

Chapter 1: Purpose of and Need for Action

1.1 Need for Action

The electric utility market is increasingly competitive and dynamic. To participate successfully in this market and to continue to meet specific public service obligations as a Federal agency, the Bonneville Power Administration (BPA) needs adaptive policies to guide its marketing efforts (including contracts for the sale of power and transmission products and services, and pricing mechanisms) and its administration of social obligations such as its conservation and fish and wildlife responsibilities.

Four factors define and focus this need now:

- the rapid business changes occurring in the electric utility industry, which have increased competition and lowered the price of power from BPA's competitors;
- historically increasing costs to carry out BPA's power, transmission, and environmental missions;
- BPA's need to balance costs and revenues; and
- a succession of dry years and changes in hydro system operations, which have seriously affected BPA's ability to generate revenue.

BPA has been operating under policies that do not adequately account for the confluence of these factors and that therefore may prevent the agency from fulfilling its statutory missions.

Business Changes. The electric energy industry is in a period of rapid change that affects BPA and its customers and competitors in their power marketing activities. Although BPA is a Federal agency, it pays all of its costs from power and transmission revenues. As the electric power market changes, BPA must be able to recover its costs in a competitive environment with other suppliers in the Western United States. Specific changes include the following:

- **Deregulation.** The Energy Policy Act of 1992 (EPA-92), recent and proposed decisions and policy statements by the Federal Energy Regulatory Commission (FERC), and deregulation proposals at the state level have all contributed to the development of an increasingly deregulated energy market.
- **Lower Natural Gas Prices.** Both the current spot market price and the long-term natural gas price forecast have declined significantly since 1992.
- **Improved Combined Cycle Combustion Turbines (CT) Performance.** Recent operating history of the latest generation of CTs has demonstrated continuing improvements in fuel efficiency, as well as availability factors in the 91 to 95 percent range; this means that these generators are desirable for their reliability as well as their relatively low cost.

- **Lower CT Cost.** The combined effect of the factors above resulted in a drop in the present real levelized cost of a CT of 10 or more mills per kilowatt-hour (kWh) since 1992, depending on fuel forecasts. While the real levelized cost was near 40 mills/kWh at the time of the initial Business Plan Draft Environmental Impact Statement (BP DEIS, published June 1994), some offers based on CTs are now at 27 mills/kWh or less. This price compares to 27.1 mills/kWh for BPA's 1993 Priority Firm (PF) rate.
- **Competitive Independent Power Industry.** Increased competition in the independent power industry has resulted in lower estimates of installed cost for CTs.
- **Electricity Brokers and Marketers.** Established electricity brokers and marketers have aggressively pursued short- and long-term sales with BPA customers.
- **California Surplus.** California, once the primary market for BPA surplus electricity, now has a significant energy and capacity surplus due largely to economic conditions, and has offered and sold large amounts of power to the Northwest.
- **Competitive Wholesale Market.** The market for wholesale power sales has become increasingly competitive, as existing suppliers cut prices to compete with new entrants. The result is lower costs for firm power sales. Some new entrants in the Pacific Northwest (PNW) electric energy market have indicated a willingness to operate at a loss for initial years to secure a share of the market.

Responsibilities. BPA has obligations beyond power marketing, such as fish and wildlife enhancement, support of energy efficiency, and environmental stewardship. Unlike other power wholesalers, BPA is governed by the Pacific Northwest Power Planning and Conservation Act (Northwest Power Act) and its plans, such as the Northwest Power Planning Council's (Council) Northwest Power Plan (Power Plan) and its Fish and Wildlife Program (F&W Program). These mandates promote energy efficiency and renewable resources, and give fish and wildlife equitable treatment with power production and other river uses. In fulfilling these responsibilities, BPA must balance the interests of its ratepayers and its responsibility to the environment. BPA also shares in the Federal Government's trust responsibilities to Indian Tribes.

Achieving a Balance of Costs and Revenues. The business changes listed above are bringing the price of power in the electric utility market close to BPA's firm power rates. With comparable power available at competitive prices, BPA no longer has the latitude to meet increased costs by raising those rates: when BPA's firm power rates approach competitors' prices, customers will begin to shift load to other suppliers rather than buy BPA power at comparable or higher rates. However, BPA must still balance its costs and revenues. The BPA firm power rate at which rate increases no longer increase BPA's revenues and cover its costs is the level of **maximum sustainable revenue (MSR)**. (See sections 2.6.1 and 4.4.1.2.)

Lost Hydro Output. Changes in the condition and operation of the Columbia River system have also affected BPA's ability to compete in the marketplace and to sustain adequate revenues. More than three-quarters of the agency's power comes from hydroelectric projects on the Columbia River and its tributaries. In times of average runoff, extra power can be produced and sold to help meet BPA's revenue requirements. However, 8 dry years in the last decade have limited our opportunity to have increased power sales, so that extra revenues are substantially reduced.

At the same time, requirements for increased flows to aid the migration of anadromous fish further reduce the flexibility and firm energy capability of the Federal hydro projects. The Council recently estimated that the implementation of changes to hydroelectric operations as specified in the 1995 National Marine Fisheries Service (NMFS) Biological Opinion (see section 1.3.2, below) would reduce the output of the hydroelectric system by 860 average megawatts (aMW). Other estimates of the loss range up to 2,000 aMW.

BPA seeks strategies that will meet these challenges effectively and efficiently.

