



BAKER RIVER PROJECT RELICENSE

Economics/Operations Working Group

May 7, 2003

9:00 a.m. – 2:00 p.m.
Cotton Tree Inn
Mt. Vernon, WA

FINAL MEETING NOTES

The Economics 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 prior to the meeting. Lyn's cell phone is 425-890-3613.

PRESENT

Lloyd Pernela and Paul Wetherbee (PSE), Linda Lehman, Steve Hocking, and Keith Brooks (FERC) by phone, Bob Helton (interested citizen), Chuck Howard (Independent consultant) by phone, Ken Brettmann (USACE), Stan Walsh (Skagit Systems Cooperative), Dave Brookings (Skagit County Public Works Department), Gary Sprague (WA Dept. Fish & Wildlife), Chuck Steele (WA Dept. of Ecology), Margaret Beilharz (USFS) on phone, Mark Killgore (Louis-Berger Group) by phone, Mary Jean Bullock, note-taker, and Lyn Wiltse, facilitator (PDSA Consulting Inc.)

The next CROSS RESOURCE WORKSHOP MEETING will be MAY 14, 8:00 – 5:00 at the EMBASSY SUITES in LYNNWOOD. Please notify Connie Freeland (425-462-3556) if you have not yet confirmed your participation.

DATES OF FUTURE MEETING DATES/LOCATION

June 11, July 9, August 13, September 10, October 8, November 12, December 10, 2003 at PSE Office, 1700 East College Way, Mt. Vernon.

AGENDA

May 7, 2003 at Mt. Vernon, WA

9:00 to 2:00 PM

- 9:00 - 9:05 Introductions
- 9:05 – 9:10 Review/revise minutes and agenda
- 9:10 – 10:00 HYDROPS demo and TST Report
- 10:10 – 10:15 Review Action Items
- 10:15 – 10:20 Prep for May 14 Cross Resource Workshop
- 10:20 – 10:35 PDEA Update
- 10:35 – 11:00 Status of PMEs
 - Status of 5.01: CZMA, 5.02: Instream Flows and Water Rights, 5.03: Submerged Lands, 5.07 Drought conditions
- 11:00 – 12:00 5.06: Flood Control (management)
- 12:00 – 12:15 Break/Lunch
- 12:30 – 1:00 Review Study Requests
 - R-01 –Low Flow Augmentation from Baker Project – Continuing discussion
 - R-03 –Examination of Spawning and Incubation Flows in the Skagit River below the Baker Confluence during Brood year 2000
- 1:00 – 1:10 Set June 11, 2003 agenda (at PSE Office in Mt. Vernon at USFS)
- 1:10 – 1:15 Evaluate Meeting
 - What's hot?
 - Studies report for Baker Solution Team

NEW ACTION ITEMS

- Lloyd: Set up presentations on how PSE operates/traders and planners, etc for June/July timeframe.
- Lloyd: Set up a presentation on PSE Least Cost Plan with planner(s).
- Dave: By May 10 send to Lloyd a summary of what is decided between the Corps and Skagit County at the May 9th meeting so he can distribute to Working Group members. Also send, if appropriate, a revised flood control study request for discussion at our June 11th meeting.
- ALL: Review PDEA to see that issues have been adequately identified and that the affected environment has been adequately described. Give feedback to Mark Kilgore prior to our June 11 meeting.
- Lloyd: Invite Paul to do a more in depth demo of HYDROPS from 1:00 to 2:00 at the end of our June 11 meeting.

INTRODUCTIONS

We welcomed Chuck Steele of DOE, sitting in for Rod Sakrison.

HYDROPS DEMO AND TECHNICAL SCENARIO TEAMLET REPORT

Paul distributed the Specification Matrix developed in the USFS review of HYDROPS (Revised by Stetson on January 13, 2003 and Comments by PSE/Powel on January 24, 2003.) He also distributed the updated version of the Technical Scenario Teamlet (TST) Functional Flow Diagram (Version 2.0 –May 7, 2003) and the Discussion of Recent Conditions (PRE-Interim Protection Plan) which was revised based on a 4/25 TST discussion.

