Chapter 4: Environmental Consequences

4.1 Framework for Analysis

4.1.1 Introduction

The figure to the left illustrates the framework used to analyze environmental impacts of Business Plan alternatives. The environmental consequences of the alternatives result, for the most part, from market responses to those alternatives. Market responses are the actions that BPA, its customers and competitors, and end-use consumers take in response to BPA's actions in implementing its Business Plan. Section 4.2 identifies the market responses to the issues identified in chapter 2. Generic environmental impacts are addressed in section 4.3. Section 4.4 sets out the cumulative market responses and environmental impacts of the different alternatives, and section 4.5 does the same for modules. The FEIS projects actions, responses, and impacts to the year 2002, but the relationships are expected to hold true well beyond 2002..

4.1.2 Market Responses

BPA decisions on business direction do not by themselves result in environmental impacts. Impacts also result from the actions in the electric energy industry and among consumers in response to BPA's business decisions. Environmental impacts of the six alternatives can be derived from "market responses" to policy directions or to the treatment of issues under each alternative. For the purpose of this EIS, market responses are sorted into four categories:

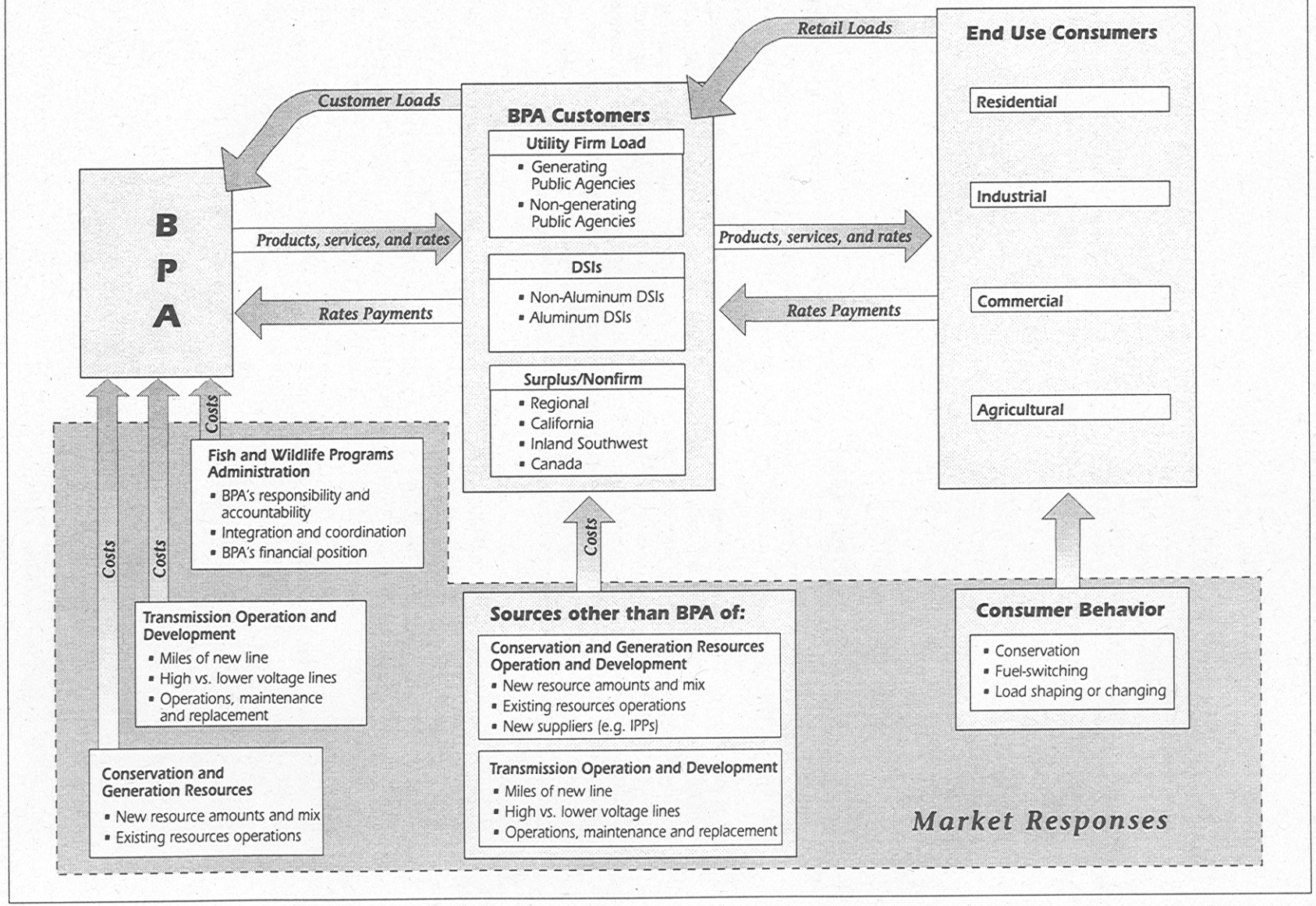
1. **RESOURCE DEVELOPMENT**
2. **RESOURCE OPERATIONS**
3. **TRANSMISSION DEVELOPMENT AND OPERATIONS**
4. **CONSUMER BEHAVIOR.**

