EXHIBIT NO. ___(EMM-24HC)
DOCKET NO. _____
2005 POWER COST ONLY RATE CASE
WITNESS: ERIC M. MARKELL

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, Complainant, v. PUGET SOUND ENERGY, INC., Respondent.	Docket No. UE-_____

TWENTY-THIRD EXHIBIT TO THE PREFILED DIRECT TESTIMONY OF ERIC M. MARKELL (HIGHLY CONFIDENTIAL) ON BEHALF OF PUGET SOUND ENERGY, INC.

REDACTED VERSION

JUNE 7, 2005

MEMORANDUM

July 21, 2004

To: Edward R. Schild

From: Energy Production and Storage Staff

RE: Assessment of Snoqualmie Falls Hydroelectric Project FERC License and Alternatives

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I. Summary

This memorandum summarizes the analysis and the alternatives considered by the Company in deciding to accept a new FERC License for the Snoqualmie Falls Hydroelectric ("Project").

- Accept the License: As reflected in a memorandum recently provided to the Board of Directors (See Tab A), we recommended that the Company accept the new FERC license and defend any anticipated appeal of the license order. FERC issued a license for the Project on June 29, 2004 (the "License"). The forty-year License offered terms and conditions that allow the Company to maintain the Project in its resource portfolio as a reliable and cost-effective resource. Over the forty (40) year term of the License, the Project will generate an estimated 300,000 MWh (annual average output) at an estimated levelized cost of approximately [redacted] per MWh. The License also requires enhancement of a number of significant public benefits (e.g., parks and recreational resources, aesthetics resources, and historic resources).

The License also requires enhancement of a number of significant public benefits (e.g., parks and recreational resources, aesthetics resources, and historic resources).

- Appeal the License: We did not recommend appealing the License. [redacted] and no appeal was filed.

- Reject the License: We also advised against the alternative of rejecting the License. If the Company had rejected the License, the Company would have rejected a forty-year opportunity to maintain a reliable and cost-effective resource. The Company would have incurred

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additional cost and risk associated with a negotiated surrender of the existing license (i.e., FERC decommissioning), or in connection with efforts to sell the Project. The Company would also need to acquire replacement power, and based upon our assessment, the cost of replacement power for the term of the License would likely be in excess of the cost of accepting the License.

- Snoqualmie Indian Tribe (or federal agency) Acquisition:

[redacted]

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The analysis set forth below provides further support for our recommendations.

II. Background

The Project consists of a water diversion dam, a power plant ("Plant One") located within a rock cavity 270 feet below the Falls crest, and power plant ("Plant Two") located 1250 feet down stream of the Falls. The

installed capacity of the Project is 44 MW as of 2002. The current average annual production at the existing Project is approximately 270,000 MWh. The current average cost to generate is approximately [redacted] per MWh.

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Plant One came on-line in 1898. Plant Two came on line in 1910 and was expanded in 1957. The Project provides recreational amenities that include a park, observation decks, recreational trails, a boardwalk and picnic facilities. Over 1.5 million tourists visit the Project each year. The Project contains the Snoqualmie Falls Historic District, which is listed on the National Register of Historic Places, and the Snoqualmie Falls Traditional Cultural Property, which was determined eligible for listing on the National Register.

The existing FERC License for the Project expired in December of 1993. In the ensuing years, the Project has operated under a series of annual licenses (i.e., FERC issues annual licenses while it is considering applications for new multi-year licenses).

The new License brings to conclusion what has been a long and challenging relicensing proceeding. The Company filed its license application in November of 1991. The initial proposal called for a significant expansion of generation and other amenities. Among other things, the expansion required an additional water right. This additional natural resource requirement proved to be controversial. The need for the expanded generation (as proposed in 1991) was stated in the FERC license application. See Tab B. The economics of the Project (as proposed in 1991) were also assessed in the FERC license application. See Tab C.

