ (See also section in this brief related to PGE employee experience with alignment).

e. PGE could have contracted for a third party monitor.

PGE could have contracted for a third party to monitor Siemens’ work. This third party would be one to whom Siemens would be willing to reveal proprietary information under an agreement that such information would not be shared with PGE. [REDACTED]

[REDACTED]

⁸⁴

⁸¹ Kahl/Transcript 289: 1-18; Mayer/Transcript 64: 10-20.

⁸² PGE’s Opening Brief in Re-opened docket at page 30 SECTION 11.

⁸³“ PGE’s employees at Boardman were present for and monitored the results of maintenance and alignments, but did not physically align the turbines themselves.” July Hearing Trans. at 65; PGE/300 at 12-13. PGE’s Opening Brief at 4.

⁸⁴ Quennoz/Transcript 224-225: 21-25 and 1-14.

As noted earlier in this brief, the Commission has previously held two important statements – first, that un rebutted evidence is not enough, and second that a contract for nondisclosure does not remove the burden of proof from the utility.

PGE tries to downplay the importance of PGE’s not having all of the information about calculations used for aligning the Boardman turbines.⁸⁵ PGE states that its employees were allowed to watch the installation of the LP turbines and took pictures during the installation process.⁸⁶ PGE states that its employees monitored vibrations and temperature.⁸⁷ But in the world of precision engineering, pictures are no substitute for measurements in a machine that Mr. Martin compared to a “fully loaded Boeing 737 traveling at 500 miles per hour. If the LP turbine rotor failed while operating ... the turbine rotor would instantly impact the stationary part of the turbine and would result in a mechanical and thermal explosion.⁸⁸ PGE had no way to self check the alignment without the Siemens’ measurements (see section on PGE employee experience with alignment) and while PGE claims the RCA do not state that the outage was caused by any one flaw the RCAs do state that [REDACTED]

[REDACTED]⁸⁹

- 8. PGE’s employees did not have the experience necessary to adequately monitor Siemens’ installation and maintenance of the LP turbines; PGE encourages its experts to be “yes men”.**
 - a. PGE’s employees did not have the experience necessary to adequately monitor Siemens’ installation and maintenance of the LP turbines;**

⁸⁵ PGE’s Opening Brief in Re-opened docket at page 30 SECTION 11.
⁸⁶ PGE’s Opening Brief in Re-opened docket at page 29 SECTION 9.
⁸⁷ PGE’s Opening Brief in Re-opened docket at page 30 SECTION 11.
⁸⁸ ICNU/400/Martin/18.
⁸⁹ PGE/105/C-B/Quennoz/41.

Ms. Janet Kahl, the employee that PGE placed in charge of the Boardman upgrade, had never supervised the replacement of an LP turbine rotor⁹⁰ and was not licensed as a structural engineer in Oregon.⁹¹ Ms. Kahl accepted Siemens' verbal statement to her that it had performed the necessary structural analysis before the project commenced.⁹² Ms. Kahl has stated that she does not have enough expertise to know whether the turbine is unsafe when two nuts are missing.⁹³ As previously stated by Mr. Feighner, PGE has again failed to produce evidence that the company performed significant due diligence independent of Siemens before installing the turbine.⁹⁴

Even though CUB is willing to accept PGE's claims that its personnel were on-site 24 hours a day observing and recording Siemens activities, it is nevertheless unclear what oversight PGE was in fact able to provide, as Siemens withheld proprietary safety calculations from PGE.⁹⁵ PGE made several conflicting statements about the extent of those proprietary calculations and PGE's ability to monitor alignment.

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- i. The proprietary information referred to on pages 4 and 5 of PGE Exhibit 105C-A are the calculations that Siemens uses to verify turbine alignment. It is Siemens' practice for these calculations to be held as proprietary and not shared.⁹⁶
- ii. PGE's engineers can calculate every other part of the alignment themselves; they can verify the measurements and observe the physical alignment of the turbines. If they had access to Siemens' calculations, they could learn to do the alignment without Siemens.⁹⁷

⁹⁰ Kahl/Transcript 276: 12-16.

⁹¹ Kahl/Transcript 263: 16-23.

⁹² Kahl/Transcript 263: 2-6.

⁹³ Kahl/Transcript 287: 21-25.

⁹⁴ CUB/300, Feighner/4.

⁹⁵ PGE's Opening Brief in RE-Opened Docket at 31-32.

⁹⁶ PGE/600, Kahl/ 8.