These market responses include BPA actions and those of customers and suppliers, as these actions are often complementary. With some deviations, the PNW electric utility industry as a whole tends to develop sufficient resources to supply the total expected loads in the region: if BPA develops more resources, other developers will develop fewer, and vice versa. The total regional demand for electric power services will be met by all the actions of BPA and other suppliers, but the balance between them may shift depending on the capabilities, policies, and competitiveness of one or the other.

Figure 4.1-1 illustrates the interaction between BPA and its customers and their end-use consumers.

FIGURE 4.1-1

BPA's Utility Function and Market Responses



4.1.2.1 Resource Development

Resource development, the most prominent of these market responses, predicts the different amounts or types of resources developed by BPA or its customers in response to various BPA business decisions. BPA business decisions will affect the types of services available from BPA, the price for those services, and other conditions that may be placed on BPA service. These factors, along with the availability of comparable service from
other suppliers, will affect a utility's decision on whether to purchase electric power or services from BPA. The total demand for power services from BPA will define the total amount of additional resources BPA needs to meet its loads. The remaining demand in the region must be met by other suppliers. **Differences in environmental impacts will arise from differences in the types of resources acquired by BPA compared to those acquired by the suppliers that serve the remainder of the regional demand.**

For example, BPA may select resources with higher capital costs and lower environmental costs than a supplier more oriented toward near-term marketing. As a result, BPA resource acquisitions would include more energy conservation and less thermal generation than the other supplier's. If one alternative were to result in less resource development by BPA and more development by that other supplier, that alternative could lead to more land use or air quality impacts of thermal resources.

4.1.2.2 Resource Operation

Some BPA customers own generating resources. BPA's business decisions affect decisions by those resource owners about how to operate their resources and which power services to produce for themselves or to offer for sale. As with resource development, decisions by BPA customers about how much power service to buy from BPA compared to other suppliers will affect resource owners' decisions on which services to provide from their own generating resources. For example, a thermal generating plant may be used to provide baseload energy or peaking power, depending on the price and availability of peaking services from BPA. A decision by the owner of the plant to emphasize peaking power, rather than to purchase peaking services from BPA, could result in different air and water impacts of operating the plant than a decision to operate the plant for baseload energy. (Note: Federal hydro operations are limited by constraints established by Federal operating agencies in consultation with the NMFS under the ESA. Impacts of Federal hydro operations are described in section 4.3.4 and also are addressed in the SOR DEIS.)