The relicensing proceeding was joined by a number of intervenors reflecting a variety of interests. This included fish and wildlife interests, proponents of flood control, proponents of aesthetic flows, proponents of additional recreational amenities, and proponents of cultural and historic resources. As the proceeding progressed, the Company periodically reevaluated its proposal and viable alternatives. In February of 1995, the Company determined that a significant expansion of the Project (as proposed in 1991) was no longer a viable course of action. Circumstances bearing upon this conclusion included the following:

- In January of 1995, the Washington State Department of Ecology ("Ecology") informed the Company that it was not in a position to grant the additional water right requested by the Company within any foreseeable timeframe. [redacted]

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[redacted]

- Ecology also advised PSE that it would not be able to issue a Water Quality Certification ("WQC") for the expanded project in a timely manner.

[redacted]

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- A third factor leading to the decision in 1995 to drop plans for expansion were developments in the wholesale energy markets. Relative to other resource alternatives, the expanded Project was no longer economically viable.

In light of these concerns, the Company proposed in the FERC proceeding a smaller refurbished Project. The proposed refurbished project is essentially what has now been reflected in the new License. The Company's 1995 assessment of alternatives and the revised project proposal were documented in filings to FERC. See Tab D.

In 1996, FERC issued a final environment impact statement ("FEIS") for the Project. The FEIS adopted PSE's proposed refurbished project as its preferred alternative. For the next several years, the focus of attention shifted to state and local proceedings, and efforts to coordinate the proposed FERC license elements with an Army Corps of Engineers § 205 Flood Control Project. These additional proceedings included supplemental environmental review under the State Environmental Policy Act and the requirement to obtain a shoreline permit from the City of Snoqualmie under the State Shoreline Management Act.

These additional regulatory requirements lead to further licensing requirements which in some cases conflicted with the preferred alternative described in the FERC FEIS. To address these inconsistencies, in December of 2003 the Company filed an update with FERC that proposed terms and conditions for a new license that were consistent with the results of these subsidiary proceedings. PSE updated its economic analysis of the Project at this time, and this updated economic analysis was summarized in the December 2003 FERC filing; the relevant portion of this filing is attached as Tab E.

Throughout this lengthy process, the Company was able to work with interested parties to secure a License that reflects a reasonable balance of interests. However, the Tribe has remained steadfast in its desire to secure an order requiring decommissioning of the Project. In an effort to find common ground

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with the Tribe, the Company initiated an informal dialogue. [redacted] For these reasons, we concluded that this alternative currently is not a viable option. [redacted]

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The new forty-year License is attached at Tab G, and a summary of key terms and conditions is attached at Tab H.

On July 29, 2004, the Tribe filed a request for rehearing with FERC. The Tribe's appeal maintains its longstanding effort to have the Project decommissioned, requests a stay of the License order, and raises a number of legal issues associated with FERC's decision to issue the License. American Whitewater Affiliation also requested rehearing, but this appeal is narrow and focused on FERC's decision to eliminate public access to the river upstream of Plant Two. The merits of these appeals are being evaluated, and should FERC decide to entertain either one of these requests for rehearing, we will undertake further analysis of the potential risks associated with implementing the License order.

III. Need for Project

The Project is part of the Company's existing resource portfolio. The existing Project currently provides an average annual output of 270,000 MWh. The Company needs to retain its existing resources, assuming that they are reliable and remain cost-effective. A further discussion of the Company's resource requirements can be found in PSE's Least Cost Plan and Least Cost Plan updates

filed with the Washington Utilities and Transportation Commission on April 30, 2003 and August 29, 2003, respectively. The Company's strategy is to seek to acquire new resources from a diverse mix of resource technologies and fuel types. The diversified approach provides an important means to avoid the concentration of risks that could result from relying exclusively on a single resource technology to meet all of the need.

