BAKER RIVER PROJECT RELICENSE

Economics/Operations Working Group

October 9, 2002

9:00 AM through 12:30 PM

PSE Office
1700 E. College Way, Mt. Vernon, WA

FINAL MEETING NOTES

The Economics/Operations Working Group Mission Statement:

"To ensure that alternative project proposals, operations and emergency plans for the Baker River Project and its components provide for:

1. *Public health and safety; and*
2. *Thorough analysis and evaluation of the economic costs and benefits (including non-market and economic impacts.)"*

Team Leader: Lloyd Pernela (PSE), 425-462-3507; lloyd.pernela@pse.com

Note: Please let the team leader know if you are unable to attend a meeting. If something comes up at the last minute, please call Lyn the day of the meeting. Lyn's cell phone is 425-890-3613.

PRESENT

Lloyd Pernela, Joel Molander (by phone), Bob Barnes, Kris Olin (PSE); Margaret Beilharz, Jon Vanderheyden, Rod Mace (USFS); Stan Walsh (Skagit Systems Cooperative); Ken Brettmann (U.S. Corps of Army Engineers); Donald S. Dixon, PE (Skagit County Public Works Department); Mark Killgore (Louis Berger Group); Jerry Louthain (Economic Engineering Services representing Skagit PUD, City of Anacortes and Town of Concrete); Joyce Liu (Powel Group, Inc.); Bruce Freet (Environmental Agreement); Mary Jean Bullock, note-taker and Lyn Wiltse, facilitator (PDSA Consulting Inc.)

INTRODUCTIONS

We welcomed first-time attendees: Don Dixon, Joyce Liu, Bruce Freet, and Ken Brettmann. We were also pleased to have Margaret Beilharz join us in person!

DATES OF FUTURE MEETING DATES/LOCATION
November 13th, December 11th at PSE Office, 1700 East College Way, Mount Vernon from 9:00 a.m. to noon.

NEW ACTION ITEMS

- ALL: For hydrologic baselines: review hydrologic years in the low, medium and high clusters with resource folks (working groups) to determine which particular year(s) within a cluster helps them resolve the differing interests associated with high/medium/low years.
- Bob: For baseline, distribute copies of hydrologic graphs for candidate years in clusters to share with members of all Working Groups. Also post graphs on PSE's website.
- Ken: Find out what the actual flood control authorization says.
- Don: Get Lloyd a copy of draft economic baseline report.
- Ken: Check with the Corps folks in Portland to see if they are re-evaluating the flood control rule curve.
- Lloyd: Send out revised list of Issues to be solved by Economics Working Group
- Lloyd: Post Ken's presentation on Web.

AGENDA
October 9, 2002 at PSE Office, 1700 E. College Way, Mount Vernon
9:00 to 12:00

1. Introductions
2. Review/revise minutes and agenda
3. Action Items
4. Presentation by ACOE on Baker/Skagit flood program- Ken Brettmann
5. Discussion of approach to analyzing flood control and development of options
6. PMEs: Review issue list and begin to brainstorm possible PMEs
7. Make final decisions re: hydrology baselines to be utilized in analyzing project proposals
8. Demonstration of HYDROPS output screen formats – Joyce Liu.
9. Prepare agenda for November 13th meeting (i.e., discussion of approach to flood analysis)
10. Evaluate meeting

REPORT ON OLD ACTION ITEMS, April 10 Meeting:

- ALL: Review the draft list of issues developed by the teamlet (see below). Reviewed issue lists from other Working Groups to identify missing issues (i.e., the miscellaneous "other" that the Economics/Operations Working Group may address).
- Lloyd et al.: Drafted list of issues for this group, (framed as problems to be solved), and sent out to members for review prior to our October meeting.
- Bob Barnes convened a teamlet to propose hydrology baselines (Margaret and Bob Barnes) before October 9th meeting.

ARMY CORP OF ENGINEER PRESENTATION ON BAKER/SKAGIT FLOOD PROGRAM
Ken Brettmann, hydrologist for the Army Corps of Engineers, opened by explaining the integral relationship the Corps has with PSE for providing flood control. House and Senate resolutions authorized current flood control on the Baker River in May 1977. It would take an act of Congress to remove, or in all likelihood, modify the requirement for flood control.

The current license Article 32 specifies that Puget provide upto 100,000 acre-feet of flood storage with the condition that Puget be fully compensated for storage provided above 16,000 acre-feet. The current flood control contract between the Corps, PSE, and BPA specifies 58,000 acre-feet of flood control storage with compensation for lost generation (this is in addition to the 16,000 acre-feet of flood control storage specified in the license). Puget is compensated 7,000 MWh annually, which equates to a $275,000 average cost over the past 13 years. In 1976 this arrangement had a benefit cost ratio of 2.2.

Since 1980, a total of 74,000 acre-feet of annual flood storage was provided via the FERC license and under a 20-year contract which expired in 2000. A new annual renewable contract was negotiated and will be used until the new license is issued. Since that time, PSE has been required to have the reservoir at or below 720.7 elevation (16,000 acre-feet) by November 1st and at or below 707.9 (74,000 acre feet) by November 15th each year through March 1st.