4.1.2.3 Transmission Development and Operations

For many years, BPA has been the dominant developer of high-voltage transmission capability for the PNW, and for interregional transactions between the PNW and other regions. BPA facilities provide three-fourths of the high-voltage transmission capacity in the PNW. Generating utilities provide virtually all of the remainder. Depending on the costs and conditions of BPA transmission service in relation to the costs of new transmission construction, utilities developing resources or purchasing power from other suppliers may choose to develop their own transmission facilities rather than purchase equivalent services from facilities to be constructed by BPA. Differences in land use impacts could result from differences in voltage; for example, BPA might construct a 500-kV line where another developer would construct a 230-kV line. Increased land use impacts could also occur from construction of redundant capacity, where both BPA and non-BPA transmission were available to serve the same loads or resources.

Where BPA and non-BPA transmission facilities could provide the same service, a customer might choose between them based on price, availability, and other conditions of service. Changing transmission suppliers could alter line loadings and revenues among BPA and non-BPA suppliers. Different line loadings can change potential electric and magnetic field (EMF) exposure. The most significant portion of the transmission system with diverse ownership is the PNW/PSW Intertie. On the other hand, relatively few transactions over the within-region network currently offer customers a choice of suppliers because of the limited amount of non-BPA transmission and the central function of BPA transmission facilities. Where the non-BPA supplier of transmission service shares ownership with BPA, operations to supply a customer from another owner's share rather than BPA's would be the same; the only difference would be who receives the revenue.

4.1.2.5 Consumer Behavior

BPA's business decisions affecting its wholesale customers will ultimately influence end-use consumers through the cost of electric power or other conditions of electric utility service. Environmental impacts may arise from the actions consumers take in response to those costs or conditions. This market response is dominated by price effects. The retail price of electric energy, which results from utility decisions on resource development, resource operation, transmission, and retail rate design, may motivate a consumer to make changes in electric energy consumption. The principal choices available to consumers are as follows:

- to improve the efficiency of energy use (for example, by weatherizing residences or using energy-efficient appliances or lighting);
- to switch fuels (such as switching from electricity to natural gas or wood for space heating);
- to change the timing of use (as in response to time-of-day pricing, e.g., running laundry appliances and dishwashers at night); or
- to curtail use (foregoing energy use by reducing lighting, heating, or cooling).

These behaviors have environmental impacts, such as air emissions from combustion of natural gas or wood for heating, or potential health hazards of foregone consumption of electricity. These responses also result in changes in the amount and timing of electrical loads that affect the need for power system services.

Consumer behavior may also be affected by terms of utility service that permit interruption of power deliveries under predefined conditions. Utilities may offer discounted service to industries or other consumers in exchange for interruption rights to provide system reserves. The environmental impacts of such arrangements could be both beneficial and adverse: interruption could reduce impacts of consumptive uses, but socioeconomic effects of production and employment losses could offset the benefits.

4.1.3 Environmental Impacts

BPA can estimate the generic environmental impacts resulting from market responses, such as the impacts of different energy resource types, transmission construction, or consumer actions. These impacts are addressed in section 4.3. The generic environmental impacts of market responses can then be applied to the cumulative market responses of each of the alternatives (in section 4.4) to assess the environmental impacts of the alternatives. To establish the relative impacts among the alternatives, the cumulative environmental and socioeconomic impacts of each alternative are compared to those of the Status Quo alternative. The impacts are also presented as they would vary under a river system operation strategy that would sharply reduce power production capacity.

Environmental impacts addressed in the EIS include:

Physical Environment:

Air quality

Water quality

Land use (e.g., from power resource and transmission construction, irrigated agriculture)

Human health and safety (e.g., from electrical hazards, EMF exposure).

Socioeconomic Environment:

Effects of changes in products, services, and rates on:

Residential, commercial, industrial, and agricultural sector end users of electricity

DSIs

Economic effects on landowners in transmission rights-of-way.

Note that the analysis in this EIS is directed at policy-level decisions, rather than decisions on specific sites for development. It is not practicable to address site-specific impacts, due to the large number of potential sites for facilities and the uncertainty about the development of any individual site. See Section 1.4, Decisions To Be Supported by This EIS.