The License also identifies a "Need for Power" in Section E. Paragraphs 65 notes the Project has a dependable capacity of 34.7 MW. Paragraph 66 notes that Northwest Power Pool Area that peak demand will grow at a compound rate of 2.15% and annual energy requirements will grow at 1.9%. Paragraph 68 concludes the "Power from the Snoqualmie Falls Project would continue to be useful in meeting a part of the regional need for power." See page 26 of Tab G. This project has historically been reliable and cost-effective. It is currently producing power at a cost well below market and the expectation is that the Company will continue to retain the Project within its portfolio as a reliable and cost-effective resource.

IV. Alternatives

The relicensing alternatives presented to the Company are summarized below:

- *Accept the License:* Under this alternative, the Company maintains the resource and, over the term of the forty (40) year License, is authorized to generate 300,000 MWh (approximate annual average output under new License) at a 30-year levelized cost of approximately [redacted] per MWh. This alternative also requires, per the terms of the new License, the enhancement of a number of significant public benefits (e.g., park and recreational resources, aesthetic resources, significant historic and cultural resources).

- *Appeal the License:* Under this alternative, the Company would pursue, through a FERC appeal and potentially a judicial appeal, a more favorable License order.

- *Reject the License:* Under this alternative, the Company would reject the License, either sell or decommission the Project, and acquire a replacement resource.

- *Transfer to the Tribe:* Under this alternative, [redacted]

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V. Analysis

A. Accept the License (Recommended Alternative): The Project has been associated with the Company for over a century. It has been a cost-effective, stable producer of firm power. The License will allow this reliable resource to be maintained, in a cost-effective manner, for forty more years. We recommended that the Company accept the License for the following reason:

1. The License offers terms and conditions that allow the Company to maintain and increase existing levels of generation (i.e., 300,000 MWh, the approximate annual average output under the new License). The Project will operate as a run of the river facility, with an installed capacity of 49 MW.

2. The License provides a reasonable degree of financial certainty for the next forty years. [redacted]

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3. Compared to other resource alternatives and wholesale market projections (i.e., a long-term forecast of short-term prices), accepting the License compares favorably from a cost perspective, and presents less risk going forward. See Tab J. The present value of replacement power, using PSE's Aurora-6 long-term forecast of short-term prices at the Mid-C hub is in the range of approximately $120 million to $180 million, whereas the present value of regulated revenues for the "Accept License" alternative is in the range of [redacted] million to [redacted] million (a present value savings to PSE customers of approximately [redacted] million to [redacted] million under this analysis). Moreover, wholesale market prices have been, and are expected to continue to be, quite volatile over time.

4. Critical to the economic viability of the Project was the determination of flows over the Falls and related ramping restrictions, and this determination was primarily a balance between production, fisheries and aesthetic interests. The License currently provides:

- 200 cfs constant: May 16 - May 31.
- 450 cfs constant: June.

- 200 cfs constant: weekends/ holidays in July and August plus Labor Day weekend.
- 100 cfs daytime and 25 cfs nighttime: weekdays July and August.
- 100 cfs daytime and 25 cfs nighttime: September through May 15.

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[redacted]

5. [redacted]

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6. The FERC relicensing proceeding (and the various subsidiary state and local proceedings) generated extensive analysis of a broad range of issues. The two appeals that were filed are being assessed. However, in accepting the License, the Company did take into consideration [redacted]

7. Improvements required by the License and more stringent operating requirements will add to the cost and complexity of project operations. It is anticipated that annual O&M costs will increase from approximately $4 MWh to $5 MWh.

8. There is an intangible benefit to the Company associated with accepting the License. As noted above, more than 1.5 million people visit the site each year. This popularity is likely to grow. The Project is also a significant historic site, a unique treasure of early twentieth century technology, which is listed on the National Register of Historic Places. The Falls is part of the Snoqualmie Falls Traditional Cultural Property, which was determined eligible for listing on the National Register. Any disposition of the Project other than acceptance of the License places these significant public benefits at risk. Accepting the License preserves and enhances these benefits for the Company's customers and the public at large.