⁹⁷ PGE Opening Brief in the Re-Opened Docket at 31-32.

iii. [REDACTED]

iv. PGE is not expert in the alignment of low-pressure turbines.⁹⁹

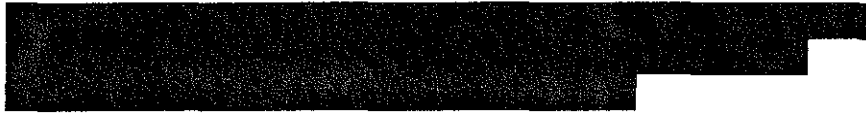
v. [REDACTED]

vi. [REDACTED]

[REDACTED]

viii. A Yes. It's physically impossible to put the turbine exactly where it would be or perfect alignment. You – it's too massive and it's physically impossible to get it exactly in the right spot. It's always a little bit off. And we record where that is by making these gap and displacement measurements. That information is phoned in to the Orlando Engineering office. There It's deemed acceptable that when the unit is couple up, hot, running at full speed in all the load operations, that it will behave correctly in the design - -
Q Those are the calculations that you are not privy to?
A Yes.¹⁰³

⁹⁸ Quennoz/Transcript 224-225:21-25 and 1-14.
⁹⁹ PGE Opening Brief in Re-opened Docket at 3.
¹⁰⁰ Quennoz/Transcript 227:22-25.
¹⁰¹ Quennoz/Transcript 235:2-10.
¹⁰² Transcript/Kahl 274:3-14.
¹⁰³ Transcript Kahl 312: 7-20.



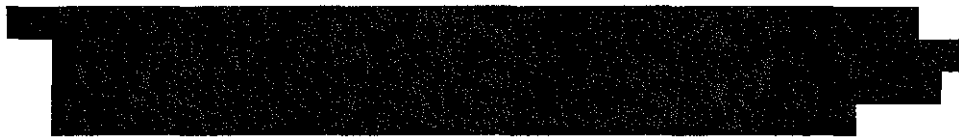
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PGE in its brief states that “PGE lacks the expertise to align [the LPI] turbines itself.”¹⁰⁵ It goes on to state that “[t]he turbines must be aligned by qualified experts, and PGE should not be called imprudent for accepting the recommendations of the most qualified experts in the case.” It seems to CUB that PGE likes its experts to be “yes men” and adopts the opinions only of those who provide the outcome that PGE wishes to have.

- b. **PGE encourages its experts to be “yes men” and adopts only the findings of those who comply.**

BEGIN CONFIDENTIAL MATERIAL¹⁰⁶

PGE’s Exhibit 517C is a report on vibration measurements of the Boardman Plant LP turbines, prepared by Sensoplan, Inc. This report was authored in October 2006 as part of the investigation of the causes of the 2005-06 forced outage, and offers a detailed level of analysis in terms of measurements of equipment vibration and performance. The report consists of 33 pages of analysis and another 67 pages of data appendices, and contains several recommendations for further investigation and measurement that Sensoplan believed were necessary, including:



¹⁰⁴ Transcript Kahl 316:13-16.

¹⁰⁵ PGE’s Opening Brief in Re-opened docket at page 32 SECTION 11.

¹⁰⁶ The following is taken from CUB/300, Feighner/6-8.

¹⁰⁷ UE 196 / PGE Revised Exhibit 517C / Quennoz / 19.

[REDACTED]

END CONFIDENTIAL MATERIAL

Having advised the parties that “PGE is not an expert in the alignment of low-pressure turbines”¹¹² CUB Exhibit 302c, (PGE’s response to CUB’s data request 23), indicates that the Company’s engineering staff has chosen not to implement most of the above recommendations. CUB is troubled by PGE’s one-page data response dismissing these recommendations. PGE now states that it “took Sensoplan’s recommendations seriously, in conjunction with recommendations from other consultants hired to address these questions, and made reasonable decisions about whether to implement those recommendations based on [PGE’s] expertise and knowledge of the situation at Boardman.”¹¹³

Considering the recent performance of the plant and the cost of significant plant outages, we would expect PGE to take recommendations from its expert consultants seriously; to the degree that PGE was dismissing those recommendations, we would expect the utility to have a sound analysis to support its reasons not to adopt those recommendations. CUB realizes that this report is an *ex post facto* analysis of the

¹⁰⁸ *Id.* 25.

¹⁰⁹ *Id.* 25.

¹¹⁰ *Id.* 30.