4.2 Market Responses by Issue and Alternative

This section describes the market responses to each of more than 20 policy issues defined in chapter 2, first in general terms and then specifically for each of the six alternatives. Table 4.2-1, at the end of this section, summarizes the market responses to each of the issues. The figure that begins this chapter shows how the market response analysis leads to estimates of environmental impact.

4.2.1 Products and Services

4.2.1.1 Bundling or Unbundling of BPA Power Products and Services

Background

Most BPA power products and services are now marketed in "bundled" form; that is, BPA provides a variety of different power system services as a package under a single rate schedule. The market response to bundled service depends on whether continued BPA bundled service will be competitive with services offered by other suppliers. Although BPA bundled service at current prices will continue to be attractive to many of BPA's customers, increases in BPA's revenue requirements would lead to increases in the price of bundled service. Bundled services at higher prices would have to compete with separate services offered by other suppliers; customers are now exploring alternatives to BPA service, such as baseload energy resources and purchases of power from other suppliers over interties.

If services from other suppliers cost less than BPA bundled service, BPA's utility customers could adopt service arrangements under their current power sales contracts (computed requirements service) that would allow them to obtain some services from these other sources while continuing to meet the remainder of their loads with Federal power. They would likely continue to rely on BPA for services derived from the flexibility of hydro operations, but they could be expected to obtain basic energy and capacity services, such as those that are produced by CTs, from other suppliers. BPA's share of regional loads would decline and the share of energy resources provided by other suppliers would increase.

Unbundled and rebundled BPA power services would enable BPA's customers to manage their costs by purchasing only services they actually would use. Rather than price a bundle of products together, BPA could price products and services separately to provide price signals reflecting the costs of services or to compete with other suppliers. Customers purchasing power and services in the market could purchase unbundled BPA services such as load shaping or generation reserves. These customers would select BPA services that were competitively priced and that matched their own load requirements and resource portfolio. BPA could offer a rebundled package of full requirements services for customers who would rely on BPA for all of their power needs.

Separate pricing of BPA services could stimulate the development of markets for individual services. Sales of unbundled services would be made by the supplier, whether BPA or another seller, who could provide services that customers demand at lowest cost. Compared to continued bundled services, the desirability of BPA service would be based on the individual product and price, rather than on the price of the whole bundle of products. The market response would depend on relative prices, i.e., on whether BPA's products and services were below, above, or near competitors' prices. With the large base of Federal hydro generation, BPA has a significant advantage in both cost and flexibility to keep its power products competitive.

Market Response

Status Quo

BPA would continue to offer historical bundled services. Rising costs of BPA programs would lead to increased rates for bundled service, while the price of non-BPA resources would follow the market and continue to be stable or decline. Customers would increase purchases of non-BPA resources, especially for firm baseload energy. As customer loads shifted from BPA to non-BPA resources, BPA rates would continue to increase, as costs were spread over sales to smaller total loads.

BPA Influence

BPA would offer unbundled services. Unbundling would enable BPA to maintain sales of its most competitive and valuable products to produce revenue to pay for resource and fish and wildlife actions. Surcharges to customers who failed to comply with the Council's Power Plan and F&W Program would change the economics of those customers choosing between BPA and other suppliers for power system services. To ensure that customers do not shift load away from BPA, BPA could include a stranded investment charge that customers would pay if they left the system. Current contracts could continue giving BPA a captive customer base through 2001. For some customers, the burdens of surcharges or conditions on BPA service would outweigh the benefits of unbundled service, resulting in their greater reliance on non-BPA suppliers to meet their needs for power products and services. BPA could use its influence to pursue and implement a regional fish and wildlife conservation tax.

Market-Driven

BPA would offer unbundled services. As with the BPA Influence alternative, unbundling would enable BPA to maintain sales revenues. However, without the surcharges of that alternative, customers would have less incentive to shift load away from BPA if they did not comply with the Council's Power Plan and F&W Program.