9. For the foregoing reasons, we recommended that the Company accept the License.

B. Appeal the License: As noted above, FERC offered a License that allows the Company to maintain a reliable cost-effective resource for forty more years. In rejecting the alternative of appealing the License, the Company considered the following:

1. The economics of the License, as issued, are favorable compared to the market (i.e., a long-term forecast of short-term prices), and compared to other resource alternatives. See Tabs I and J, referenced above.

2. The terms and conditions of the License are reasonable [redacted]. As noted above, implementation of the License will not, based on the Company's current assessment, present unreasonable financial or regulatory risks.

3. As noted above, a critical factor in evaluating the merits of this License was the proposed instream flows. [redacted]

4. An appeal would carry significant legal and other expenses. [redacted]

5. As noted above, [redacted]

C. Reject the License: In rejecting this alternative, the analysis draws upon the analysis of whether to accept the License, which, as noted above, concludes that the License offers terms and conditions that will enable the Company to maintain a reliable and cost-effective resource for forty more years. In addition, the Company considered the following:

1. Absent the ability to sell the Project to a third-party, rejecting the License would require the Company to negotiate a surrender of its existing FERC license. This would entail some decommissioning costs, which could range from [redacted] million to [redacted] million with mitigation.

2. It is possible that, if the Company rejected the License, a third party might be interested in acquiring the Project either (a) as an ongoing hydropower facility, or (b) for salvage value. In assessing the value of the Project as an ongoing hydropower facility, we assumed that such a purchaser would "step up" in the near term and accept the new License (i.e., a more conservative analysis would look to the value of an unlicensed project, which would be significantly discounted). Staying with the more optimistic assumption, a new purchaser would also need to make the capital investments and incur ongoing O&M as required under the FERC license. A new Purchaser, presuming a merchant role, would likely rely on market based revenues and, consequently, be subject to planning and financing uncertainties inherent with market volatility. These uncertainties would be reflected in the new purchaser's cost of capital and, ultimately, in the discount

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factor applied to the expected value of the energy less the cost incurred to operate the Project. Therefore, a reasonable proxy for the Project value may be a significantly discounted portion of the margin between the present value of the energy and PSE's present value revenue requirement, or free cash flow.

[redacted]

3. Based upon information gathered during the current resource acquisition process, the cost to replace this resource would be greater than the cost of accepting the License. See Tab J and Tab K. Looking ahead, if the License were rejected and the Project sold (or decommissioned), the Company would no longer have this asset in its resource portfolio. As a result, the Company's other resource options (as compared to accepting the forty (40) year License) are likely to be more volatile and are likely to present greater risk.

4. In rejecting this alternative, the economic and resource benefits associated with accepting the License were the key factors bearing upon our recommendations. Our assessment of other factors (e.g., decommissioning costs and gains/losses associated with the potential sale of the Project) was limited to the degree necessary to conclude that these options did not merit a more detailed analysis.

D. Transfer to the Tribe: This alternative has been conceptually explored with the Tribe.

[redacted]

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[redacted]

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6. For the foregoing reasons, the Company concluded that it should accept the License rather than pursuing a near-term initiative to transfer the Project [redacted]

VI. Selection of Alternatives

For the reasons noted above, accepting the License was determined to be the preferred alternative.

VII. Reevaluation

The foregoing analysis and conclusions should be reevaluated, from time to time, if and as circumstances warrant. Matters, in particular, to be considered in the future include:

1. If FERC decides to accept the requests for rehearing filed by the Tribe and/or by American Whitewater Affiliation, the merits of these appeals should be assessed, particularly if and as they might relate to the costs and risks involved with implementing the License order.

