

PROCESS IMPROVEMENT AND BENCHMARK PLANNING

EXECUTIVE SUMMARY

Prepared for

**Bonneville Power Administration
Portland, Oregon**



Prepared by

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1 KEMA's Objective

At the request of Bonneville Power Administration (BPA or the Agency) and its customers, KEMA conducted a strategic, high-level assessment of major BPA functions, systems and processes. KEMA gathered information about BPA, applied a framework to analyze the Agency's unique legal and operating environment and then formulated and tested recommendations. KEMA's recommendations include:

- A statement of the recommendation, current activities and where issues/problems exist, benchmarks against which to compare, steps to follow to achieve improvements.
- Priorities associated with those recommendations for the Agency to act upon them.

In the summary below KEMA describes its approach and the recommendations. For more information, refer to the attached presentation, *Bonneville Power Administration Process Improvement and Benchmarking Prioritization, July 1, 2004*.

2 KEMA's Approach

Over the course of 15 weeks, KEMA gained familiarity with BPA systems, processes and functions, applied a high-level, strategic analytical framework to BPA to enable specific recommendations, prioritized those recommendations and conducted a number of discussions with senior management concerning those recommendations.

2.1 Familiarize with BPA

KEMA interviewed approximately 80 Agency employees to:

- Determine processes, roles and responsibilities,
- Learn how activities are organized,
- Investigate information systems utilized,
- Determine interactions between people, processes and systems,
- Ascertain performance metrics, costs, benchmarking or improvement studies,

with the objective of identifying opportunities for further improvement. In addition, KEMA met periodically with a BPA cross-functional team to refine reports, adjust targets and seek feedback to questions arising in the course of the study. The Agency made numerous benchmarking initiatives and

external studies available to the KEMA team. Also, KEMA brought substantial industry experience, other studies and data to this strategic overview. With customer and constituent information, KEMA relied upon the resources listed above to assess the current state of Agency operations and where improvements could be made.

2.2 Apply Analytical Framework to BPA

Given the diversity of BPA's constituency and complexity of its mission, KEMA found it necessary to utilize several benchmarks from utilities as well as other industries.

BPA's complex mission creates some inherent inefficiencies that affect the manner in which BPA does business. For example, BPA's fish and wildlife and energy efficiency mandates are not comparable to other utilities. Therefore, BPA has significantly higher expenditures in these types of activities than do comparable utilities. Further, the Agency's ownership of a large transmission network also requires more efforts than with comparable utilities concentrating in distribution, particularly in the areas of transmission operation, maintenance and warehousing functions. Further, BPA markets power generated by third parties, creating the need for different asset management processes than those observed at similar utilities.

Notwithstanding these differences, KEMA was able to provide some benchmarks and/or best practice comparisons for most high-level processes at the Agency.

2.2.1 Benchmarking

To benchmark BPA processes, KEMA considered:

- Process capacity, or maximum rate of acceptable output,
- Efficiency of the process, defined as the value of the output compared to the value of the input
- Process flexibility in handling changing inputs, market conditions (impacts on output) or procedure
- Quality of the process output compared with similar benchmarks.

KEMA was careful to choose a set of benchmarks appropriate for BPA's complex objectives. Companies with different objectives may appropriately use different processes with alternative characteristics to achieve results. An Investor-Owned Utility (IOU) for-profit organization will have different processes than the Agency whose mission is significantly different.

Once KEMA identified processes, functions or organization related to the currently defined mission of BPA, candidate improvement opportunities were identified and evaluated using the following criteria.

2.2.2 Criteria Used for Prioritization

KEMA used the following criteria in ranking improvement candidates:

- Financial impact: This was composed of four separate considerations (i) current level of capital and expenditure, (ii) direct savings from potential improvements identified by KEMA, (iii) indirect savings from potential improvements identified by KEMA, (iv) potential value of improvements.
- Impact on Risk at BPA: Improvements could increase, decrease or be neutral with respect to Agency risk.
- Feasibility: Two types of feasibility were addressed
 - Technical feasibility based on the ability of the current Agency to adopt a potential improvement was assessed based upon KEMA’s knowledge of similar change efforts,
 - Cultural feasibility based upon how likely the current Agency could incorporate the potential improvement into the way in which it conducts its activities was based upon KEMA’s interviews, interaction with the BPA/KEMA team and the consultant’s experience.
- KEMA confidence in the data and information provided by BPA.