1.2 Purposes of Action

In selecting among the proposed and alternative ways to meet the need, BPA will consider the following purposes:

- Achieve a set of Strategic Business Objectives, such as the following:
 - √ Achieve high and continually improving customer satisfaction.
 - √ Increase the value of our business and share the expanded benefits.
 - √ Be the lowest-cost producer of power and transmission services.
 - √ Achieve and maintain financial integrity.
 - √ Keep the power system safe and reliable.
 - √ Invest in environmental results to sustain our competitiveness.
 - √ Transform BPA to a high-performing, business-oriented organization.
- Competitively market BPA's power and transmission products and services, both within the PNW and outside the region, and assure that BPA remains competitive.
- Provide for equitable treatment of Columbia River Basin fish and wildlife in relation to other purposes of the Federal Columbia River Power System (FCRPS).
- Give energy conservation the priority accorded it under the Northwest Power Act, and achieve BPA's share of the conservation target under the Council's regional goal.
- Establish rates that are easy to understand, easy to administer, stable, and fair.
- Recover BPA's costs through rates.
- Continue to meet statutory mandates, contractual obligations, and trust obligations to Indian Tribes.
- Avoid adverse environmental impacts.
- Establish and maintain productive government-to-government relationships with Indian Tribes.

The relative merits of the EIS alternatives in achieving these purposes are assessed in section 2.6.5.

1.3 Scope of the EIS

1.3.1 BPA's Business Plan

This Business Plan Final EIS (FEIS) addresses the environmental impacts of alternatives for BPA's Business Plan, which will set policy for BPA's pricing, power marketing, transmission, and other necessary activities such as conservation and fish and wildlife administration activities.

The Business Plan will be based on the BPA Strategic Marketing Plan (Marketing Plan) and Strategic Action Plans for major BPA functions, including the following:

- Sales and Customer Service
- Marketing, Conservation and Production
- Transmission Services
- Environment/Fish and Wildlife
- Financial Services
- Corporate Services.

The Marketing Plan identified proposed products and services BPA may offer. The Strategic Action Plan for each of BPA's major functions will 1) define the key results and accountabilities to achieve BPA Strategic Business Objectives (listed in section 1.2); 2) identify the resources (funding and staff) required to achieve results; 3) define the changes in BPA organization needed to achieve results; and 4) determine key policies for various issues in each plan. BPA will update these plans as the market evolves and as better information becomes available. The Business Plan will integrate all plans within defined spending limits.

These Business Plan directions will be implemented through BPA actions in all of its functional areas, including power marketing activities, energy resource acquisitions, power system operations, transmission system development, and fish and wildlife administration.

This EIS has identified numerous issues with potential impact on market responses and, subsequently, on the environment, in two of the Strategic Action Plans (Marketing, Conservation and Production; and Transmission Services). Most issues are associated with power and resources, including product development, rates, generation resources, new power sales contracts, and conservation. A key issue for transmission system development is the level of transmission system reliability. Section 2.4 describes Business Plan issues identified for further review in this EIS.

The following Business Plan elements have the greatest potential to lead to environmental impacts through changes in energy resource development and operations and/or transmission development:

- the products and services BPA will offer;
- the resources, if any, BPA will acquire to supply those products and services; and
- the pricing principles BPA will apply to those products and services.

1.3.2 Hydro Operations and the Business Plan EIS (BP EIS)

This EIS does *not* evaluate operational strategies for Federal hydro projects, which are addressed in the Columbia River System Operation Review (SOR) process (see section 1.5.6); or specific measures or actions for fish and wildlife enhancement, which are addressed in the Council's F&W Program (see section 1.5.5); or for fish hatcheries, harvest, and habitat, which are examined in the NMFS's draft Snake River Salmon Recovery Plan for Columbia River salmon species listed as threatened or endangered under the Endangered Species Act (ESA). In March 1995, the NMFS and the U.S. Fish and Wildlife Service (USFWS) released Biological Opinions recommending major changes in the way the Columbia River system is operated. Those changes were aimed at increasing the survival of salmon and sturgeon listed under the ESA, in large part by substantially increasing the amount of water used to support fish migration and by revising water use priorities. The result is that more weight is given to anadromous fish and resident fish and wildlife considerations and less to power production than in the past. Because those Opinions will essentially establish river operations for the next several years, they drive the direction of the SOR process, and will be an integral part of the preferred alternative for the Final SOR EIS (to be issued Summer 1995).

Until then, to allow for variation in hydro operations, the BP EIS addresses a range of potential impacts on both BPA's products and services and on the environment by addressing two widely differing hydro strategies that represent "endpoints," expecting that final operations will be within that range.

The two are “Current Operation,” which corresponds most closely to System Operating Strategy (SOS) 2c in the Draft SOR EIS and “Coordination Act Report Operation,” which is closest to SOS 7a in the Draft SOR EIS. Since the Draft SOR EIS was issued in July 1994, some of the SOSs have been revised and redefined in response to comments and new information, and a preferred alternative (see above) developed. Distinctions between early and ongoing versions of the SOSs will be noted in subsequent discussions within this EIS.

1.3.3 Rate Design

Representative rate designs are included as components of the alternatives analyzed in this EIS (see chapter 2), as policy modules (sections 2.3 and 4.5), and in the assessment of the cumulative impacts of the alternatives. The range of rate levels across the EIS alternatives demonstrates the impacts of BPA rate levels that might occur during the EIS study period, which extends through the year 2002.

Appendix B addresses the full range of rate designs that currently apply in the electric energy industry. The appendix describes and evaluates probable market responses by both BPA customers and end-use consumers, as well as potential environmental impacts, for each rate design. This rate design appendix was prepared to show the limited ways that rates may be set and examines a wide variety of possible rate design alternatives.

Analyzing rate design separately from the pricing elements identified for each of the alternatives permits BPA to implement rate designs that may vary from those included in the alternatives.