The main focus of the flood control operation is to limit property damage at communities, e.g. Sedro-Woolley, Burlington and Mt. Vernon and lands downstream. The Corps estimates that flood control at Upper Baker resulted in prevention of flood damages of $20M in November of 1990 and $50M in November of 1995. Since 1977 the Baker Project has saved over $90-million in flood damage. The probability of exceeding the levee capacity is 5% with flood control and about 10% without flood control. The Corps takes control of Upper Baker reservoir elevation and outflow when the natural (unregulated) flow in the Skagit River is forecast to exceed 90,000 cfs at the Concrete gage. At flood stage the unregulated flows of the Sauk River alone can cause the flows on the Skagit to exceed flood stage.

His presentation addressed these four areas:

- Why flood control?
- How dams are managed for flood control
- Effects of flood control – EIS dated September 15, 1976
- Future intent

His presentation is on the Baker Relicensing Website.

DISCUSSION OF APPROACH TO ANALYZING FLOOD CONTROL AND DEVELOPMENT OF PROJECT OPTIONS

The Corps will propose that flood control remain at current levels. Their interest is to continue to provide at least the same level of flood protection as they are currently providing. They also want to minimize costs to the Federal government for flood control at the Upper Baker Project.

Skagit County wants to see the same or more storage provided for flood control.

We, as members of the Economics/operations Working Group, want to verify that the reservoir levels set by the Corps in 1976-77 are still appropriate. The stage damage-curve is changing. We also want to take into account the effects of changes in flood frequency analyses.

Downstream property owners are interested in maintaining at least the same level of flood protection.

Next steps: Model reservoir levels that would maximize other resources (recreational and ecological, etc.) and then see how those levels might affect flood control. Might there be benefits associated with degrees

of flood control? It may be helpful to set some reservoir baselines as they relate to flood control. We might consider an earlier/ later drawdown, a deeper drawdown, and an earlier/ later return to normal operations.

MAKE FINAL DECISIONS RE: HYDROLOGY BASELINES TO BE UTILIZED IN ANALYZING PROJECT PROPOSALS

Bob shared what the teamlet came up with in order to determine what constitutes a high/medium/low flow year. The teamlet proposes we run all years and choose three cluster of years based on a combination of economics and hydrology, where the economics are basically the same (such economics ceases to be an issue). They created an economics exceedance table where:

High: 76 – 95% exceeding
Med.: 40 – 60% exceeding
Low: 5 – 25% exceeding

Bob distributed a handout of Energy Inflow Analysis done by Powel along with an economics exceedance table he created.

They suggest we choose from among the years listed in each of the clusters below:

Low – 1952, 57, 70, 92
Med. – 1946, 55, 62, 66, 86
High – 1954, 68, 72

The co-variance among the years in each cluster is less than 1% (not statistically significant).

PSE will post the hydrology graphs associated with each of the candidate years on their website. Bob will also make hard copies to distribute to members in each of the resource Working Groups. During their meetings this month we will ask them to select which years help them resolve the differing interests they have for high/medium/low years. We will review their selections at our November meeting.

DEMONSTRATION OF HYDROPS OUTPUT SCREEN FORMATS

Bob Barnes and Joyce Liu walked us through some of the new-output screens for the HYDROPS model. They showed how the model treats hard and soft constraints. Rod Mace reported that Stetson Engineering is just now beginning their review of the model. Due to technical difficulties (firewall), they have just recently been able to establish a connection with the Powel Group up in Victoria. We hope to hear their report at our next meeting in November.

REVIEW ISSUE LIST AND BEGIN TO BRAINSTORM POSSIBLE PMEs

This discussion was deferred to the next meeting. Lloyd will distribute an updated list of issues and interests for our review. This list was updated to include operations-related issues that were raised two years ago by member of the Hydrology Working Group. The hydrology group was subsequently incorporated into the Economics/Operations and Aquatics Working Group.

HANDOUTS

- Powel Job Number 2116.3 Summary of output of economic value for all years (Post on web)
- Statistical analysis of High/Medium /Low Flows based on economics (Post on web)

NOT HANDED OUT AND TO BE POSTED ON THE WEB

- USACE presentation on flood control
- Hydrologic graphs for clusters of high/medium/low years provided by Bob Barnes

PARKING LOT

- Forest Service Watershed Analysis
- New Baker EAP Inundation maps are available at end October 2002.
- Consider who will be the number cruncher for this team: PSE? Other?
- GANNT chart with due dates, etc.
- Presentations:
  - Wild and scenic river 101
  - ~~Flood Plain Values 101~~
  - Fisheries/Hydraulics 102
  - ~~Economic Model~~

EVALUATION OF THE MEETING

We elected to skip the evaluation in the interest of time.

What's Hot?

- Flood control

TENTATIVE AGENDA FOR NEXT MEETING

November 13, at PSE Office, 1700 E. College Way, Mount Vernon
9:00 to 12:00

1. Introductions
2. Review/revise minutes and agenda
3. Action Items
   - Baseline teamlet report.
   - Discussion of baseline hydrology years (feedback from Working Groups)
4. Discussion of approach to analyzing flood control and development of options
5. HYDROPS update
6. PMEs: Review issues list and begin to brainstorm possible PMEs
7. Prepare agenda for December 11th meeting
8. Evaluate meeting