These multiple criteria required some judgment in ranking potential improvements. Further, some of the improvements were interdependent, which required KEMA to determine not only the impact but also which recommendations should be implemented before the others. In addition, some over-arching organizational recommendations are related to specific recommendations. These linkages created the need to define a timeline for Agency recommendations.

3 Recommendations

3.1 Spending by Activity Grouping

Focusing on high-level activities at BPA, KEMA utilized 2003 Business Enterprise System (BES) data to determine the cost and potential value of those activities to the agency. KEMA first summed capital and expense to create total spend for seventy significant activities identified in BPA’s BES system. Ranking these activities by total spend yields potential impact to BPA. **Appendix Table 1** showing activity spending and related recommendation grouping is shown on pages 6-8.

Total spend (capital plus expense) is concentrated in marketing power products at about \$1,255 million. Expanding to other offerings by the Agency to include energy efficiency programs and transmission services, the portfolio of Agency offerings includes about \$1,300 million.

The next areas of total spend are in managing capital and operating and maintenance for hydro and nuclear assets, which runs about \$600 million in total spend. BPA has substantial projects associated with

environment, fish and wildlife mandates, costing about \$148 million. In the Transmission Business Line's (TBL) Plan, Design and Construct facilities encompasses about \$188 million of total spend encompassing transmission line and electrical construction, designing and maintaining facilities, among others¹. The Agency also spends \$55 million in other support services. Human resource-related activities have total spend of \$62 million, while communications activities have \$9 million in total spend and finance and accounting activities cost about \$7 million.

At a summary level, some major activities stretch across the activities listed in **Appendix Table 1** on pages 6-8. Activities associated with Performance and Process Management and those in Organization Design and Governance encompass all of total spending. Strategic planning, business planning and budgeting activities include many of these activities listed on pages 6-8.

3.2 Recommendations by Major Theme

Recommendations follow process, organizational or resource allocation themes.

KEMA observed that BPA focuses upon broad outcomes at the expense of processes, resulting in silos that operate independently with redundant activities. KEMA recommends that BPA become more process-focused and use BPA's existing BES to track performance. A more process-focused agency will lead to cost efficiencies as well as improvements in how assets are managed in several areas. Transmission Field Services could benefit from balancing cost and reliability against the number and size of field crews. To improve and strengthen budget estimates, the Transmission Business Line's Plan, Design and Construct process could use engineering and environmental design estimates rather than their current estimates. More rigorous nuclear maintenance planning in association with hydro optimization efforts could benefit BPA. BPA should explore the possibility of automating hydro operations at some of its Corps of Engineers units. By improving project management in both its Energy Efficiency and Fish and Wildlife programs, BPA will effect cost improvements.

Organizationally, BPA tends to have redundant activities. KEMA recommends that BPA re-align its organization to focus on key processes that ensure consistency with FERC Standards of Conduct and reduce conflicts with preferences under the Northwest Power Act. Key organizational changes are consistent with a "One-BPA" strategy espoused by BPA. Strategic Planning requires an elevation of current process to the corporate level, setting parameters for business unit planning and improving the rigor and robustness of its efforts. Continuing with BPA's capital allocation process improvements and Asset Management efforts, these programs need to be tied together at the corporate level, which should set appropriate tradeoffs and measurement standards. The Agency has begun a consolidation of Information Technology groups across the company but needs to set aggressive cost reduction targets and timelines. Communications and Regional Relations can be re-defined and streamlined at the corporate level to develop a consistent message to constituents and customers. Many of the Marketing and Sales

¹ Note that BES data may differ from actual reported spending.

functions are already cross-matrixed into policy and customer collaborative efforts; combining and reducing the marketing and sales functions could have benefits in clearer messages as well as through cost reductions. Scheduling/ Contracts and Billing and Settlements functions could benefit from consolidation, not only in cost reductions but also through consistency in dealing with various customers. Human Resources are disperse at BPA; consolidating these activities at the corporate level and streamlining processes will provide significant cost reductions. By reducing dispersion and consolidating financial reporting and accounting activities, the agency could lower cost and improve financial report readability.