Paul reported that currently 85-90% of the programming for the model has been done. Programming to allow for multi-year runs (a recent request for additional capability in the model) is still under way. Paul said he anticipated receiving the final beta version of the model for additional testing May 7, 2003.

The HYDROPS Demonstration involved three areas: 1. Set up – Descriptions of Input Screens, Output Screen available in Reports; 2. Runs; 3. Review output. The operator can set hard and soft constraints for desired runs. The TST is developing standardized input/output for model runs.

The TST has already met several times since its inception a month ago. One of their next major tasks will be establishing default ranking of soft constraints to be used for comparative purposes. Paul reported that the May 9th TST meeting will be cancelled so he can concentrate on ensuring that the software is complete and ready for our purposes.

PSE anticipates the model should be beta tested and completely operational by the end of May! Starting in June, let Paul know if you would like to schedule some time with the model at PSE offices in Bellevue.

5.06 FLOOD CONTROL

Dave reported that the May 2nd Skagit Flood Control Executive Committee meeting was cancelled. Another meeting has been scheduled for May 8th with policy level folks of Skagit County and the USACE to discuss the issue of flood control including at Baker Project.

At the last Solution Team meeting, it was agreed that PSE is not a flood control management entity and that the responsibility for this lies with the Corp of Engineers.

Lloyd distributed a copy of the USACE proposed article 32. Status quo calls for a 16,000 acre feet base and 58,000 additional for a total of 74,000 acre feet. There is flexibility at the direction of the District Engineer to go to 100,000 acre-feet and modify the reservoir rule curve, if a cost-benefit analysis so indicates. The USACE proposes that this article be included in the new license. Skagit County may present its own draft for our consideration. The issue of compensation needs to be worked out between PSE and the USACE. FERC is neutral on this, as long as the current flood storage occurs.

The role of FERC and the USACE ~~around~~ *in* possibly increasing flood control *at Baker Project* should become clearer in the next few couple of months.

In the meantime, Skagit County is embarking on a serious study effort of this issue. Dave reported that they would like to integrate this effort into this re-licensing process to the extent possible. This schedule is extremely tight. They have retained a specialist attorney, Craig Gannett *{Davis Wright Tremaine}*. Dave will send his contact information to Keith Brooks. The status of Skagit County's Study Request on flood control will be determined at our June meeting.

ENERGY VALUES

Lloyd showed a copy of PSE's Draft Least Cost Plan. The final version of this document is available on WWW.PSE.com/account/rates/rates.html. This plan was put together by PSE for the WUTC. It covers both the gas and electric side of PSE's business, looking at short, medium and long term forecasts, supply technologies, etc.

Currently Hydro constitutes 40% of PSE's energy supply. Baker represents 10% of that Hydro.

PSE is looking at acquiring a couple of combustion turbines to add to their portfolio. Their existing portfolio is 2,300 megawatts. They estimate the energy demand to increase by about 1.4% a year. Lloyd distributed a graph showing the Aurora Market Power Price Forecast (dated March 31, 2003) for the Least Cost Plan.

The Least Cost Plan developed PSE's projected peak and off peak power values *that may vary by month*. Lloyd indicated that PSE would use these specific power values in the economic analysis leading to preferred alternative.

Mark reported those numbers are very consistent with FERC's mandated approach for doing the economic analysis. He also stated that the Least Cost Plan will be a significant reference for Exhibit H of the license.

Lloyd explained that the Plan also reflects PSE policy to consider alternative energy sources (e.g., wind) and conservation.

REPORT ON OLD ACTION ITEMS

- ☒ Lloyd: Gave Dave B. contact information for those who should receive PIE flood control report.
- ☒ Lloyd: Distributed PIE report to Working Group members.
- ☒ Lloyd/Mark: Drafted drought PME and distributed to Working Group members to review.
- ☒ Paul: Emailed out handout on Aquatics Working Group Run Requests to team members.
- ☒ Lyn: Added time frames to May 7 agenda.
- ☒ All: Study A-24 review period was extended to May 22nd. Comments to Sue Madsen at R2.