2. If the Tribe is still interested in pursuing the transfer option that has been discussed at a conceptual level [redacted]

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cc: Eric Markell
Jennifer O'Connor
George Pohndorf
Wayman Robinette
Ed Schild
Kris Olin
Cary Feldman
Kendall Fisher
Mark Quehrn
Lloyd Pernela

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PER WAC 480-07-160

PUGET SOUND ENERGY

MEMORANDUM

To: **Board of Directors**

From: **Eric M. Markell and Jennifer L. O'Connor**

Date: **July 22, 2004**

Re: **Snoqualmie Falls FERC License Acceptance**

As previously reported to the Board (including at the strategic update last autumn), the Snoqualmie Falls hydro project has been the subject of FERC licensing proceedings since 1991. The new license was issued on June 29, 2004. The terms of the license have been under extensive review and analysis by the Company, and a determination has been made that it is in the Company's best interest to accept the license as offered. This memorandum provides the Board with an update of the processes undertaken and the essential terms of the license. No Board action is required, but this information is being provided in anticipation of our acceptance of the license tomorrow.

Recommendation

The senior officer group reporting directly to Steve Reynolds has recently agreed with the recommendation of the Energy Resources Group that PSE should accept the license as offered by FERC on June 29 and defend it against a probable appeal from the Snoqualmie Tribe ("Tribe").

Updated Analysis of Options

A summary of our updated analysis of the FERC License option, a range of replacement resource alternatives, and a potential asset transfer to Tribe [redacted] is attached as EXHIBIT A.

At this important juncture of commercial decision making, we have reassessed our need for the Project's energy and capacity, and we have updated our capital and operating cost analyses in light of the proposed license articles. We have also considered these outcomes against: (i) the current long-term forecast of short-term market prices at the Mid C trading hub; (ii) current projections of long-term costs of a wind resource; (iii) current projections of long-term costs of a natural gas resource; and (iv) the possible transfer of the Project to the Tribe (or

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a sponsoring federal agency)

The anticipated costs of accepting the license compare favorably to the resource alternatives discussed above, particularly in light of the cost variability (and associated risk) of other resource alternatives. The alternative of transferring the Project to the Tribe (or a sponsoring federal agency)

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Consistent with our on-going analysis of resource needs set forth in the 2003 Least Cost Plan, current analysis from the ongoing Least Cost Planning process continue to confirm the Company's need for the energy we receive from the Project and its related capacity. Under the terms of the proposed license articles, the 40-year levelized cost of the Project are estimated to be per MWHR

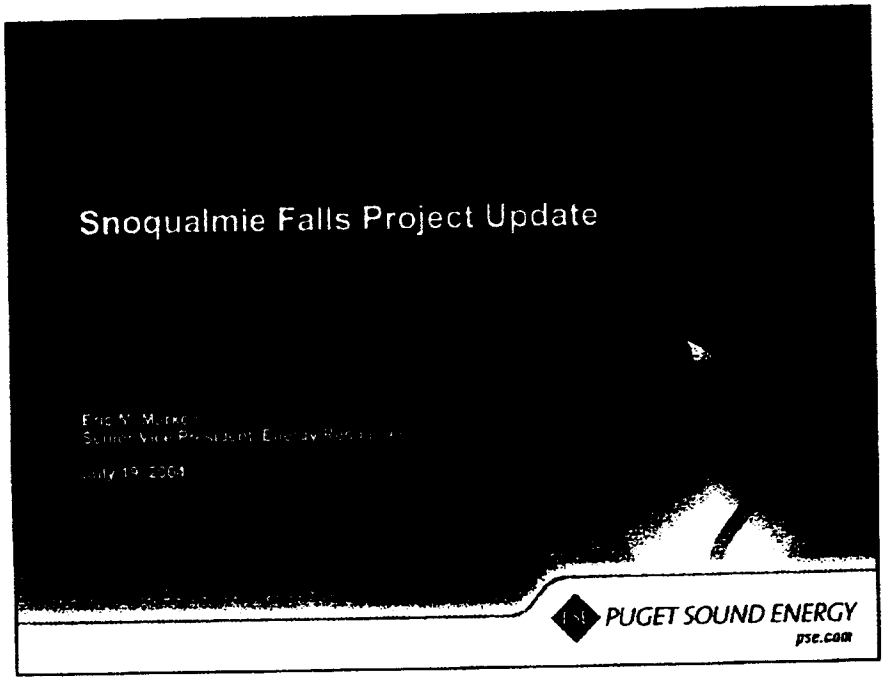
Engineering estimates have been prepared by the Company's outside hydro consulting engineers working with our staff and are predicated on a conceptual level of engineering. Design development, detailed design and the ultimate bidding process will determine ultimate actual costs to implement FERC requirements.