Resources should be reallocated to processes that need them. KEMA has observed that many of the Agency offerings arise from disparate, individual or reactive strategies to customers and constituents. KEMA recommends that transmission offerings be balanced against cost and reliability; power offerings be balanced against cost and risk; other corporate offerings be balanced against cost and commitments by BPA. The result of this portfolio approach to agency offerings is that front, middle and back office processes may require fine-tuning. The current rate cycle and structure could be affected by re-thinking the offerings made by BPA.

Many functions identified by KEMA benefit from enhancement. Both the Rates function and Corporate Strategic Planning could benefit from increased analytic capability. Internal Audit could increase its profile to reduce costs and ensure independent process oversight. By expediting its current plan to implement controls, measurement and reporting, Risk Management could enhance the ability of the organization to flag early problems. Supply chain efforts have already allowed for better cost control and reductions in unnecessary expenses and KEMA recommends that this program be expanded to include up and downstream processes.

Appendix Table 2 on pages 9-11 briefly describes each recommendation. Consult the companion document, *Bonneville Power Administration Process Improvement and Benchmarking Prioritization, July 13, 2004* for more detail on these recommendations.

Appendix Table 1: Total Spend by 70 Activities and Recommendation Grouping

Expense Budget	03 Expense Actuals	03 Capital Actuals	03 Total Spend	Affected Recommendation
MARKET SHORT TERM SURPLUS POWER	903,748,668	23,970,241	927,718,909	#5 Agency Portfolio Offerings; #15 Marketing & Sales Functions
Fixed Expenditures & Accruals	687,089,858	195,258,841	882,348,699	n/a
PLAN, ACQUIRE, AND OPERATE POWER RESOURCES	494,148,053	87,081,944	581,229,997	#4 Capital Allocation & Asset Management, #21 Hydro & Nuclear Operations
SUPPORT FISH & WILDLIFE PROGRAMS	138,376,279	9,569,158	147,945,437	# 16 Fish & Wildlife Program Management
MANAGE RESIDENTIAL EXCHANGE	143,965,340		143,965,340	#5 Agency Portfolio Offerings
MARKET LONG TERM SURPLUS POWER	99,891,924		99,891,924	#5 Agency Portfolio Offerings; #15 Marketing & Sales Functions
CONSERVE ENERGY	69,821,903	1,296,573	71,118,476	#14 Energy Efficiency Program Management
MANAGE TRANSMISSION RESOURCES	51,208,848		51,208,848	#4 Capital Allocation & Asset Management, #5 Agency Portfolio Offerings
OPERATE & MAINTAIN SYSTEMS	40,381,164	7,980,327	48,361,491	#6 Information Technology
ADMINISTRATION	39,897,949	3,579,064	43,477,012	#2 Organization Design & Governance
CONSTRUCT TRANSMISSION LINES	414,423	31,859,049	32,273,472	#8: TBL: Plan, Design, Construct
PERFORM ELECTRICAL CONSTRUCTION	998,692	30,515,419	31,514,110	#8: TBL: Plan, Design, Construct
DESIGN, DEVELOP INTRODUCE NEW SYSTEMS	10,157,381	19,045,648	29,203,029	#6 Information Technology
MANAGE PROPERTY	27,219,064	474,639	27,693,703	#20 Other Support Services
MANAGE STAFFING, PAY, AND BENEFITS	23,486,528	283,819	23,770,347	#18 Human Resources
DESIGN TRANSMISSION SYSTEMS & FACILITIES	1,670,848	18,869,483	20,540,331	#8: TBL: Plan, Design, Construct
MAINTAIN EQUIPMENT AND FACILITIES	19,288,942	1,054,512	20,343,454	#7 Transmission Field Services, #8: TBL: Plan, Design, Construct
PLAN & MANAGE TRANS WORK & PROJECTS	5,671,754	14,582,147	20,253,901	#8: TBL: Plan, Design, Construct
TRAIN EMPLOYEES/MANAGERS	13,138,005	2,159,834	15,297,839	#18 Human Resources
SUPPORT CONSTRUCTION & MAINTENANCE	9,064,812	3,190,482	12,255,294	#7 Transmission Field Services #8 TBL: Plan, Design, Construct
PERFORM GENERAL CRAFT CONSTRUCTION	2,401,100	8,584,897	10,985,996	#8: TBL: Plan, Design, Construct
OPERATE TRANSMISSION SYSTEM	10,091,803	529,117	10,620,920	n/a
MANAGE VEHICLES AND EQUIPMENT	9,635,301	578,977	10,214,278	#20 Other Support Services
MARKET POWER TO CORE CUSTOMERS	10,003,839		10,003,839	#5 Agency Portfolio Offerings; #15 Marketing & Sales Functions
DEVELOP/MANAGE EMPLOYEES	7,276,325	2,486,842	9,763,167	#18 Human Resources
MANAGE LIABILITY & LITIGATION	8,933,255	331,647	9,264,903	n/a