Maximize Financial Returns

BPA would offer unbundled services to compete with other suppliers. BPA would package its unbundled products to leverage its competitive advantages and maximize revenues. BPA would let non-competitive loads go to other suppliers but would aggressively create and price products to compete for desirable loads, including loads it has not traditionally served. Due to cost cutting, the lack of compliance surcharges, and marginal-cost, firm-power price signals, more regional load would remain with BPA under this alternative than under the other alternatives.

Minimal BPA

For administrative simplicity, BPA services would be sold in the same bundles as at present. Because BPA would not acquire additional resources under this alternative, all resources would be developed by others.

Short-Term Marketing

BPA would offer unbundled services in short-term transactions. Unbundling would provide the advantages of flexibility in marketing noted above, which would add to the flexibility provided by short-term marketing. As a result, BPA loads would increase over the Status Quo alternative, and the amount of load shifting from BPA to non-BPA suppliers would be comparable to that under the Market-Driven alternative.

4.2.1.2 Surplus Products and Services

Background

Currently, BPA makes sales of surplus firm power, both within and outside the PNW, as system operations or long-term planning indicates that surplus firm energy or capacity is available. Resource planning traditionally has been oriented toward providing sufficient resources to meet forecasted loads, and not toward creating or sustaining firm surplus generation capability for marketing purposes. BPA has considerable experience in marketing surplus Federal power from its efforts to market the large firm surpluses that forecasters identified in the early 1980s. Past BPA surplus firm power sales have been both short- and long-term. BPA's current sales of surplus power include contract provision for recall and conversion to exchanges so as to accommodate regional preference directives while supporting long-term transactions with parties outside the region. From this experience, BPA has established ongoing business relationships with extraregional parties; these relationships facilitate marketing of available surplus power products.

Surplus power products may be attractive to some customers that currently receive requirements service. BPA could create flexible offers tailored to other needs with fewer statutory mandates than requirements service.

The tentative nature of BPA power surpluses has made surplus power marketing, particularly to parties outside the PNW, a function of opportunity rather than a predictable element of BPA's overall marketing. The marketability of such opportunity products may change as the west coast bulk electric power market becomes more competitive, with open transmission access, more independent power producers, and the near-term availability of generation from California. BPA “as-available” surplus sales must compete with suppliers who offer power products on a more consistent basis, or BPA must find ways to maximize revenues and relationships with those suppliers. An alternative surplus marketing strategy would be for BPA to plan its resources and operations so that certain surplus products were available predictably from year to year, or for long-term transactions. If this strategy accurately anticipated the surplus products needed by the market, and BPA made sales, then its revenues would be enhanced.

Without a deliberate BPA strategy to acquire resources to support marketing surpluses, resource development would not change from the present practice. If BPA planned to establish long-term business relations with extraregional parties, resource acquisitions would have to include sufficient resources to support such relationships. Resource development in support of surplus marketing would tend to emphasize resources that could support the flexibility of the Federal hydro system, such as displaceable thermal generation, probably combined-cycle CTs, or perhaps dispatchable thermal generation, i.e., single-cycle CTs.

Market Response

Status Quo

Due to BPA's committed resource acquisitions and the expected shift of several hundred aMW of load from BPA forecasted firm power requirements to non-BPA supplies, BPA would have a substantial surplus under this alternative, which would be marketed as available, consistent with established BPA surplus marketing practices. BPA resource development would not change, but intertie transmission might be used more to market surplus power. Utility resource operations would shift to allow displacement with BPA power when practicable.

BPA Influence

BPA loads would be less than under the Status Quo alternative, so BPA could have more surplus power, given the same resource development. As with the Status Quo alternative, this surplus power would be marketed under BPA's established surplus marketing practices. Resource development would not change, but, as under the Status Quo, the intertie might be used more to deliver surplus sales.