PREPARATION FOR MAY 14 CROSS RESOURCE WORKSHOP

Paul agreed to present changes made in the PME since the initial draft proposed actions at the May 14 workshop. The morning of the workshop will be devoted to these updates from each of the resource working Groups. The afternoon will be devoted to discussing how to resolve apparent cross-resource conflicts.

PDEA UPDATE

Mark reported that the initial, partial PDEA was sent out for review last week. Much of the analysis from the HYDROPS runs will be included in the fall version of the PDEA, along with the economics, *assuming runs are available in June*.

PMEs

5.01-CZMA

This is not an actual PME. It is a checklist of what needs to be done. We will revisit this over time.

5.02 INSTREAM FLOWS/WATER RIGHTS

The legality of this is currently being debated in external forums. We will discuss this topic at future meeting(s). It will probably not be a PME. R-E01- Low Flow Augmentation from Baker Project.

~~5.03 SUBMERGED LANDS~~

Lloyd reported that we are waiting for DNR in Olympia to engage in discussions on this. There remain questions about ownership of the Baker riverbed and Baker lakebed and associated NPR fees. This is a

requirement of the licensee to control *{own or have secured perpetual easements}* the inundated *lands* and other lands *within the project boundary*. Consequently this will not be a PME.

5.07 DROUGHT CONDITIONS

Mark put together a white paper on the issue of dependable capacity, which kicks in during drought conditions. It has been distributed to the TST members for review. We will get an update at our June meeting. If, after it is discussed at the next TST meeting, it is deemed appropriate, this paper (as revised by the TST) will be distributed to this Working Group. The sense is that a drought PME is not needed.

STUDY REQUESTS

ER03-SPAWNING AND INCUBATION FLOWS

This is a complex issue that will affect Operations. We are most concerned about Skagit River flows. The Baker project has limited influence on these. Stan sees this Study Request as having relevance in both this Working Group and the Aquatics Working Group. He will bring it up for discussion at the May 8, Aquatics Working Group meeting and we will discuss its status at our June 11 meeting.

HANDOUTS (bolded handouts will be posted on the website)

- Specification for Operations Model to be Used in Baker Project Re-licensing and Current Capability of HYDROPS to Meet the Specification (Revised by Stetson on January 13, 2003- Comments by PSE/Powel on January 24, 2003.
- Technical Scenario Teamlet (TST) Functional Flow Diagram (Version 2.0- 05-07-03)
- Discussion Recent Conditions (Pre-Interim Protection Plan). Revised based on 4/25-teamlet discussion.
- USACE DRAFT- November 19, 2002 – Article 32
- PSE Hydroelectric Reports: FERC Form 1 for years 1997-2002
- Aurora Market Power Price Forecast- Source: Draft Least Cost Plan, March 31, 2003
- RE03- Baker River Project Re-licensing Study Request

PARKING LOT

- New Baker EAP Inundation maps are available at end October 2002
- Consider who will be the number cruncher for this team: PSE? Other?
- Presentations:
 - USFS Baker Watershed Analysis
 - Wild and scenic river 101 Jon Vanderheyden
 - Fisheries/Hydraulics 102
 - FEMA
- How will we define and share economic analysis (methods, assumptions re: unit costs, etc.) across Working Groups?

EVALUATION OF THE MEETING

Well Done

- Lunch was outstanding!
- Meeting was well run
- FERC participation
- Finished early

Change for Next Time

- Needed more time for HYDROPS discussion
- Better phone technology?

What's Hot?

- Flood control
- Getting draft fall EA out with proper content
- 11 months ...and counting!

Study Report for Solution Team

- Flood Control and Spawning Incubation Flow Study Requests on hold until our June 11 meeting.