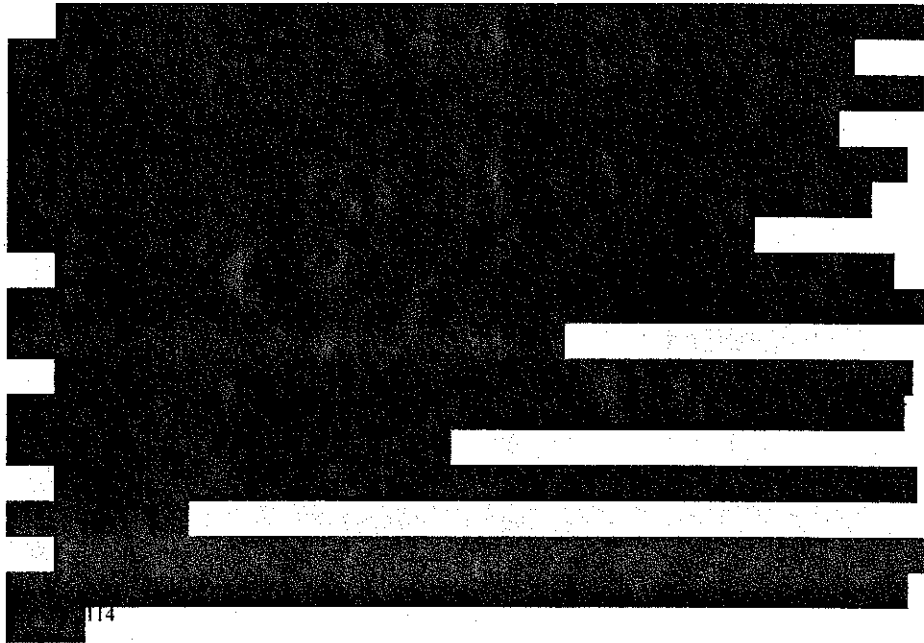
¹¹¹ *Id.* 31.

¹¹² PGE Opening Brief in Reopened Docket at 3.

¹¹³ PGE Opening Brief in Re-opened Docket at 36.

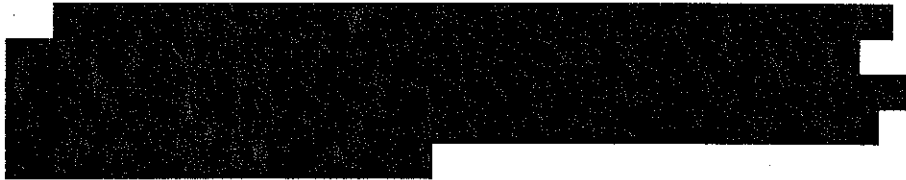
vibrations that caused the unplanned outage; however, we must wonder if this case is indicative of a general policy of the Company's engineering staff to dismiss the recommendations of third-party engineering consultants unless they compute with PGE's desired view of the world.

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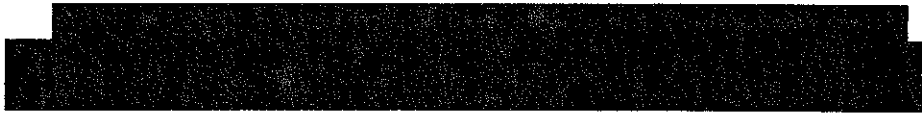


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¹¹⁴ Quennoz/Transcript228-229:14-25 and 1-11.

¹¹⁵ Quennoz/Transcript230:6-12.

[REDACTED]

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9. **The Root Cause Analysis Reports are unreliable – one was conducted by Siemens, a party with a vested financial interest in the project in addition to potential culpability for its failure; the other was conducted by Alstom, with whom PGE had contracted to repair the crack. Both were commented on by PGE before being finalized; PGE itself had a vested interest in a finding of no culpability.**

Ms. Kahl, PGE’s project head, was asked whether she agreed that a turbine like the LP turbine should not fail after 5 years. Ms. Kahl agreed.¹¹⁷ When asked if she was aware of any other large LP turbines that had failed from high-cycle fatigue, she answered no.¹¹⁸

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[REDACTED]

¹¹⁶ Quennoz/Transcript 239-240: 18-25 and 1-3.

¹¹⁷ Kahl/Transcript 280: 2-5.

¹¹⁸ Kahl/Transcript 280: 20-23.

¹¹⁹ Mayer/Transcript 16: 3-25, 17:1-25 and 18:21

¹²⁰ Meyer/Transcript 27-29.

[REDACTED]

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In addition to the above, both Siemens' and Alstom's reports are incomplete because neither "considered the full range of factors that lead to the failure."¹²⁶ And, as further argued by ICNU in its Opening Brief:

Although PGE bears the burden of proof in this proceeding, PGE made little effort to discover the root cause of the crack in the LP1 Rotor, primarily relying on the root cause analyses prepared by Siemens and Alstrom. If the Commission finds that Alstom and Siemens reports are not reliable, the Commission should disregard those reports and, consequently, find that PGE has not submitted sufficient evidence to carry its burden of proof.¹²⁷

10. The Root Cause Analyses do not demonstrate that PGE acted prudently.

¹²¹ Meyer/Transcript 27:10-11.