Market-Driven

BPA would expand choices of products for sale to extraregional parties, including non-PNW IPPs/brokers/ marketers within the constraints of regional preference. BPA would have to acquire additional resources to fulfill contract obligations above its expected PNW firm load obligations. The type of resources needed would depend on the types of services in demand from extraregional parties. The most valuable resources to support extraregional sales would be those that could enhance the flexibility of the hydro system. They might include measures to reduce peak demands within the PNW and actions to increase nighttime minimum loads so that BPA could accept return energy more readily. BPA might develop or invest in some transmission to improve access to extraregional customers.

Maximize Financial Returns

BPA would seek to establish medium- to long-term extraregional contracts, based on the assumption that regional preference legislation would change so that BPA was not constrained by regional preference. BPA would develop resources necessary to support such contracts, probably by measures similar to those described for the BPA Influence alternative. Because BPA's loads would increase under this alternative, resources acquired to support surplus sales would be in addition to those needed to serve its PNW customers. BPA might develop transmission facilities to improve access to new marketing opportunities.

Minimal BPA

BPA would not acquire resources under this alternative. Any surplus sales would be on an occasional basis, arising from changes in annual capacities and firm load obligations under long-term sales contracts with customers.

Short-Term Marketing

BPA would offer the same products to the surplus market as to its regional firm power customers. Short-term marketing would favor short-term BPA resource acquisitions, presumably system power deliveries rather than resource output contracts. The amount of power resources BPA would acquire would depend on the appeal of short-term products in the market; short-term transactions should be more attractive when the cost of power services appears to be declining, and less so when power costs are stable or increasing.

4.2.1.3 Scope of BPA Sales

Background

The scope of BPA's current power sales and the forecasted firm power requirements loads for its customers are the basis for BPA resource acquisition planning. By expanding the scope of sales to include new customers, BPA could increase its sales of power and transmission services, and increase its revenues—assuming that it had resources and facilities available or could cover costs of developing new ones. Some of these potential expansions of BPA markets—for example, sales to utility pools or cooperatives, or to IPPs/brokers/ marketers—would add marketing flexibility and enhance BPA's competitiveness. Some expansions, such as service to new Federal agencies either within or outside the region, or to retail consumers, such as large industries now served by utilities, would also expand BPA sales at the expense of other sellers. Regardless of the potential revenue benefits, service expansions that lead BPA to compete directly with other utilities would raise sensitive issues about the rights of sellers now serving those loads. If implemented, these expansions could alienate sellers and risk losses to BPA sales. Any such expansion of the scope of BPA sales would have to be supported by BPA's statutory authority, or by appropriate revisions to that authority.

To the extent that BPA expanded its sales of surplus power, any surpluses due to resource overbuilding would be reduced. Ultimately, BPA would have to acquire additional resources to supply expanded sales.

Status Quo

Sales would be limited to existing customers. No additional resources or facilities would be needed.

BPA Influence

A wider scope would allow sales to utility pools and IPPs/brokers/marketers. Sales to utility pools would replace or retain existing BPA customer loads, causing little change from current resource needs. Sales to IPPs/brokers/marketers might in part replace loss of sales to existing loads, but could also indirectly supply loads BPA is not currently serving, potentially leading to additional BPA resource acquisitions. Sales to IPPs/brokers/marketers might in some cases lead to development of additional transmission facilities, if necessary to deliver power to IPP/broker/marketers' purchasers. BPA resource acquisitions would increase; non-BPA acquisitions would correspondingly decrease.

Market-Driven

Same as BPA Influence alternative.

Maximize Financial Returns

BPA would sell to the broadest possible range of purchasers to maximize revenues. Effects would be the same as those of the BPA Influence and Market-Driven alternatives, but increased due to the broader range of BPA marketing. Sales to retail consumers, if permitted, and to new Federal agencies might replace loss of sales to utilities and would compete with retail utilities serving those loads and others similarly situated. BPA resource development and perhaps also transmission needs would increase.

Minimal BPA

Scope of BPA sales would be limited to existing customers and existing production capability. Limited supplies might eventually restrict BPA sales to customers receiving long-term allocations of Federal system capability.