Expense Budget	03 Expense Actuals	03 Capital Actuals	03 Total Spend	Affected Recommendation
SUPPORT TRANSMISSION BUSINESS	7,001,064	1,730,546	8,731,610	n/a
PROVIDE SAFE/HEALTHY WORK ENVIRONMENT	6,914,188	1,549,812	8,464,000	#18 Human Resources
DEVELOP VISION & STRATEGY	6,570,271	653,846	7,224,116	#3 Strategic Planning
MANAGE EXTERNAL RELATIONS	6,492,571	32,302	6,524,872	#7 Communications
DISPATCH TRANSMISSION	6,349,948	74,119	6,424,067	n/a
PLAN TRANSMISSION SYSTEM	1,694,602	4,633,264	6,327,865	#8: TBL: Plan, Design, Construct
SCHEDULE POWER	6,067,485	217,430	6,284,915	#23 Scheduling/Contracts & Billings & Settlement
MAINTAIN ROW'S	5,992,517	23,088	6,015,605	#20 Other Support Services
MANAGE ENVIRONMENTAL PROGRAMS	3,903,270	2,096,957	6,000,227	n/a
MANAGE ENERGY PRICE & SUPPLY RISKS	5,622,768		5,622,768	#13 Risk Management
PLAN IT STRATEGY	4,666,060	401,406	5,067,466	#6 Information Technology
PROVIDE SURVEY, MAPPING, AND PHOTOGRAMMING	1,395,192	3,629,557	5,024,749	#20 Other Support Services
SCHEDULE TRANSMISSION	4,923,324	1,008	4,924,332	#23 Scheduling/Contracts & Billings & Settlement
MAINTAIN TRANSMISSION LINES	3,560,415	1,275,857	4,836,272	#7 Transmission Field Services
COMMISSION TRANSMISSION SYSTEMS & FACILITIES	156,387	4,457,979	4,614,366	n/a
CONDUCT FINANCIAL, REP & MGMT REPORTING	3,939,233	330,507	4,269,740	#22 Finance & Accounting
MANAGE PERFORMANCE & VALUE	3,306,416	358,786	3,665,202	#18 Human Resources
PROVIDE CUSTOMER SERVICES	3,283,859	8,059	3,291,918	#5 Agency Portfolio Offerings
MARKET TRANSMISSION SERVICES	2,946,732	113,841	3,060,573	#15 Marketing and Sales Functions
MANAGE PROJECTS	2,817,708	223,766	3,041,474	n/a
DEVELOP & MAINTAIN STANDARDS	2,265,666	643,318	2,908,984	#8: TBL: Plan, Design, Construct
PURCHASE MATERIALS & SERVICES (M&S)	2,738,338		2,738,338	#19 Supply Chain
PERFORM NON-ELECTRICAL CONSTRUCTION	264,926	2,344,852	2,609,778	#20 Other Support Services
MAINTAIN FACILITIES	2,287,377	43,641	2,331,018	#20 Other Support Services
PROVIDE AIRCRAFT SERVICES	1,882,998	10,124	1,893,122	n/a
PROVIDE REAL PROPERTY SERVICES	1,827,159	18	1,827,177	#20 Other Support Services
PROVIDE DOCUMENT SERVICES	1,734,520	43,098	1,777,617	#20 Other Support Services
ACCOUNT FOR REVENUES & EXPENDITURES	1,660,021	62,556	1,722,577	#22 Finance & Accounting
SHIP & TRANSPORT MATERIALS	1,602,998	6,483	1,609,481	#8: TBL: Plan, Design, Construct
STORE MATERIALS	1,581,883		1,581,883	#19 Supply Chain
MEDIA SERVICES/INTERNAL COMMUNICATIONS	1,340,402	11,395	1,351,797	#7 Communications
PLAN & MANAGE SHARED SERVICES	1,195,653	1,296	1,196,949	#11 Shared Services
RELEASE/ISSUE MATERIALS	1,149,577	45,712	1,195,288	#19 Supply Chain