1.4 Decisions To Be Supported by This EIS

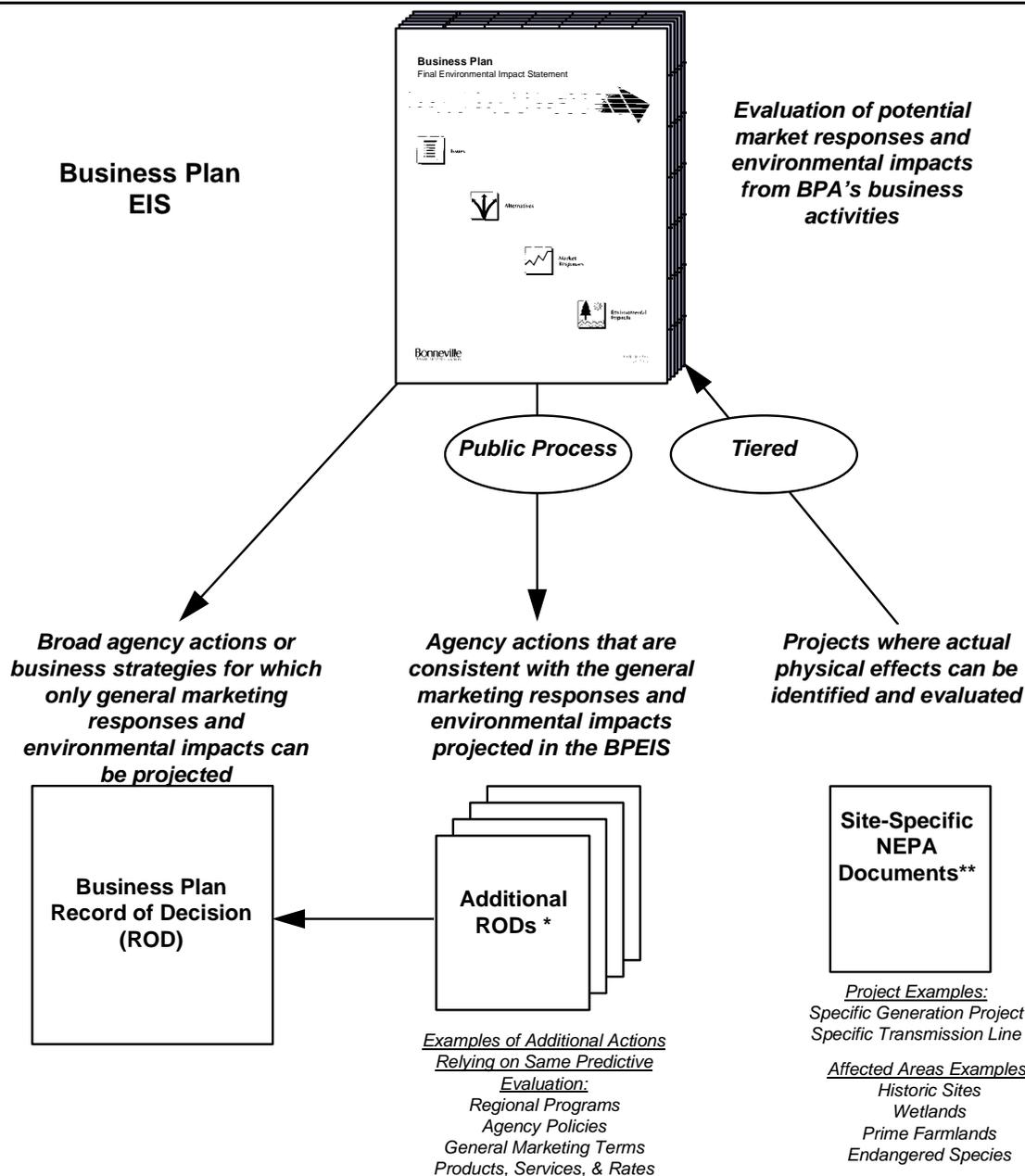
1.4.1 The Decision Process

The National Environmental Policy Act of 1969 (NEPA) requires that a Federal agency study the environmental impacts of a proposed project before deciding whether to take action. The goal for this EIS is to provide information to decisionmakers—in this case, BPA’s Administrator (CEO)—so that he may understand the possibilities for action and the consequences of those choices, and may therefore make an informed decision on BPA policy and business strategies for the future. The information also provides the public an opportunity to understand the alternatives and consequences so their opinions, priorities, and suggestions can help shape and enrich the analysis and alternatives for the Administrator. The Administrator’s decision(s) based on this EIS are shared with the public through Records of Decision (RODs) and form a contract with the public on how he will direct BPA actions and business. This overall structure of decisionmaking will provide the most complete understanding for the Administrator and public on the cumulative effects of BPA actions, as well as of the specific actions affecting environmental resources.

Figure 1.4-1 shows how this EIS process and the overall decision process work. It also shows that the process continues. This BP EIS is a *programmatic* EIS: that is, it addresses “umbrella” policies and concepts. Approaches, strategies, and general agency direction—not site-specific actions—are recommended here. As the Administrator implements his broader policies and business strategies, other more specific business decisions such as the development of individual energy generation resources and transmission facilities will have their own environmental review and decision processes. These additional environmental reviews will look at site-specific actions, using the information and decision in this EIS as a base to understand how they fit into the more global policies and business strategies. This process is called “tiering,” where more specific additional information on potential environmental consequences adds to the understanding for subsequent decisions. (Where more specific information on environmental consequences does *not* improve decisions or “segments” the decisions by focusing on only small pieces which lose sight of the cumulative concerns, then no more environmental analysis is conducted.)