FERC requirements will create not only construction challenges, but operating challenges as well in order to operate the project within the strict new parameters contained in the license articles. Such conditions will require careful design of the physical plant, new operating controls and staff training. This will be a much more complex and less flexible facility to operate under the new license articles, but we believe we can construct and operate the facility within the parameters set forth by FERC in the license.

Comments and Questions

Please let us have any comments and questions you may have.

Thank you.



Snoqualmie Falls, Update

- Original license application filed with FERC November 1991.
- All necessary permits required for FERC to issue new license secured in fall 2003.
- Updated PSE's 1995 'refurbished' license application before FERC in January 2004.
- PSE/DOE successfully defended DOE's Water Quality Certification against the appeal by Snoqualmie Tribe before the Pollution Control Hearing Board in April 2004.
- FERC issued 40-year license on June 29, 2004. 40-year levelized cost is [redacted] per MWh.
- PSE continues discussions with Tribe of Tribe's interest in restoring falls to natural condition.

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Snoqualmie Falls, FERC License

- 2004 License Requirements
  - DOE Water Quality Certificate: ramping criteria, critical flows, continuation flows.
  - Aesthetic flows over falls - vary by night / day, season, weekends/days, holidays.
    - May 16 - May 31: constant 200 cfs; June: constant 450 cfs.
    - Weekends July 1st through August 31st, July 4th and Labor day holiday: constant 200 cfs.
    - Weekdays July 1st through August: 100 cfs daytime and nighttime 25 cfs.
    - September 1st through May 15: 100 cfs daytime and 25 cfs nighttime.
  - Flows for fish: 30 cfs minimum out of tailrace Plant 1.
  - Flows for fish: 300 cfs minimum into Snoqualmie Falls plunge pool (total of Plant 1 tailrace discharge and flow over Falls).
  - Land disturbance activity only between March 1 and September 30th. Most activities require NMFS, USFWS, WDFW, ACOE, DOE, King County, City of Snoqualmie and Snoqualmie Tribe consultation.

Snoqualmie Falls, FERC License

- Capital investment is estimated at [redacted]illion (nominal). Commence construction within two years of license issuance and complete construction within four-years. After requisite consultation, PSE to submit plans to FERC by June 28, 2005.
  - Rubber weirs replace current diversion dam.
  - Replace intakes at Plant 1 & 2. Replace Plant 1 penstocks.
  - Remove 4-units from Plant 1, 5th unit remains for tours. Install two new units for a total of 16-MW.
  - Replace Plant 2 Unit 1 and penstock.
  - Improve tailraces at Plant 1 & 2.
  - Install recreational improvements in Plant 2 area.
  - Contribute to ACOE for 205 flood project: land, road and utility relocation costs.
  - Procure 1.5 acres of riparian habitat.
  - Install Plant 2 emergency intake shutoff valve.
  - Install Plant 2 intake flow bypass system.