Short-Term Marketing

Same as BPA Influence alternative.

4.2.1.4 Determination of BPA Firm Loads

Background

Another important influence on BPA resource planning is the determination of its firm loads. This determination is done primarily under the terms of power sales contracts, and sets BPA's anticipated firm power obligations. Several specific issues are part of the determination of BPA firm loads.

Customers' Net Requirements

For customers without generating resources, BPA now meets their entire actual firm load. For requirements customers that own their own generating resources, BPA's firm obligation is limited to the customer’s firm load requirements, less its dedicated resources. BPA's power obligation would vary according to how firm load is calculated, the amount of power the customer’s resources can be assured to produce, and whether some loads are excluded from firm load. The greater BPA's firm power obligation, the more resources or power purchases BPA would need to meet that obligation.

Definition of Full and Partial Requirements

Under unbundled marketing, BPA would offer either full or partial requirements firm power service. Full requirements service would be available to customers that do not operate or participate in resources sold in the wholesale power market, i.e., nonmarketing customers. Those that participate in the market would take partial, instead of full, requirements service. Different obligations would apply to partial requirements service; examples would include a notice period of 9 months prior to the time when rates go into effect before BPA would be obligated to serve additions to firm load, and a take-or-pay purchase obligation.

This short notice period could cause a rapid reduction of BPA firm loads if BPA costs were significantly higher than the market, but would give utilities the ability to choose the service that best meets their needs as their situation and the market change. Longer notice provisions would keep customers from having as much opportunity to participate in the market and its benefits. If a customer chose to reduce its Tier 1 load, it would have to give BPA 7 years' notice to bring its load back up.

The amount of load BPA serves as full versus partial requirements would affect the uncertainty of BPA's firm load obligations on an operating basis and BPA's resource development risk. Higher full requirements loads would mean that BPA would be obligated to meet larger amounts of real-time actual loads under full requirements contracts. On the other hand, higher partial requirements loads could mean a lower total firm load obligation and a larger market for unbundled power system products and services for both BPA and other suppliers. If BPA's unbundled products and services were priced competitively, there should not be a price incentive for partial requirements customers to obtain unbundled power system services from non-BPA suppliers. In other words, if BPA actions caused more customers to choose partial requirements, BPA would have to provide more flexibility services rather than the baseload services that have been the focus of the past.

Resale of Federal Power

One of the purposes of Federal hydropower development has been to provide low-cost power to publicly owned utilities and to provide the benefits of Federal power to the consumers served by those utilities. BPA's current power sales contracts support these purposes by prohibiting the resale of Federal power. As the market for electric power becomes more competitive, allowing resale might benefit publicly owned utilities and their retail customers. For example, resale of Federal power saved through energy conservation programs provides a mechanism (called a "conservation transfer") by which small public utilities can finance conservation activities. Under a conservation transfer, based on modification in BPA statutes, BPA would have to deliver power to the reselling utility that would be more than that customer's actual loads. Some forms of resale might be appropriate to provide flexibility to customers that would purchase power from BPA under take-or-pay conditions. Generally, if BPA permits resale of Federal power, determining both BPA's firm obligation to that customer and BPA's total firm obligation becomes simpler, and the certainty of BPA's obligations increases. The general effect of this certainty would be to increase BPA's incentives to adopt certain resource development strategies, such as options contracts for resource output or reliance on system purchases, rather than to acquire long-term resources to meet its firm load obligations.