¹²² Confidential Exhibit ICNU/210, Martin/1; ICNU/200, Martin/9.

¹²³ Confidential Exhibit ICNU/100/Martin/6

¹²⁴ Confidential Tr. At 18.

¹²⁵ The minutes from the Boardman Owner's Committee meetings show that [REDACTED] Confidential Exhibit ICNU 302 at 5-6) [REDACTED] ICNU 302 at 5. As ICNU points out these statements were not accurate.

¹²⁶ Confidential Exhibit ICNU/100, Martin/6.

¹²⁷ Opening Brief of ICNU at 10.

PGE states that, “there is nothing in the record or the various root cause analyses that links the upgraded design or upgraded components of the LP turbines to the LPI rotor crack.”¹²⁸ Whether or not this statement is factually correct and CUB doubts that it is, the fact is, that PGE began having major problems with this turbine after the new larger and heavier parts were installed.¹²⁹

Another fact is that reliance upon a RCA done by the manufacturer of the new and failed part is imprudent because that manufacturer has every reason not to want to state that the cause was its newly manufactured part. [REDACTED]

[REDACTED]¹³⁰

Reliance upon a report done by a firm, with seeming independence but with review and comment prior to finalization by PGE, is also imprudent when PGE is itself hopeful of ducking culpability.

Nevertheless it should be noted that, notwithstanding the above, Alstom’s report does not support PGE’s position that it acted prudently because the report finds that

[REDACTED]

[REDACTED]¹³² Even Siemens’ report does not support PGE’s position that the

¹²⁸ PGE Brief at 36.

¹²⁹ Quennoz/Transcript 204: 10-19.

¹³⁰ Quennoz/Transcript 246:4 -23

[REDACTED]

Quennoz/Transcript 247:13-19

[REDACTED]

¹³¹ Confidential Exhibit PGE/105C-B, Quennoz/41.

¹³² PGE/105C-B, Quennoz/41; PGE Response to ICNU DR 058; ICNU Reply Brief at 6.

Boardman plant was prudently maintained and operated when Siemens declared in the abstract to its report [REDACTED]

[REDACTED] Since Siemens was responsible for maintaining the LPI Rotor – which includes setting rotor alignment – it would appear that Siemens has culpability for what occurred, and thus PGE has culpability since Siemens was working for PGE. Further, PGE has culpability because it had control of the operational conditions of the plant.

11. PGE’s maintenance schedules did not include regular inspection of the external turbine bolts/nuts.

ICNU’s focus on missing sole plate nuts is misleading. The missing nuts were not easily visible from the operating deck at Boardman, either while the plant was in operation or during the upgrade. Further, the nuts were on a part of the turbine that was not disturbed during the upgrade.¹³⁴

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It is important to set the stage here for what follows. During Judge Wallace questioning of Mr. Quennoz it was established that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The rotor

failure initiated in the vicinity of bearing three and that there had been problems with

¹³³ Confidential Exhibit PGE/105C-C, Quennoz/2.

¹³⁴ PGE/700; Quennoz/20-22. PGE Brief at 38.

¹³⁵ Quennoz/Transcript 209:1-16.

bearing three since the time of installation of the new rotor.¹³⁶ [REDACTED]

[REDACTED]

[REDACTED]¹³⁸

a. The missing and loose bolts/nuts demonstrate further PGE's sloppy maintenance practices.

PGE's brief misses the point. Whether the bolts/nuts were part of the installation upgrade or not is irrelevant. Whether the bolts/nuts are easily visible from the operating deck is irrelevant. What is relevant is that these bolts/nuts were loose or in some cases missing and that PGE, due to its sloppy maintenance practices and lack of a QA/QC mechanism which would have included a parts in parts out inventory, has no idea how long they have been missing or, as it claims, the effect that their absence could have (misalignment) on the turbine array. The later, if true, seems likely to stem from PGE's failure to listen to what experts, who are not PGE "yes men", have to say on the subject. Indeed even PGE's own employees when not focused on these precise missing bolts have stated that [REDACTED]

[REDACTED]¹³⁹

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Regardless of other impacts on the turbine array, the loose/missing nuts are further proof of PGE's shoddy maintenance. As John Martin pointed out:

The unit had been there for 20 years, and as it turned out, a few of the nuts were loose, but more importantly, a couple of the nuts were missing. And the thing about the missing nuts that always seemed strange to me is for a nut to come loose, you can

¹³⁶ Quennoz/Transcript 204:10-19.

¹³⁷ Kahl/Transcript 300: 8-11.

¹³⁸ ICNU/400/Martin/16.