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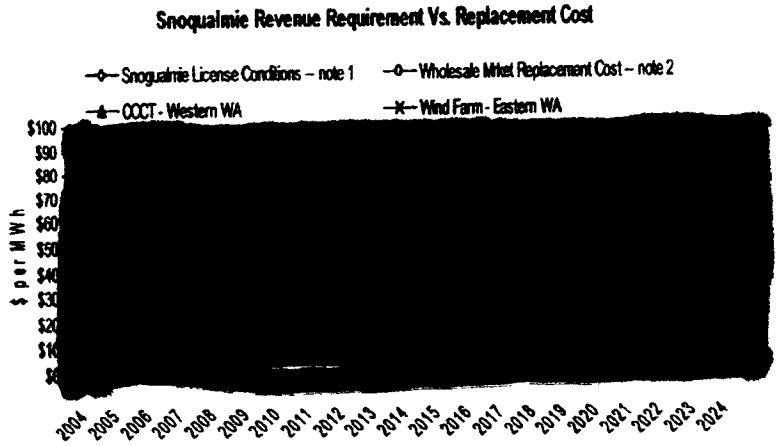
Snoqualmie Falls, FERC License

- **Required Studies, Monitoring and Plans.**

☑ Implement a Public Safety plan. ☑ Flood Management plan. ☑ Critical flow study. ☑ Ramping study. ☑ Dissolved Gas study. ☑ Water Quality compliance. ☑ Oil Spill prevention Control and Containment plan. ☑ Water Quality Protection plan. ☑ Channel Conveyance Capacity study. ☑ Sediment and Erosion Control plan. ☑ Construction Waste Transportation and Disposal plan. ☑ Operational Compliance Monitoring plan. ☑ Tailrace Modifications Effectiveness study. ☑ Annual Mitigation and Monitoring Activities report. ☑ Snoqualmie River Game Fish Enhancement plan. ☑ Terrestrial Resource Management plan. ☑ Recreation Resource Management plan. ☑ Monitoring Recreation Use report. ☑ Implement Programmatic Agreement. ☑ Snoqualmie Falls Project Maintenance Guidelines. ☑ Cultural Resources Mitigation proposal. ☑ Aesthetic Resources plan.

Snoqualmie Falls, FERC License



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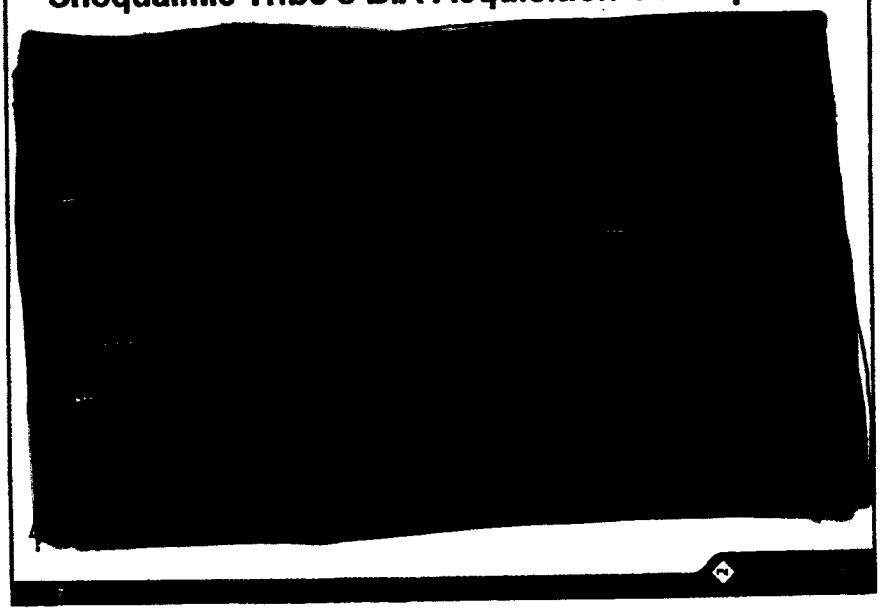
Snoqualmie Tribe's BIA Acquisition Concept