FIGURE 1.4-1

Business Plan EIS and Future Actions/NEPA Documents



* If BPA determines that the BP EIS adequately evaluates the environmental impacts of future actions such as rate proposals, new power sales contract offers, or marketing policies, then the preparation of additional or supplemental EISs would be unnecessary. Instead, BPA would prepare additional RODs explaining the new decisions and how the BP EIS analyzed their environmental impacts.

** These documents could include categorical exclusions, environmental assessments, or environmental impact statements.

1.4.2 The Decisions

This EIS is intended to support the following decisions:

- A business concept BPA will adopt, with response strategies for changing circumstances.
- Products and services BPA will market.
- Rates for BPA products and services to be implemented in the 1995 and 1996 Rate Cases and future rate cases.
- A strategy BPA will use to administer its fish and wildlife responsibilities.
- Policy direction for BPA's sale of power products to publicly owned utilities, investor-owned utilities (IOUs), Direct Service Industries (DSIs), and non-utility purchasers, and for residential exchange agreements with PNW utilities.
- Contract terms BPA will offer for power sales to PNW publicly owned utilities, IOUs, DSIs, and independent power producers (IPPs) for transmission services; and for extraregional sales, including non-PNW IPPs/brokers/marketers.
- Plans for BPA resource acquisitions (including renewables, conservation, and thermal) and power purchase contracts.
- A policy for transmission system access and development.

Before taking action, BPA will review the decisions listed above to ensure that they are adequately covered within the scope of alternatives and impacts described in the BP EIS.

The impacts of specific decisions implementing BPA's Business Plan (particularly the execution of power sales contracts and the adoption of new rate schedules) are expected to be comparable, in both the type and magnitude, to those addressed in this EIS for Business Plan alternatives. **The primary source of impacts in either case is customers' decisions on whether to buy power from BPA to serve their firm loads, or to buy from other suppliers.** For Business Plan alternatives, the evaluation of impacts is based on the total effect of all of the elements of an alternative on those customer decisions; for contracts or rates, the evaluation is based on the somewhat narrower effect of the terms of the contract or the provisions of the rate schedule. In either case, the focus is on customer choice on whether to buy power from BPA, and the information presented in this EIS on the impacts of different choices should apply.

1.5 Relationship to Other Actions

1.5.1 BPA Competitiveness Project/Reinvention Laboratory

In response to recent financial crises brought on by drought and adverse economic conditions, to customer concerns about BPA costs, and to indications that BPA's historical business practices are poorly suited to the increasing deregulation of the electric utility industry, BPA has undertaken the Competitiveness Project: a process to review its internal structure, and to plan its activities to become more competitive.

A central goal is to have BPA operate more like a business and less like a bureaucracy. Under the Administration's National Performance Review, BPA has become one of a number of Federal agencies selected as laboratories for reinventing government. The process is intended to establish models for improving efficiency throughout the Federal government. BPA's Marketing Plan and the Business Plan, along with initiatives to improve BPA organization and administrative processes, are parts of the Competitiveness Project. This EIS addresses alternatives and environmental impacts related to decisions BPA will make in adopting its Business Plan.

1.5.2 Rate Cases

BPA establishes specific rates in a formal process required by section 7(i) of the Northwest Power Act. The BP EIS covers a range of alternatives and environmental consequences in the Administrator's decision in the 7(i) process. BPA anticipates that the BP EIS will provide the appropriate analysis for understanding the key relationships affected by rates and will serve as the NEPA documentation for the rate proposal in the 1995 and 1996 Rate Cases (and, if adequate, in later rate cases).

1.5.3 Power Marketing Policy Development and Power Sales Contracts Renegotiation

To implement its Business Plan, BPA expects to offer new power sales and transmission contracts with PNW utilities, Federal agencies, and DSI customers. BPA anticipates that the BP EIS will analyze major issues affected by contracts, to provide the Administrator with an adequate understanding of the consequences from such actions. It will also provide the proper NEPA documentation for the new policies and contracts. The negotiation of each customer's power sales contract will complete the renegotiation process begun before the Business Plan and the Competitiveness Project; that process provided a forum for developing the alternatives addressed in the BP EIS. To implement some of the alternatives described in this EIS, BPA might have to re-examine its statutory obligations to provide electric service to customers.

1.5.4 Non-Federal Participation in AC Intertie (Extraregional Marketing)

BPA considered proposals to provide non-Federal participation in BPA's share of the Pacific Northwest/Pacific Southwest Intertie (PNW/PSW Intertie) and for BPA marketing and joint ventures with California. BPA marketing and joint ventures may involve use of available Federal transmission capacity for sales or exchanges with California parties. The Final Non-Federal Participation EIS (DOE/EIS-0145) was distributed in January 1994. BPA's Business Plan decisions will be influenced by extraregional marketing decisions made as part of the non-Federal participation process.

1.5.5 Northwest Power Planning Council's Regional Power Plan and Fish and Wildlife Program

The Council's Power Plan and its F&W Program are the results of separate public processes.

- The Power Plan is reflected in BPA's resource acquisition program, and applies the resource priorities of the Northwest Power Act to acquisition planning to meet forecasted BPA loads.
- The F&W Program guides BPA's fish and wildlife program activities and, through measures to enhance the survival of Columbia River Basin salmon, steelhead, and resident fish and wildlife, influences the capability and availability of Federal hydro resources.

The Power Plan and the F&W Program provide direction to BPA's activities and may distinguish BPA's acquisitions and operations from those of other resource developers and operators. The Power Plan and the F&W Program are critical elements of BPA planning, and are addressed in EIS alternatives in terms of various administrative mechanisms for implementing them.