¹³⁹ Quennoz/Transcript 231:11-14.

understand how that could happen, from vibration and such. To go missing, somebody has to take it off.¹⁴⁰

- b. The loose and missing bolts/nuts demonstrate the deficiencies in PGE's pre-shut down analysis of what was causing the problem.**

In addition, the missing nuts/bolts are an indicator of deficiencies in PGE's analysis of what was causing the vibrations – if PGE did not know about the missing nuts/bolts then PGE did not know that things were inappropriately secured. This could not have been considered part of PGE's or its contractors' vibration analysis when it most certainly should have been.¹⁴¹

- c. The loose and missing bolts/nuts were, if not the main cause of the misalignment that led to the outage and the huge replacement power costs, a contributing factor – PGE was responsible for general maintenance at Boardman and should have found and dealt with the issue of the loose and missing bolts/nuts.**

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ICNU in its Reply Brief notes that PGE admits that “it could be argued that Siemens should have discovered the missing nuts during its installation or maintenance of the upgraded LP Turbines,” but goes on to conclude that “there is no compelling evidence to indicate that the absence of 2 of the 28 nuts in one part of one pedestal of the more than 100-foot array contributed in any significant way to causing this crack.”¹⁴² As ICNU further notes, it should be understood that the 28 fasteners mentioned secure other parts of the turbine array and not just Bearing No.2. [REDACTED]

¹⁴⁰ Martin/Transcript 359: 2-8.

¹⁴¹ Quennoz/Transcript 233:6-14. [REDACTED]

¹⁴² PGE Opening Brief at 16; ICNU Reply Brief at 10.

[REDACTED]

ICNU then states that PGE concludes that “[a]lthough Alstom stated that missing fasteners are a condition that might cause bending stresses along a turbine array, neither Alstom or Siemens identified these missing nuts as the major or precipitating cause of the LPI rotor crack at Boardman.”¹⁴⁵ As ICNU notes, this statement is untrue. The two missing nuts were critical in securing the Bearing No. 2 Pedestal. [REDACTED]

[REDACTED]

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d. The missing and loose bolts/nuts were neither hard to reach nor hard to see if appropriately equipped with a flash-light.

CUB has reviewed photographs of the missing and loose nut/bolt locations.¹⁴⁷ It is very clear that a person assigned to do regular maintenance on the turbine can and should be looking at all external bolts/nuts in all areas.¹⁴⁸ PGE makes a song and dance out of what you have to step on and off to get to these bolts but that is just designed to

¹⁴³ PGE/105C-B, Quennoz/36; PGE/105C-B, Quennoz/41; PGE Response to ICNU DR 058, Attachment B, page 27, para. 3, and page 32 para. 1 and 2; ICNU Reply Brief at 9.

¹⁴⁴ PGE Response to ICNU Data Request 084.

¹⁴⁵ PGE, Opening Brief at 15; ICNU Opening Brief at 10.

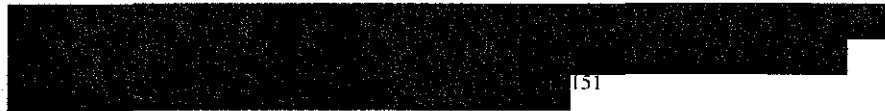
¹⁴⁶ PGE/105C-B, Quennoz/41; ICNU Reply Brief at 10.

¹⁴⁷ ICNU/404/Martin/1; ICNU/405/Martin/1; ICNU/406/Martin/1; ICNU/407/Martin/1; PGE/709/Quennoz/1; PGE/708/Quennoz/1.

¹⁴⁸ Quennoz/Transcript 233: 6-14.

distract from the simplicity of the action. Mr. Martin needed no special safety training or physical assistance to reach the missing bolts' location, nor did the turbine have to be turned off for him to do so. He also did not need any special equipment to see the bolts and only a camera with a flash to record what he saw. A PGE employee could easily have accomplished the same simple task and some did.¹⁴⁹

All this points, to put it politely, to a severe maintenance failure. PGE could check the bolts and did not frequently do so.¹⁵⁰ PGE later recognized this severe maintenance failure and took steps to rectify it:



c. It is likely that this condition existed for years before the upgrade.

PGE does nothing to alleviate, and indeed greatly increases, the concerns CUB has with regard to PGE's maintenance practices when PGE states with regard to the missing bolts ("fasteners"):

*It is likely that this condition existed for years before the upgrade (emphasis added).*¹⁵²

¹⁴⁹ Quennoz/Transcript 249:18-23. "Q On page 21 you talk about Mr. Martin taking a photograph, and where he had to go in order to take a photograph. Subsequent to Mr. Martin's visit, did you follow the same foot path that he did to get to where he took the photograph? A I did before and after."