TENTATIVE AGENDA FOR NEXT MEETING

June 11, 2003 at PSE Office, Mt. Vernon, WA

9:00 to 2:00 PM

- 9:00 - 9:05 Introductions
9:05 - 9:10 Review/revise minutes and agenda
9:10 - 9:15 Review Action Items
9:15 - 9:35 HYDROPS and TST Update
9:35 - 9:50 Debrief of May 14 Cross Resource Workshop: Next steps
9:50 - 10:15 Role of this Working Group
10:15 - 10:30 PDEA Update
10:30 - 10:45 Status of PMEs
~~5.01: CZMA, 5.02: Instream Flows and Water Rights, 5.03: Submerged Lands.~~
10:45 - 11:00 Break
11:15 - 11:45 PME 5.06: Flood control (COE proposal and current Article 32)
Update on USACE/Skagit County flood coordination and integration into this process?
R-E02 Skagit County Flood Control Study Request
11:45 - 12:15 Review Study Requests:
 - R-E01 -Low Flow Augmentation from Baker Project - Continuing discussion
 - R-E03 -Examination of Spawning and Incubation Flows in the Skagit River below the Baker Confluence from 1990 to present.
12:15 - 12:30 Lunch
12:30 - 12:45 *Update on dependable capacity.*
12:45 - 12:50 Set July 9, 2003 agenda (at Mt. Vernon or at the USFS in Mountlake.)
12:50 - 1:00 Evaluate Meeting
 - What's Hot?
 - Studies Report for Baker Solution Team
1:00 - 2:00+ HYDROPS Demo (for those who are interested)

Name of Respondent Puget Sound Energy, Inc.		This Report Is: (1) <input type="checkbox"/> An Original (2) <input checked="" type="checkbox"/> A Resubmission	Date of Report (Mo. Day, Yr.) 04/30/98	Year of Report Dec. 31, 1997
HYDROELECTRIC GENERATING PLANT STATISTICS (Large Plants)				
<p>1. Large plants are hydro plants of 10,000 Kw or more of installed capacity (name plate ratings).</p> <p>2. If any plant is leased, operated under a license from the Federal Energy Regulatory Commission, or operated as a joint facility, indicate such facts in a footnote. If licensed project, give project number.</p> <p>3. If net peak demand for 60 minutes is not available, give that which is available, specifying period.</p> <p>4. If a group of employees attends more than one generating plant, report on line 11 the approximate average number of employees assignable to each plant.</p>				
Line No.	Item (a)	FERC Licensed Project No. 2150 Plant Name: LOWER BAKER (b)	FERC Licensed Project No. 2150 Plant Name: UPPER BAKER (c)	
1	Kind of Plant (Run-of-River or Storage)	Storage	Storage	
2	Type of Plant Construction (Conventional or Outdoor)	Conventional	Conventional	
3	Year Originally Constructed	1925	1959	
4	Year Last Unit was Installed	1960	1959	
5	Total installed Capacity (Generator Name Plate Rating in MW)	71.40	90.70	
6	Net Peak Demand on Plant-Megawatts (60 minutes)	71	103	
7	Plant Hours Connected to Load	7,730	7,828	
8	Net Plant Capability (In megawatts)			
9	(a) Under the Most Favorable Oper. Conditions	71	103	
10	(b) Under the Most Adverse Oper. Conditions	71	103	
11	Average Number of Employees	10	11	
12	Net Generation, Exclusive of Plant Use-KWh	475,857,440	395,741,740	
13	Cost of Plant:			
14	Land and Land Rights	\$521,202	\$1,262,830	
15	Structures and Improvements	2,507,000	3,934,187	
16	Reservoirs, Dams, and Waterways	10,340,696	42,757,975	
17	Equipment Costs	4,847,815	10,832,574	
18	Roads, Railroads, and Bridges	66,170	621,210	
19	TOTAL Cost (Enter Total of lines 14 thru 18)	\$18,282,883	\$59,408,776	
20	Cost per KW of Installed Capacity (Line 5)	\$256.0627	\$655.0030	
21	Production Expenses:			
22	Operation Supervision and Engineering	65,853	103,571	
23	Water for Power Fuel	1,665	1,609	
24	Hydraulic Expenses	190,430	326,797	
25	Electric Expenses	91,961	118,209	
26	Misc. Hydraulic Power Generation Expenses	187,114	69,872	
	Rents			
	Maintenance Supervision and Engineering	52,993	42,684	
	Maintenance of Structures	45,332	12,550	
	Maintenance of Reservoirs, Dams, and Waterways	18,078	279,130	
	Maintenance of Electric Plant	47,894	87,878	
32	Maintenance of Misc. Hydraulic Plant	121,514	184,517	
33	Total Production Expenses (Total lines 22 thru 32)	\$822,834	\$1,226,817	
	Expenses per net KWh	\$0.0017	\$0.0031	