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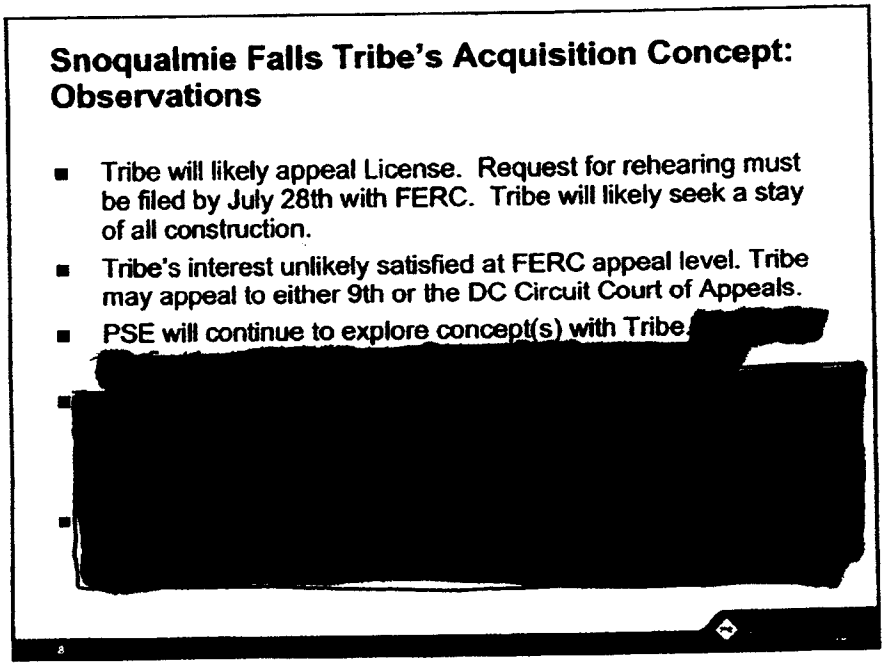
Snoqualmie Falls Tribe's Acquisition Concept: Observations

- Tribe will likely appeal License. Request for rehearing must be filed by July 28th with FERC. Tribe will likely seek a stay of all construction.
- Tribe's interest unlikely satisfied at FERC appeal level. Tribe may appeal to either 9th or the DC Circuit Court of Appeals.
- PSE will continue to explore concept(s) with Tribe.



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Snoqualmie Falls, Key Risks / Impacts

- Mechanical / electrical complexity state-of-art, e.g. flow by-pass valves.
- Operational complexity — ramping, flow continuation, flows over falls.
- Non-compliance risks diminish as improvements are implemented.
- Cost overruns.
- Extended project timelines with Agencies, City, County and Tribe consultation followed by FERC approval process.
- Community acceptance – aesthetics
- O & M costs [redacted] mills/kwh to [redacted] mills/kwh (FERC analysis).

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Snoqualmie Falls, Next Steps

- **June 29th 2004** implement ramping, flows over falls, flows into plunge pool, continuation flows.
- Continue documentation of decisions memo.
- **July 28th 2004** is FERC Appeal deadline.
- By **December 29th 2004**, after 30-days consultation, plans to FERC
  Aesthetics ● Operational Compliance ● River sediment
- By **June 29th 2005**, after 30-days consultation, plans to FERC
  Terrestrial Management ● tailraces ● Plant Two emergency intake shutoff and emergency by-pass valves ● recreation
- By **December 2006** initiate construction and complete by **December 2008**
  Intakes ● Tailraces ● Weir dam with side channel ● penstocks ● decommission units in plant one ● install two power units in plant one and one unit plant two ● plant two emergency by-pass valves and intake shutoff ● recreation improvements.

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Snoqualmie Falls License Recommendations

- Overall Assessment of New License
  - [redacted] per MWh (levelized cost based 40-year license) is [redacted] good value.
  - [redacted] million capital investment [redacted] – cost effective investment for 49 MW run-of-river facility.
  - Historic facility – good public relations – assists in up-river flood control (deflatable weir).
- *Recommend that PSE accept the FERC license for Snoqualmie Falls Project.*
- *PSE by default accepts the License if it does not request a rehearing. ~~No issues in license raise to level of PSE requesting a rehearing.~~*

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