1.5.6 System Operation Review (SOR)

BPA, the U. S. Army Corps of Engineers (COE), and the U. S. Bureau of Reclamation (BOR) are jointly conducting the SOR process, which is a public review of the multi-purpose operation of Federal hydro facilities in the Columbia River Basin. A draft EIS (DOE/EIS-0170) on this process was published in July 1994. The SOR will determine the operating requirements necessary to serve the multiple purposes of

the Federal facilities, including power generation, fisheries, recreation, irrigation, navigation, and flood control. As noted above, SOR determinations will be driven by the recently issued 1995 Biological Opinions of the NMFS and the USFWS. The resulting decisions about operating requirements will constrain power operations for all BPA power transactions. BPA will serve its contractual obligations and market power and services with available resources consistent with the operating constraints that apply to each resource.

To assist in the reviewer's understanding of the range of potential impacts of Business Plan decisions, analysis for the EIS is presented under two SOR operating strategies, as noted above. The two selected strategies represent endpoints for a wide range of possible effects. "Current Operation" represents the least-cost likely option for power; "Coordination Act Report Operation" the greatest. The Coordination Act Report Operation SOS adopts a strategy of increased flows, reservoir drawdown, and increased spill intended to aid salmon migration. **It is important to note that the proposals made in and the decisions resulting from the BP EIS do not influence the SOR or limit its ability to make independent decisions.** In fact, the reverse is true: the results of the SOR will affect BPA's decisions about Business Plan directions by defining the power available to BPA from its hydro resources. This is why the BP EIS includes analysis based on two representative SOR outcomes.

1.5.7 1992 Columbia River Salmon Flow Measures Options Analysis/EIS (Flows EIS) and 1993 Supplemental EIS

BPA cooperated with the COE in these EISs, which evaluated alternative annual hydro operating plans for periods prior to completion of the SOR process. Biological assessments were prepared addressing effects on potential endangered or threatened species. These EISs were prepared to document impacts of interim hydro planning during the SOR process. Upon completion of the SOR EIS, hydro operations will be based on the SOR analysis.

The initial BP DEIS analysis assumed Federal hydro operations as established under the Salmon Flow Measures EISs. This FEIS examines the consequences of two different operating strategies, as developed during the SOR process.

1.6 Documents Incorporated by Reference

The following documents are incorporated by reference into this EIS:

1993 Wholesale Power and Transmission Rate Adjustment Final Environmental Assessment (EA) (DOE/EA-0838), July 1993. This EA evaluates the environmental impacts of alternative increases in BPA rate levels. Some specific information used in the BP EIS includes portions relating to environmental impacts of alternative BPA rate level increases.

Columbia River System Operation Review Draft Environmental Impact Statement (DOE/EIS-0170), July 1994. This DEIS establishes a series of system operating strategies for the multiple uses of the hydro system. Some specific sections of this EIS used in the BP EIS are sections relating to environmental impacts of different strategies for operation of Federal Columbia River hydro projects.

Non-Federal Participation in AC Intertie Final Environmental Impact Statement (DOE/EIS-0145), January 1994. This EIS evaluates alternatives for non-Federal and Federal use of intertie facilities. Some specific sections used by the BP EIS include those relating to effects of interregional transactions with the Pacific Southwest on the PNW/PSW Intertie.

Initial Northwest Power Act Sales Contracts Final Environmental Impact Statement (DOE/EIS-0131), January 1992. This EIS evaluates the effect of potential amendments to power sales contracts as offered in 1981 under the Northwest Power Act, including Direct Service Industry (DSI) service and New Large Single Load alternatives. Some specific sections used by the BP EIS include those relating to effects of variations in DSI load service, "in-lieu" deliveries of power under residential exchange agreements, energy conservation requirements, energy conservation transfers, and shorter contract terms.

Resource Programs Final Environmental Impact Statement (DOE/EIS-0162), February 1993.

This programmatic EIS evaluates impacts of alternatives for energy resource development and BPA resource acquisition. Some information relating to environmental effects of conservation and generating resources and environmental effects of transmission lines was used in the BP EIS.

Figure 1.6-1 shows the NEPA documents related to these and other processes that are incorporated by reference into the BP EIS.

FIGURE 1.6-1

Relationship to Other Environmental Documents

DOE/EIS-0145

Non-Federal Participation in AC Intertie
Final Environmental Impact Statement

Bonneville

- Effects of interregional transactions with the PSW on the PNW-PSW Intertie

DOE/EA-0838

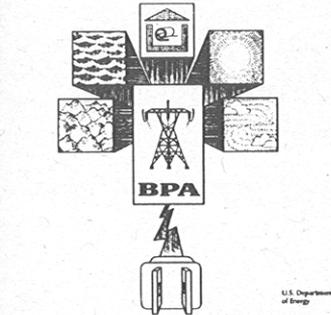
1993 Wholesale Power and Transmission
Rate Adjustment
Final Environmental Assessment

Bonneville

- Environmental effects of alternative BPA rate level increases

DOE/EIS-0162

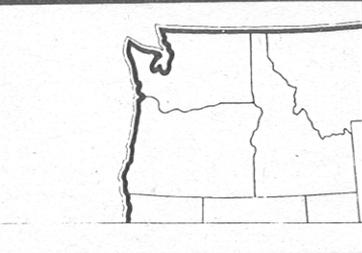
Final Environmental Impact Statement
Resource Programs
Volume 1: Environmental Analysis



- Environmental effects of conservation and generating resources
- Environmental effects of transmission lines