Name of Respondent Puget Sound Energy, Inc.	This Report Is: (1) <input checked="" type="checkbox"/> An Original (2) <input type="checkbox"/> A Resubmission	Date of Report (Mo, Da, Yr) 04/30/1999	Year of Report Dec. 31, 1998
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2	Plant Construction type (Conventional or Outdoor)	Conventional	
3	Year Originally Constructed	1925	
4	Year Last Unit was Installed	1960	
5	Total installed cap (Gen name plate Rating in MW)	71.40	
6	Net Peak Demand on Plant-Megawatts (60 minutes)	72	
7	Plant Hours Connect to Load	5,887	
8	Net Plant Capability (in megawatts)	0	
9	(a) Under Most Favorable Oper Conditions	71	
10	(b) Under the Most Adverse Oper Conditions	71	
11	Average Number of Employees	9	
12	Net Generation, Exclusive of Plant Use - Kwh	339,178,240	
13	Cost of Plant	0	
14	Land and Land Rights	698,457	
15	Structures and Improvements	2,509,570	
16	Reservoirs, Dams, and Waterways	10,241,899	
17	Equipment Costs	4,909,769	
18	Roads, Railroads, and Bridges	66,170	
19	TOTAL cost (Total of 14 thru 18)	18,425,865	
20	Cost per KW of Installed Capacity (line 5)	258.0653	
21	Production Expenses	0	0
22	Operation Supervision and Engineering	54,711	201,907
23	Water for Power	1,671	1,604
24	Hydraulic Expenses	182,061	532,039
25	Electric Expenses	113,948	178,709
26	Misc Hydraulic Power Generation Expenses	255,269	123,957
27	Rents	0	0
28	Maintenance Supervision and Engineering	42,462	28,626
29	Maintenance of Structures	47,667	
30	Maintenance of Reservoirs, Dams, and Waterways	155,749	
31	Maintenance of Electric Plant	71,810	
32	Maintenance of Misc Hydraulic Plant	115,020	
33	Total Production Expenses (total 22 thru 32)	1,040,368	
34	Expenses per net KWh	0.0031	

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5	Total installed cap (Gen name plate Rating in MW)	71.40	90.70
6	Net Peak Demand on Plant-Megawatts (60 minutes)	72	106
7	Plant Hours Connect to Load	7,607	6,572
8	Net Plant Capability (in megawatts)	0	0
9	(a) Under Most Favorable Oper Conditions	71	103
10	(b) Under the Most Adverse Oper Conditions	71	103
11	Average Number of Employees	11	3
12	Net Generation, Exclusive of Plant Use - Kwh	480,930,600	445,139,560
13	Cost of Plant	0	0
14	Land and Land Rights	698,457	1,262,830
15	Structures and Improvements	2,773,786	4,437,423
16	Reservoirs, Dams, and Waterways	10,311,760	44,390,157
	Equipment Costs	5,794,012	11,282,103
18	Roads, Railroads, and Bridges	66,170	645,095
19	TOTAL cost (Total of 14 thru 18)	19,644,185	62,017,608
20	Cost per KW of Installed Capacity (line 5)	275.1286	683.7664
21	Production Expenses	0	0
22	Operation Supervision and Engineering	50,244	136,242
	Water for Power	0	0
	Hydraulic Expenses	217,241	731,419
	Electric Expenses	144,025	151,428
	Misc Hydraulic Power Generation Expenses	487,129	171,600
	Rents	0	0
	Maintenance Supervision and Engineering	11,114	37,216
	Maintenance of Structures	124,473	141,774
	Maintenance of Reservoirs, Dams, and Waterways	109,159	34,098
	Maintenance of Electric Plant	54,711	28,009
	Maintenance of Misc Hydraulic Plant	186,850	339,068
	Total Production Expenses (total 22 thru 32)	1,384,946	1,770,854
	Expenses per net KWh	0.0029	0.0040
		480,930,600 445,139,560 275.1286 683.7664	