Expense Budget	03 Expense Actuals	03 Capital Actuals	03 Total Spend	Affected Recommendation
MANAGE LABOR/EMPLOYEE RELATIONS	1,166,656	4,944	1,171,601	#18 Human Resources
MAINTAIN BOOKS & RECORDS	1,053,676		1,053,676	#22 Finance & Accounting
COORDINATE/PERFORM AUDITING	1,024,107		1,024,107	#17 Audit
PROVIDE SECURITY SERVICES	39,959	973,830	1,013,789	#20 Other Support Services
PREPARE/APPROVE & REVIEW BUDGETS	732,569	194,850	927,418	#10 Budget & Business Planning
RECEIVE MATERIALS	684,864	103,434	788,298	#19 Supply Chain
SUPPORT COMMUNITY & INDUSTRY	580,826	141,036	721,862	#7 Communications
MANAGE ASSET RECOVERY	408,535	0	408,535	#4 Capital & Asset Allocation
PROVIDE SUPPLY CLIENT SERVICES	305,593	115	305,708	#5 Agency Portfolio Offerings
NON PRODUCING POWER PURCHASES	95,933		95,933	#5 Agency Portfolio Offerings
PERFORM QUALITY ASSURANCE	7,825	3,830	11,654	n/a

Appendix Table 2: Recommendation Summaries

<p>1. Performance and Process Management</p>	<ul style="list-style-type: none"> ▪ Move to more process-centric view of the agency ▪ Use Business Enterprise System (BES) to implement and manage by specific process ▪ Define high level processes more effectively
<p>2. Organization Design and Governance</p>	<ul style="list-style-type: none"> ▪ Align organization with process-centric view to enhance ability to affect outcomes ▪ Ensure consistency with FERC Standards of Conduct and reduce conflicts with the Northwest Power Act (i.e., preferences) ▪ Governance should clearly define roles, accountability, responsibilities and decision making authority
<p>3. Strategic Planning</p>	<ul style="list-style-type: none"> ▪ Continue the evolution towards a corporate driven strategic planning process ▪ Set corporate-driven targets for business unit planning ▪ Improve rigor and robustness of strategic planning and testing
<p>4. Capital Allocation & Asset Management</p>	<ul style="list-style-type: none"> ▪ Continue with agency wide process for analyzing, proposing and competing for Agency resources - both financial and non-financial ▪ Tie TBL, PBL and other Agency efforts together by driving process from Corporate level
<p>5. Agency Offerings Portfolio</p>	<ul style="list-style-type: none"> ▪ Balance Transmission Business Line offerings against cost and reliability ▪ Balance Power Business Line offerings against cost and risk ▪ Balance other Agency offerings against cost and commitments to mission ▪ Enhance ability to deliver offerings through improvements in front, middle and back office processes