DOE/EIS-0125

Bonneville Power Administration
Final Environmental Impact Statement
INITIAL NORTHWEST POWER ACT POWER SALES CONTRACTS
U.S. Department of Energy
January 1992
Volume 1 Environmental Analyses



- Effects of potential amendments to power sales contracts offered in 1981 under the Northwest Power Act
- Effects of variation in DSI Load Service and new large single loads

Business Plan
Final Environmental Impact Statement
Volume 1 - Analyses



Issues



Alternatives



Market Responses



Environmental Impacts



DOE/EIS-0183
June 1995

DOE/EIS-0183

Columbia River



System Operation Review

**Draft
Environmental
Impact Statement**

Bonneville

Army Corps of Engineers

Bureau of Reclamation

- Establishes a system operating strategy for the multiple uses of the hydrosystem
- Supports renewal of power related agreement

1.7 A Guide to the EIS: Understanding Energy Supply, Alternative Actions, and Impacts

This section of the EIS presents a simple guide to understanding how BPA acts in the energy market, how the EIS environmental team developed and assessed alternatives, and how impacts spring from energy market actions.

In this section, text is keyed to the accompanying graphics to help put the reader “in the picture.”

Figure 1.7-1: The Energy Cycle: Need, Supply, and Impact

- The Pacific Northwest, the west coast, and areas inland will continue to need electric energy.
- That energy will be supplied by BPA—but also by electric utilities, IPPs, and brokers for power.
- The products and services these suppliers provide are often similar: they sell power and “move” it from the source of generation to the user (utility or end user).
- How suppliers develop these products and services will vary.
- Environmental impacts (for instance, air emissions or use of land or water) will also consequently vary as products and services are developed in different ways or to different degrees. (For instance, electricity produced from hydro sources will have different impacts from electricity produced by a coal-burning plant.) Impacts may cover a wide range of resources. For this EIS, air, land, and water impacts are used as “indicators” to show differences among choices.
- A significant difference exists between BPA and other providers: although BPA has a statutory mission to market and transmit power, it is also charged with facilitating energy conservation, exploring renewable energy, and providing mitigation for fish and wildlife impacts related to hydropower development. BPA may therefore conduct its business differently from other power producers. The environmental impacts of its actions may also be different.

Where decisions of any two providers diverge, environmental consequences are likely to differ.

FIGURE 1.7-1

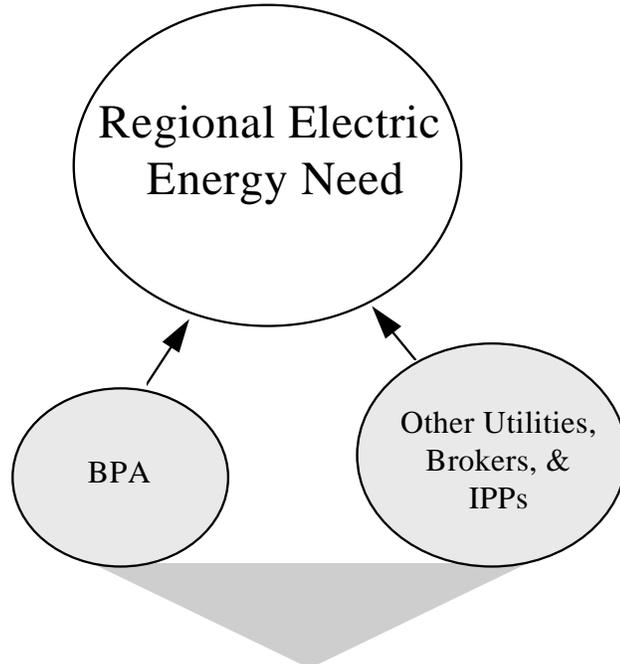
The Electric Power Industry Energy Cycle: Need, Supply, And Impact

ENERGY DEMAND

People on the west coast and inland rely heavily on electricity to carry out their lives.

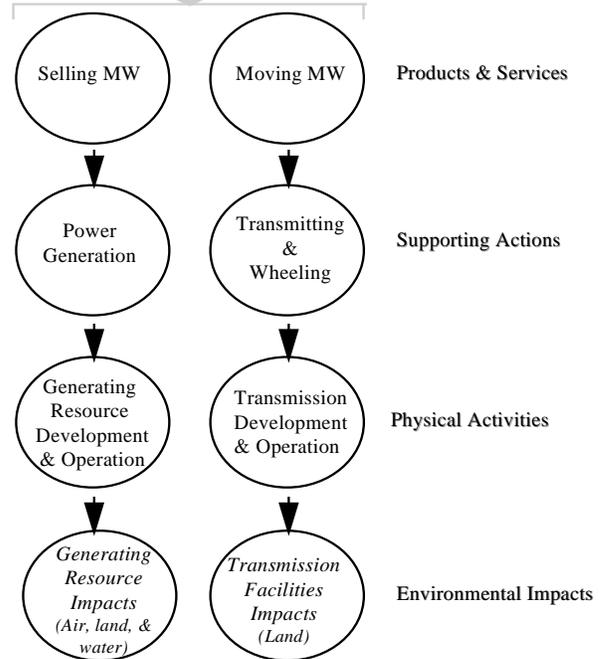
ENERGY SUPPLIERS

Electric energy is supplied by BPA and by other non-governmental power producers.



SUPPLIER ACTION

The activities of BPA as a power supplier fall into two categories: selling power (megawatts of energy) and moving it from the point of generation to the point of use. Other suppliers undertake similar activities, but may carry them out in different ways.