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3	Year Originally Constructed	1925	1959
4	Year Last Unit was Installed	1960	1959
5	Total installed cap (Gen name plate Rating in MW)	71.40	90.70
6	Net Peak Demand on Plant-Megawatts (60 minutes)	72	106
7	Plant Hours Connect to Load	6,746	3,710
8	Net Plant Capability (in megawatts)		
9	(a) Under Most Favorable Oper Conditions	71	103
10	(b) Under the Most Adverse Oper Conditions	71	103
11	Average Number of Employees	11	3
12	Net Generation, Exclusive of Plant Use - Kwh	349,677,400	330,346,130
13	Cost of Plant		
14	Land and Land Rights	668,457	1,262,830
15	Structures and Improvements	2,760,594	4,476,130
16	Reservoirs, Dams, and Waterways	10,942,388	44,394,578
17	Equipment Costs	5,832,430	11,231,254
18	Roads, Railroads, and Bridges	66,169	645,095
19	TOTAL cost (Total of 14 thru 18)	20,300,038	62,009,887
20	Cost per KW of Installed Capacity (line 5)		
21	Production Expenses		
22	Operation Supervision and Engineering	123,601	117,844
23	Water for Power	0	0
24	Hydraulic Expenses	209,777	904,567
25	Electric Expenses	181,576	143,394
26	Misc Hydraulic Power Generation Expenses	351,921	116,086
27	Rents	0	0
28	Maintenance Supervision and Engineering	20,931	32,193
29	Maintenance of Structures	164,361	122,698
30	Maintenance of Reservoirs, Dams, and Waterways	86,891	66,634
31	Maintenance of Electric Plant	138,820	67,358
32	Maintenance of Misc Hydraulic Plant	320,047	324,007
33	Total Production Expenses (total 22 thru 32)	1,597,925	1,894,801
34	Expenses per net KWh	0.0046	0.0057

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3	Year Originally Constructed	1925	1959		
4	Year Last Unit was Installed	1960	1959		
5	Total installed cap (Gen name plate Rating in MW)	71.40	90.70		
6	Net Peak Demand on Plant-Megawatts (60 minutes)	77	108		
7	Plant Hours Connect to Load	6,746	3,710		
8	Net Plant Capability (in megawatts)				
9	(a) Under Most Favorable Oper Conditions	71	103		
10	(b) Under the Most Adverse Oper Conditions	71	103		
11	Average Number of Employees	11	3		
12	Net Generation, Exclusive of Plant Use - Kwh	233,138,380	296,812,324		
13	Cost of Plant				
14	Land and Land Rights	698,457	1,262,830		
15	Structures and Improvements	2,788,967	4,740,324		
16	Reservoirs, Dams, and Waterways	12,648,620	44,411,264		
17	Equipment Costs	13,392,656	11,259,771		
18	Roads, Railroads, and Bridges	66,169	645,085		
19	TOTAL cost (Total of 14 thru 18)	29,594,869	62,319,284		
20	Cost per KW of Installed Capacity (line 5)	414.4940	687.0924		
21	Production Expenses				
22	Operation Supervision and Engineering	146,042	72,058		
23	Water for Power	0	0		
24	Hydraulic Expenses	134,232	478,517		
25	Electric Expenses	164,280	145,985		
26	Misc Hydraulic Power Generation Expenses	486,474	149,470		
27	Rents	0	0		
28	Maintenance Supervision and Engineering	23,663	9,186		
29	Maintenance of Structures	97,453	63,997		
30	Maintenance of Reservoirs, Dams, and Waterways	28,823	126,942		
31	Maintenance of Electric Plant	47,743	33,473		
32	Maintenance of Misc Hydraulic Plant	83,480	173,395		
33	Total Production Expenses (total 22 thru 32)	1,212,170	1,253,033		
34	Expenses per net KWh	0.0052	0.0042		