¹⁵⁰ Quennoz/Transcript 249 at 13 and 250:1-15 and 251:1-18.

"Q You said there are 28 bolts. Is there any kind of PGE program that requires that those bolts be regularly inspected?"

A No. Nor does the manufacturer suggest that.

Q Have the bolts been regularly inspected since this outage occurred?

A Yeah. That's a good question. They have, and we have not found any problems with them.

Q And when that inspection takes place, how is it done?

A It's done when we remove the aprons from the units, and we don't do a complete inspection, but we have it on a rotating preventive maintenance program where we inspect a sample of those bolts from around the machine. There's 250 of those bolts."

* * *

Q And the preventative maintenance, that is since the outage occurred?

A That's correct. It wasn't done before - - "

¹⁵¹ Mayer/Transcript 44: 24-25 and 45: 1 to 3.

.....

We can't inspect everything or we would never get the work done in a timely manner, plus it would be cost prohibitive to walk around and ensure that all sort of parts or pieces of the machine are where they seem to be.¹⁵³

[REDACTED]

[REDACTED]

[REDACTED]

It is not up to CUB to prove that Siemens and PGE imprudently failed to locate and replace the loose and missing nuts/bolts or that the loose/missing nuts/bolts caused the misalignment. Instead, it is up to PGE to establish that Siemens and/or PGE prudently inspected the sole plate to ensure that the bolts were properly secured and that the loose/missing bolts did not cause or contribute to the misalignment – PGE has been unable to prove that.

12. PGE's response to the Bench Request does little to demonstrate that the company has operated prudently with regards to its decision to install experimental technology or with regards to its installation and maintenance practices thereafter.

a. The validity of the FOMIS survey is questionable.¹⁵⁵

PGE conducted a survey of other plant operators about their maintenance practices. While PGE draws the conclusion that this survey proves it was following standard operating procedure, CUB believes that it does not offer any such proof.

¹⁵² PGE Opening Brief in Re-Opened Docket at 38; Quennoz/Transcript 232:13- [REDACTED]

¹⁵³ Kahl/Transcript 304: 13-17.

¹⁵⁴ Martin/Transcript 361: 16-25 and 362 1-18.

¹⁵⁵ The following is taken from CUB/300, Feighner/5-6.

As CUB noted in its prior testimony, PGE surveyed 77 utilities and received responses from 13. The limited number of responses to the survey precludes it from being either a representative sample of PGE's peer companies or a statistically significant sample of North American electric utilities. PGE claims that of "the thirteen responding utilities, twelve reported that they used the OEM for steam turbine installation"¹⁵⁶.

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Twelve utilities did not report that they used the OEM for installation. Instead, twelve utilities reported that they used the OEM for installation or to verify proper installation, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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As CUB previously noted, this is a proceeding to determine whether PGE was prudent in both its decision to install an experimental rotor design and its ongoing maintenance practices, either of which may have contributed to the catastrophic outage. Such a determination must be based on what the company knew when it made the decision to install the rotor and when it made its decisions relating to maintenance. Even

¹⁵⁶ UE 196/PGE/500/Quennoz/5

¹⁵⁷ [REDACTED]

[REDACTED] Quennoz/Transcript at 178:1-8 But see Kahl/Transcript 327 at 18-25 and 328 at 1-9 which seem to contradict this.

¹⁵⁸ Quennoz/Transcript 181:19-22

¹⁵⁹ Quennoz/Transcript 181-182:23-25 and 1.

¹⁶⁰ Quennoz/Transcript 182-183:16-25 and 1-4.

if a representative sample had been gathered, the practices of other utilities in 2008-9 have no relevance when reviewing the practices of PGE prior to the installation of the upgraded turbines in 2000 or its maintenance practices from 2000 through at least 2007.¹⁶¹

PGE faults CUB for its alleged failure to put any evidence in this record, on this matter, to contradict PGE's testimony or the FOMIS survey. PGE seems to ignore Mr. Feighner's testimony on this subject completely.

This is another example of a situation where PGE was tasked with coming forward with clear cogent evidence on a topic but failed to do so. PGE could easily have asked separate questions to elicit clean information – PGE chose not to do so.

- b. Whether it is standard industry practice to rely on another entity's QA/QC program for the installation and maintenance of a turbine rotor?**

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PGE's responses on this issue miss the point. The purpose of this docket is to determine whether PGE was prudent. The contract that PGE signed with Siemens did not even require [REDACTED].¹⁶² In addition, PGE did not retain copies of necessary documents.

[REDACTED]

[REDACTED]

¹⁶¹ CUB /300, Feighner/5-6.

