



US Army Corps
of Engineers

Directorate of Civil Works
Operation Division

SOUTHWESTERN FEDERAL HYDROPOWER CONFERENCE

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USACE Cost
Benchmarking
and Other Budget
Development Miscellany



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Briefing Objectives

- **USACE Cost Benchmarking Initiative**
- **Overview of the Hydropower Program Development**
- **What's New for FY2010 Program Development**



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Vision Statement

**Be the premier stewards of entrusted
hydropower resources**





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Mission Statement

Provide reliable hydroelectric power services at the lowest possible cost, consistent with sound business principles, in partnership with other Federal hydropower generators, the Power Marketing Administrations, and Preference Customers, to benefit the Nation.



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Program Development Drivers

- President's Management Agenda
 - ◆ PART
 - ◆ AEI
- ASA(CW) Guidance
- Civil Works Strategic Plan
 - ◆ Asset Mgt/Reliability
- Program Performance Measures



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Alignment of Program Objectives, Performance Measures & Budget Ranking Criteria

Civil Works Strategic Plan

<u>Program Objectives</u>	<u>Performance Measures</u>	<u>Ranking Criteria</u>
1. Invest in hydropower rehabilitation projects when the benefits exceed the costs.	- Remaining BCR (project specific measure).	- Remaining Benefit to Remaining Cost Ratio. - Annual Net Benefits.
2. Future: Invest in environmentally sustainable hydropower infrastructure improvements where economically justified.	(Future Development: DO Improvements Fish Mortality Reduction)	- Megawatt-Years of Benefit for Generation Improvement.
3. Provide reliable power. 4. Provide peaking power. 5. Maintain capability to provide power efficiently.	- Forced Outage Rate (FOR). - Physical condition/failure risk index.	- MW-Yrs of Benefit Life Extension Remove De-Rates Repair Outages - Improve Asset Condition



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Program Development Drivers

- **Sustain Minimum Operating Staff**
 - ◆ Worker & Public Safety
 - ◆ Legal Mandates & Treaty Requirements
- **Perform Routine Maintenance**
 - ◆ Preventive Maintenance
 - ◆ Routine Materials & Supplies
- **Perform Non-Routine Maintenance**
 - ◆ Repairs & Replacements
 - ◆ Prioritize to Improve Performance Metrics



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Key Performance Metrics

Historical Force Outage Rate

FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008
1.97	2.32	2.75	3.41	3.45	4	4.66	3.7	4.09	5.08

Historical Peak Availability Rate

FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008
94.64	92.05	92.03	90.09	88.97	87.72	87.48	88.86	86.73	86.04



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FY10 Program Development

- **System Approach**
- **Relative Risk**



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Relative Risk



Microsoft Excel
Worksheet



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USACE Cost Benchmarking

- **Track performance and cost metrics and compare against other Federal and non-Federal hydropower plants**
- **Comparisons are for program improvements to benefit rate payers and taxpayers**
- **Benchmarking results are not used to prioritize projects in the budget development process**



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EUCG/HPC

- **Electric Utilities Cost Group/Hydroelectric Productivity Group**
- **Global association of energy and electric utility professionals; discuss current & emerging industry issues, share best practices, exchange data for benchmarking purposes**



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2006 Hydro Survey Participant List

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Bonneville Power Administration
Southeastern Power Administration
Southwestern Power Administration
Western Power Administration
Contracts
Manitoba Hydro
New Brunswick Power Corporation
New York Power Authority
Ontario Power Generation
Pacific Gas & Electric Company
Seattle City Light
Southern Company
Tennessee Valley Authority



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EUCG Participating Utility's Summary Data

"Utilities"	Number of Units	Number of Plants	Gross Capacity mw	Net Generation mwh
USACE/BPA	156	21	14,621.0	55,742,258
USACE/Contract	8	2	105.5	285,837
USACE/SEPA	85	22	4,031.1	5,694,046
USACE/SWPA	71	24	2,428.0	1,552,260
USACE/WAPA	36	6	2,543.0	6,156,867
A	22	6	1,796.9	6,713,024
C	160	30	6,892.8	33,629,479
D	113	30	5,401.5	9,960,779
E	105	13	5,083.5	31,521,436
F	110	69	3,896.2	13,836,180
J	23	6	884.0	3,470,777
N	44	14	1,710.0	3,089,358
	933	243	49,393.5	171,652,301



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FY06 Benchmark Summary Table

		USACE/ BPA	USACE/ WAPA	USACE/ SEPA	USACE /Contract	USACE /SWPA		
Energy Cost	\$/mwh	7.00	16.12	26.04	17.32	30.45		
Capacity O&M Cost	\$/mw	26,670	39,019	36,775	46,933	19,467		
Weighted Capacity Factor	%	43.52	27.64	22.18	30.93	7.34		
Weighted FOR		4.51	2.87	5.55	1.17	18.03		
Weighted Availability Factor	%	85.67	93.72	88.42	99.39	89.47		
		A	C	D	E	F	J	N
Energy Cost	\$/mwh	6.14	24.14	11.54	4.62	13.96	3.95	10.73
Capacity O&M Cost	\$/mw	22,927	117,787	21,277	28,667	49,557	15,508	19,377
Weighted Capacity Factor	%	42.65	57.40	32.96	70.38	60.37	44.82	20.62
Weighted FOR		1.11	2.66	1.54	1.90	2.52	1.11	0.19
Weighted Availability Factor	%	79.83	92.66	94.12	95.14	90.79	92.71	94.85



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EUCG Participating Utility's FY06 Results



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QUESTIONS