6. Information Technology	<ul style="list-style-type: none"> ▪ Aggressively pursue plans to identify and realize cost savings ▪ Drive toward more aggressive targets ▪ Align technology and business strategies
7. Communications & Regional Relations	<ul style="list-style-type: none"> ▪ Redefine, strengthen and consolidate internal and external Communication functions and processes across business lines ▪ Foster a more strategic communications view
8. TBL: Plan, Design and Construct	<ul style="list-style-type: none"> ▪ Improve work planning and schedule coordination ▪ Base major project budget estimates on preliminary engineering and environmental design review ▪ Standardize engineering designs to reduce inventory and increase cost savings. ▪ Balance planning and design criteria against cost and reliability
9. Transmission Field Services	<ul style="list-style-type: none"> ▪ Re-balance all field crews against cost and reliability
10. Business Planning and Budgeting	<ul style="list-style-type: none"> ▪ Standardize and automate the budget planning and reporting function. ▪ Reduce or re-deploy duplication in the business lines ▪ Enforce common reporting and accounting standards while supporting strong business line analytic capability
11. Shared Services	<ul style="list-style-type: none"> ▪ Consider returning the shared service organization to critical mass and consolidating functions currently in the business lines ▪ Evaluate additional outsourcing, especially in Information Technology, financial systems, payroll, human resources and processing of accounting transactions
12. Rates Strategy	<ul style="list-style-type: none"> ▪ Consider combining rate support functions across business lines, especially analytics, modeling, risk and budget, consistent with FERC Standards of Conduct ▪ Increase analytics in this function ▪ Balance rate strategy complexity with core customer's appetite for different rate structures ▪ Align rate structures and balance rate cycle to Agency Offerings Portfolio (#5)
13. Risk Management	<ul style="list-style-type: none"> ▪ Implement Corporate Risk Policy, Risk Control Structure and reporting on risk to Executive Team as soon as possible

14. Energy Efficiency Program Management	<ul style="list-style-type: none"> ▪ Rationalize programs against supply options ▪ Rigorously approve programs formally each year using 5-Year economic useful life for evaluation purposes and utility yardstick of used, useful, prudent ▪ Improve and standardize program and contract administration
15. Fish and Wildlife Program Management	<ul style="list-style-type: none"> ▪ Enhance program management to drive cost initiatives ▪ Balance Fish & Wildlife mandates against performance measures and standards ▪ Improve and standardize program and contract administration
16. Marketing & Sales Function	<ul style="list-style-type: none"> ▪ Combine efforts in conformance with Agency Offerings Portfolio (#5) and FERC Standards of Conduct and reduce duplicative support
17. Audit	<ul style="list-style-type: none"> ▪ Increase responsibilities and profile to increase control and reduce external audit costs
18. Human Resources	<ul style="list-style-type: none"> ▪ Combine functions and reduce duplicative efforts
19. Supply Chain	<ul style="list-style-type: none"> ▪ Continue implementation ▪ Add up- and downstream processes
20. Support Services	<ul style="list-style-type: none"> ▪ Create modest savings through outsourcing/reductions
21. Hydro and Nuclear Operations	<ul style="list-style-type: none"> ▪ Gain more control of 3rd party budget to effect cost savings ▪ Explore potential hydro automation ▪ Optimize maintenance schedules for nuclear plant more rigorously
22. Finance and Accounting	<ul style="list-style-type: none"> ▪ Integrate and consolidate into Corporate ▪ Increase financial reporting clarity
23. Scheduling/ Contracting/Billings and Settlements	<ul style="list-style-type: none"> ▪ Scheduling: Reduce redundancy in TBL/PBL support through cross-matrixing ▪ Contract Administration: Enforce terms and conditions in TBL; split from Billings and Settlement functions ▪ Billing and Settlements: Consolidate consistent with FERC Standards of Conduct