¹⁶² UE 196/PGE/510 Confidential/Quennoz/88:

[REDACTED]

[REDACTED]¹⁶³ This is contrary to what PGE states in its Opening Brief in the Reopened Docket at 19.

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PGE never obtained a copy of the QA/QC document from Siemens for production during this docket. PGE asks the parties to instead take their word for the fact that it looked something like a few pages of documents that they produce from a later upgrade: “The Documents in PGE Exhibit 513C set out in detail many aspects of the Siemens QA/QC program applicable to the Boardman turbine upgrades. These documents are consistent with the QA/QC manuals and documents that PGE employees reviewed in 1999 and Siemens’ QA/QC program, but the key program elements listed above have remained consistent through both the LP and HP/IP upgrades”¹⁶⁴

- c. **PGE failed to describe the key elements of Siemens’ Boardman QA/QC program.**

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Because it did not maintain or obtain a copy of the Siemens QA/QC program PGE failed in its attempt to describe the key elements of the Boardman-specific QA/QC program. PGE described only what the general ISO 9001 program elements are.¹⁶⁵ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] does not mean that

¹⁶³ Kahl/Transcript 291: 14-25, 292: 1-2.

¹⁶⁴ PGE 500/Quennoz 14 Lines 13-18

¹⁶⁵ PGE Opening Brief in the Re-opened Docket at 20 -21.

¹⁶⁶ Kahl/Transcript 291:3-6.

¹⁶⁷ Kahl/Transcript 306:8-17.

¹⁶⁸ Kahl/Transcript 306:8-17.

PGE was able to truly monitor whether Siemens was in fact in compliance with its QA/QC program. It also does not mean that PGE was truly able to monitor whether Siemens was appropriately completing the manufacture and installation work.

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It is CUB's position that Ms. Kahl's two reviews of the Siemens' QA/QC program over the many intervening months that encompass this project were insufficient. This lack of diligence establishes imprudent oversight of this project.

d. PGE's monitoring of the installation and maintenance.

PGE states proudly that it negotiated the right to establish "witness points" during the manufacture of the turbine.¹⁶⁹ While CUB does not doubt that Ms. Kahl was present at these moments CUB does doubt her ability to truly monitor these situations as Siemens held proprietary certain calculations that were necessary for calculating safety margins¹⁷⁰ and thus completing full monitoring. CUB has addressed earlier its belief that PGE could have hired a third party to monitor Siemens manufacturing and installation – a third party with whom Siemens could have shared calculation information for purposes of accurate monitoring. Again, this lack of diligence establishes imprudent oversight of this project.

PGE states that Siemens was required to inform PGE if it deviated from design requirements during production. If Siemens was withholding proprietary information - even if it was only safety margin information, as PGE now claims, stating that its engineers could calculate every other part of the alignment themselves and verify the

¹⁶⁹ PGE Opening Brief in Re-Opened Docket at 22; PGE Exhibit 513, Contract, at 73 and 83.

¹⁷⁰ PGE Opening Brief in the Re-Opened Docket at 32-33.

measurements and observe the physical alignment of the turbines¹⁷¹ - without access to Siemens' safety margin information how would PGE know whether any deviations would be a problem?

Even when PGE did hire other experts to check things it did not require them to provide written reports.¹⁷²

PGE is so intent on showing that it was in control that it finishes this section of its brief by stating: “[a]lthough PGE contracted with Siemens to perform these tasks, they were performed under PGE’s monitoring and subject to PGE’s approval.”¹⁷³ Thus, if Siemens was negligent in either the manufacture, installation or maintenance of the turbine, as CUB believes they were, PGE must have been imprudent in its oversight to accept that faulty work; PGE is therefore responsible for this imprudence.

13. The fact that PGE has borne the cost of the investigation, removal, transport, repair and reinstallation of the cracked rotor¹⁷⁴ should not affect/influence the Commission in its decision making in this process; this process is about replacement power costs and prudence.

PGE concludes its Opening Brief In the Re-Opened Docket with a listing of all of the things that PGE has paid for in relation to the LPI turbine outage, things that it is only good and proper that PGE should pay for given its imprudent behavior throughout this matter. PGE fails to remind the Commission that under UM 1234 PGE was permitted to defer replacement power costs in excess of its normal business risk and that PGE is, therefore, through its current return on equity compensated for its normal business risk including the remaining replacement power costs.

¹⁷¹ PGE Opening Brief in the Re-Opened Docket at 33.

¹⁷² PGE’s Opening Brief in Re-Opened Docket at 24.

¹⁷³ PGE’s Opening Brief in Re-Opened Docket at 25.

¹⁷⁴ PGE Brief at 40.