ENVIRONMENTAL IMPACTS

How the different suppliers carry out these activities may have differing effects on environmental resources. Air, land, and water effects can be used as indicators for the degree of impact in more specific areas such as health effects.

Figure 1.7-2: Understanding the Alternatives

The goal of the BP EIS is to identify different solutions (“alternatives”) to address BPA’s need for effective policies that would allow the Agency to meet its obligations and compete in today’s energy market. This means determining which, if any, of the alternatives would allow BPA to balance its costs with its revenues—a requirement for survival.

Figure 1.7-2 shows the steps that the environmental analysis team used to develop the alternatives and evaluate their business consequences and environmental impacts. The figure refers to different sections of the EIS so that the reader may trace each step in the chapters.

Step 1: Context

- Establish need (problem to be addressed).
- Review background.
- Identify issues.

Step 2: Design Alternatives

- Develop different combinations of actions to address the problem and major issues.
- Develop modules: ways to vary (tailor) alternatives to cover a range of possible decisions.

Step 3: Hydro Operations

- Consider how decisions on ways to operate the hydro system¹ might affect the alternatives. Set “endpoint” strategies for river operations that will represent the lowest and highest cost for power production.

Step 4: Analysis/Evaluation

- Identify market responses to different options for BPA products and services.
- Identify market responses to “packages” of those proposals (the alternatives and modules).
- Assess changes in major BPA costs, loads, and cost/revenue balance.
- Consider how constraints and conditions on customers affect their choice between BPA and other suppliers.

Step 5: Environmental Assessment

- Describe environmental impacts resulting from step 4 so that the alternatives may be compared against each other and against project purposes.

Step 6: Rebalancing Action

- Identify actions (response strategies) BPA might take for any alternative that fails to achieve cost/revenue balance.

¹ Those decisions are being made under the System Operation Review process.

FIGURE 1.7-2

Understanding the Alternatives

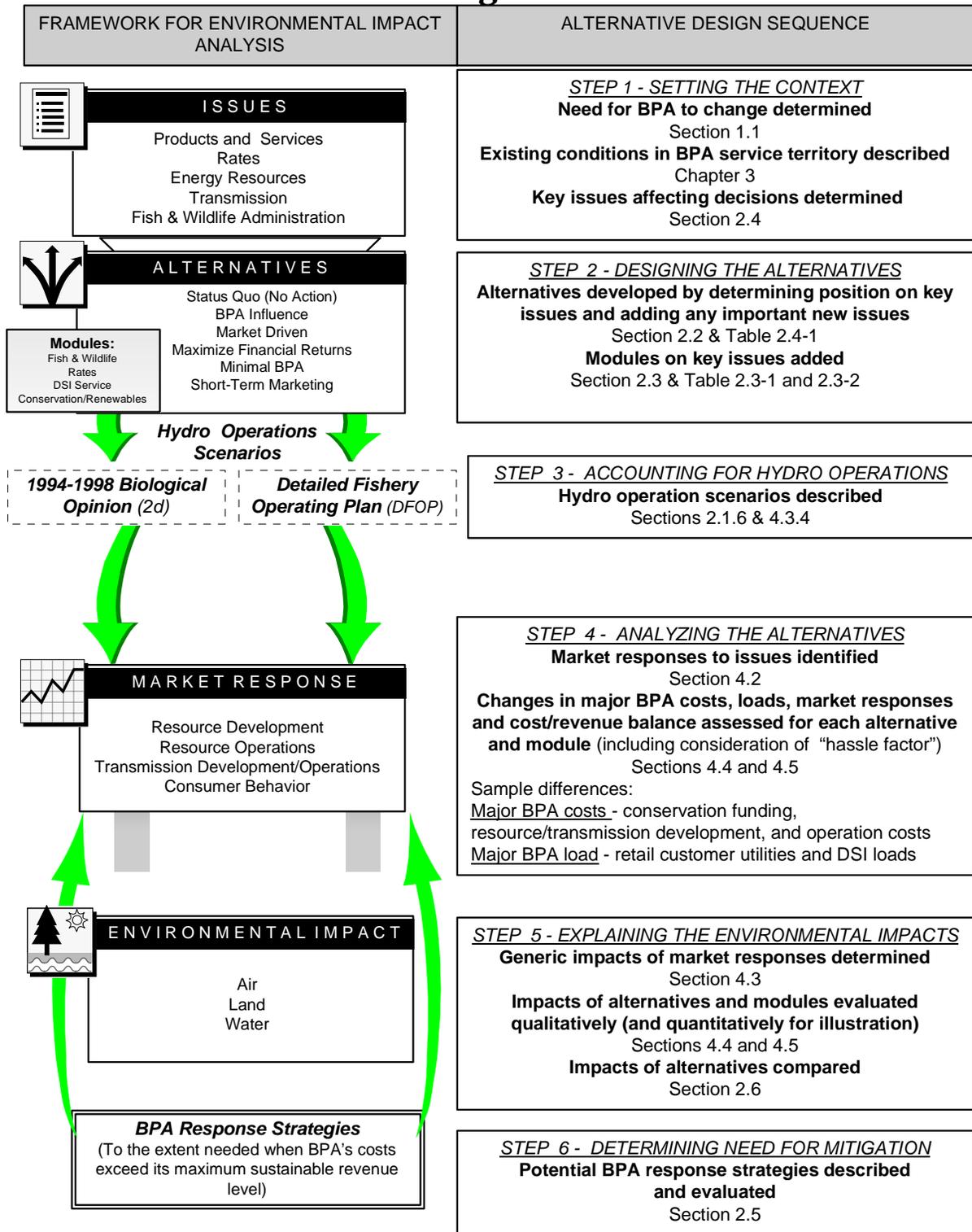


Figure 1.7-3: Key Considerations for Understanding and Applying Alternatives

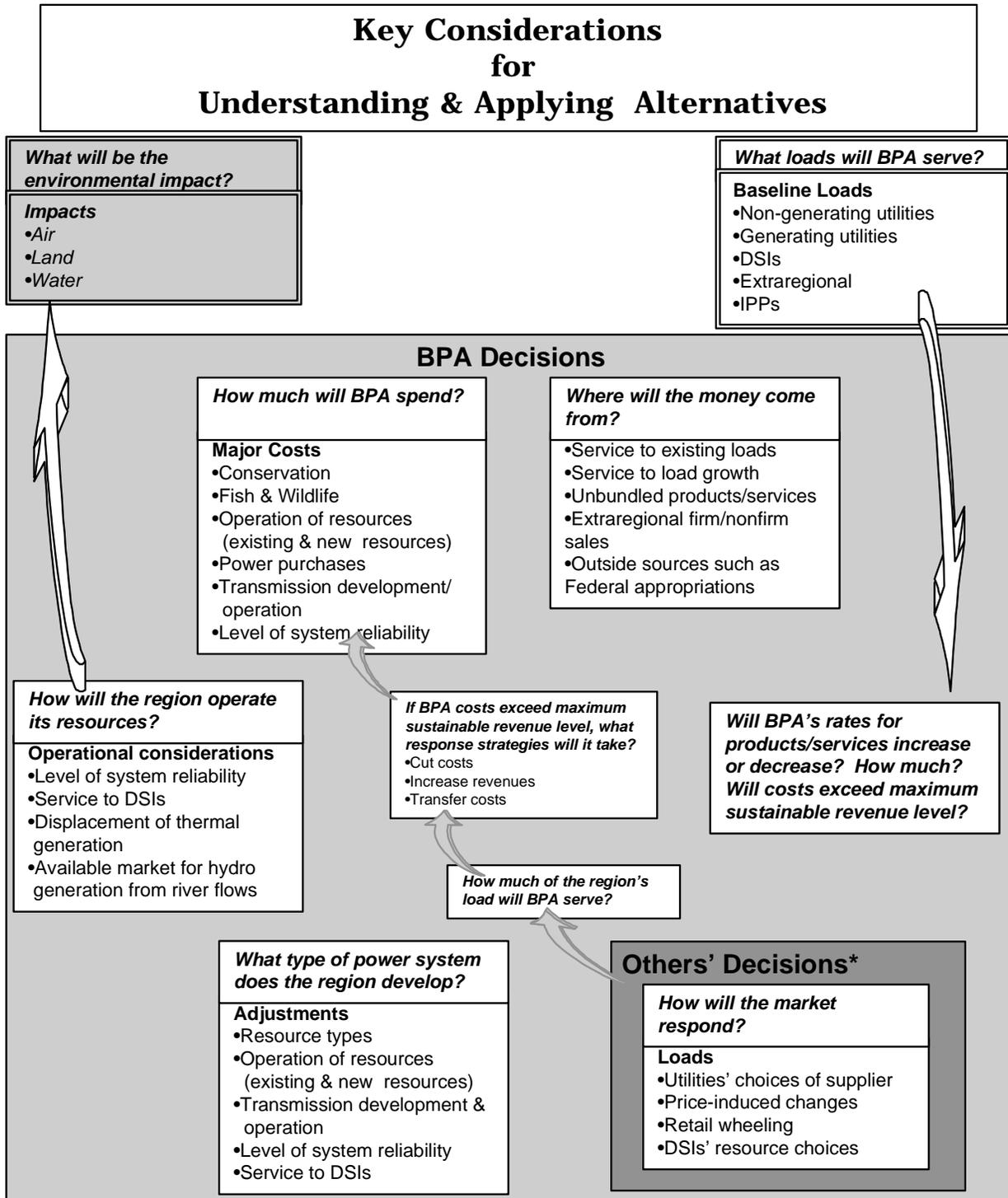
Figure 1.7-3 is designed to give you a quick picture of the factors that were keyed into the formation and evaluation of the alternatives. Some of them are factors wholly or partially under BPA's control; some are not. The figure begins with the loads (the different demands for electric power) and takes you through a repeating cycle of questions:

- Will the rates for products and services go up or down, and will costs and revenues balance?
- How will the market respond? For instance, will customers look elsewhere for their power?
- If BPA loses loads to other suppliers and anticipated costs are greater than projected revenues, how will BPA cut costs to keep costs and revenues in balance?
- What type of power system is desirable: How reliable should it be? How should it be operated? Should new generating resources be sought out or old ones retained?
- How will the region (as opposed to BPA) operate its resources: with the same priorities and standards? With different ones? How different?
- What can or should or will BPA spend its money on, given all its mandates to market and transmit power, to develop conservation and renewable resources, to protect and enhance fish and wildlife resources, and its other obligations as a government entity?
- Where will its revenues come from? If revenues from products and services do not match its costs, where else could the agency look for financial resources?

The team weighed and re-combined different answers to these questions in developing and assessing the alternatives. The end result for the team and for the reader is the last question:

- What will be the environmental impacts of any combination of answers to these questions?

FIGURE 1.7-3



* When BPA's prices or rates for products and services approach the level of our customers' alternative resource or transmission costs, then those customers will begin to buy from other suppliers. Changes in types and costs of resources will have a substantial impact on consumers' decisions to conserve or switch fuels, as well as BPA's customers' decisions to shift to other sources of power (e.g., self-generation or independent power producers).