PGE's list of costs was undoubtedly intended to sway the Commission towards allowing PGE to recover the full amount of deferred costs potentially available in this docket. But PGE, pursuant to ORS 757.259(5) is obligated to show that the costs that it is currently seeking are prudent. The fact that PGE has incurred replacement power costs in excess of the amount that it deferred is, as ICNU has already noted, irrelevant to whether the deferred cost was prudently incurred.¹⁷⁵ CUB requests that the Commission hold firm and reject in total PGE's request to amortize the full amount of the deferred expenses authorized in Order 07-049 because PGE has failed to show that the costs were prudently incurred.

III. CONCLUSION

PGE undertook a technologically-risky retrofit at one of its major generating facilities, failed to adequately consider the ramifications of the very-real risk of forced outage due to technology failure, and then utterly failed to mitigate that risk in any meaningful way, thus leaving the Company and its customers completely exposed. Such an irresponsible approach to, and execution of, a significant capital investment representing a significant portion of PGE's baseload generation is unfathomable.¹⁷⁶

PGE made the decision to install experimental components at Boardman based upon cursory due diligence. Customers rely on PGE to make investments on their behalf, and the careless approach that the Company took toward such a significant capital investment, as demonstrated by the paucity of Company analysis, was not prudent. Customers should not be held responsible for PGE's failure to properly analyze and evaluate the choice to install experimental equipment at Boardman, and should not be

¹⁷⁵ ICNU's Reply Brief at 11

¹⁷⁶ CUB/100, Jenks/10.

asked to pay for the replacement power costs resulting from a failure of this experimental upgrade.¹⁷⁷

It is not surprising that neither PGE, which operated the plant, nor Siemens Westinghouse, which maintained the plant, offer proof to the effect that neither plant operation nor maintenance were at fault. Instead, we are told that the cause was “unknown.”¹⁷⁸ CUB’s analysis demonstrates that, regardless of the Company’s operation of Boardman, PGE’s due diligence and contractual risk mitigation in the 2000 turbine upgrade were so poor that customers cannot reasonably be asked to pay the costs of replacement power for the 2005-2006 outage. Given PGE’s choices and lack of preparation for the risk of equipment failure, these costs should be the Company’s responsibility.¹⁷⁹

As PGE found such an approach to be reasonable, however, the Company should also reasonably be expected to pay for the replacement power costs associated with the technology failure that was deep within the range of possibility, but to which PGE left itself completely unprotected.¹⁸⁰

PGE should not be permitted to shift the burden of proof (production and persuasion) in this matter to Staff and Intervenors. The legal standard requires PGE to prove that PGE acted prudently. From the record in this docket it is clear that PGE did not act prudently – it made some very imprudent decisions in regard to the upgrade and maintenance work done on its Boardman plant. PGE should not be permitted to shift the risk of those decisions to innocent rate payers.

¹⁷⁷ CUB/200, Jenks/18-19.

¹⁷⁸ UE 196 PGE/100/Quennoz/7. “Siemens considers that high cycle fatigue ‘due to misalignment induced by an unknown operational condition is the most probable root cause’.”

¹⁷⁹ CUB/100, Jenks/2.

¹⁸⁰ CUB/100, Jenks/10.

Neither should PGE be rewarded for its indiligence or tactical restraint, both prior to and after the issuance of the ALJ's Bench Request. In this and other dockets PGE has been unable or unwilling to provide simple records and information. CUB had similar problems in trying to get information from PGE during UE 197 – for example the ever shifting employee number count.¹⁸¹ In this docket PGE has consistently failed to produce requested records and its staff has provided contradictory testimony (see PGE employee experience section regarding alignment). PGE has also shown a lack of rhyme or reason as to the documents retained from projects.

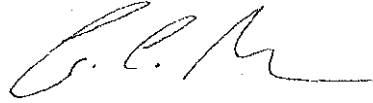
By the time this whole case is over, PGE will have entered five rounds of written testimony and five rounds of briefing into the record - PGE will have had five bites at the apple. CUB respectfully requests that, in addition to whatever order the Commission enters in regard to amortization (and CUB requests that the order be a denial of PGE's request for amortization of the deferred costs), the Commission also include in its order an admonition to PGE to produce all requested documents in a timely fashion, and in a situation where PGE is not the "owner" of the document but the document is one prepared about PGE, or at the request of PGE, that PGE should be required to obtain a copy from the "owning" entity – even if that means that PGE itself can only obtain a redacted copy for its own use from the source in question.

PGE has not carried its burden of proof in this docket; PGE has not shown that the excess power costs related to the Boardman outage were prudently incurred. CUB respectfully requests that the Commission deny PGE's UE 196 Application.

DATED this 17th day of July, 2009.

¹⁸¹ UE 197, Reply Brief of CUB at 6.

Respectfully submitted,



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