Delivery of Power Under Residential Exchange Agreements

At present, BPA exchanges power with certain PNW utilities under the Residential Exchange Program (RPSA). The program provides the benefits of Federal low-cost power to residential and small farm consumers by exchanging power at BPA's Priority Firm (PF) rate for equal amounts of power at the participating utility's average system cost, which is typically higher than BPA's PF rate. The amounts of power are equal, and in fact no power is actually transferred between BPA and the exchange parties. The result is a financial transaction, with payment going from BPA to the participating utilities, which are required to pass the rate benefits through to their residential and small farm consumers. If BPA can provide power at lower cost than an exchanging utility's average system cost, though, the transaction could become an actual power delivery, with BPA delivering Federal power to the exchanging utility, and providing power from the lower-cost source. This is known as an "in-lieu" purchase under the exchange agreements. Although there have been no in-lieu transactions under the exchange program so far, there is potential for BPA to exercise its

in-lieu rights by acquiring low-cost power in the market, and possibly by using BPA power surplus. BPA actions to reduce barriers, such as the 7-year notice in the current residential exchange contracts agreements for in-lieu, will also increase the likelihood of BPA providing in-lieu power in the future. If BPA began to make in-lieu purchases, the purchases in effect would shift resource acquisition from the exchanging utilities toward BPA. It could also result in more BPA power being used in the region, rather than being sold outside of the region. The exchanging utilities would have less need for new resources, because BPA's in-lieu power would serve their customers and they would have the power they otherwise would have exchanged with BPA. BPA's acquisitions would increase by the amount of the in-lieu purchases unless BPA were serving them with surplus power.

9(c) Deduction

The Northwest Power Act (Section 9(c)) provides that, if a PNW customer of BPA exports a resource from the region such that BPA's firm requirements obligations to that customer or any other customer would increase, then BPA must reduce the firm requirements load of that customer. Section 9(c) deductions would not be made if certain conditions were met (such as inability to conserve or retain the power for service to PNW loads by reasonable measures); then both BPA's firm power obligations to the customer and BPA's need to acquire resources could be reduced. Under some alternatives, for example, where a partial requirements customer purchases fixed amounts of BPA power, firm requirements may be defined such that exports do not increase BPA's obligations. In those cases, BPA would not need to reduce the customer's firm requirements.

DSI Contract Demand

Present DSI contracts (Section 8(a)(1)) define the entire DSI load as firm for operating purposes, but exclude the top quartile from firm loads for resource planning purposes. This distinction complicates BPA operational planning. If only the bottom three quartiles of DSI load were considered firm load, BPA planning would be simplified, and uncertainty in BPA firm resource requirements would be reduced. BPA could eliminate quartiles in new contracts or otherwise modify terms of service. The modules describe DSI service options; they are evaluated in section 4.5.

Allocation in Insufficiency

Following the direction of the Northwest Power Act, existing power sales contracts provide a formula for allocating available Federal firm power if BPA firm load obligations exceed available firm power. This allocation mechanism limits BPA's contractual and statutory obligation to meet customers' firm power requirements on 5 years' notice for capacity and 7 years' notice for energy. The allocation formula applies statutory priorities among BPA's customers, makes adjustments for customer resource development, and redistributes any allocations that exceed a customer's firm requirements. Since the contracts were signed, BPA has never had to allocate firm power under the contract formula. Possible variations in the allocation procedure include different notice periods, provisions to address treatment of DSI loads, and adjustments in customers' allocations based on energy conservation. Although insufficiency of resources should be less likely with a competitive bulk power market, BPA's allocation formula could influence customers' resource development decisions, such as DSI decisions on how much of their load to place on BPA, or utility decisions about energy conservation activities, which could in turn alter BPA's firm load obligations.

The combined effect of the issues affecting BPA firm load obligations is potentially to shift resource development between BPA and other suppliers. More inclusive determinations of BPA firm loads add to BPA's potential firm load obligation and therefore increase the potential need for new resources. Less inclusive determinations reduce BPA's potential obligation. Whether BPA actually has responsibility to serve these loads depends on customers' decisions on whether to obtain service from BPA.

Market Response

Status Quo

BPA and non-BPA resource development would be unchanged from present conditions. BPA resource surplus would be reduced with delivery of Federal power under residential exchange agreements, and the corresponding acquisition of power in lieu of exchange. Resource development by exchanging utilities would decrease.

BPA Influence

Same as Status Quo, except that allowing resale of Federal power would increase BPA load certainty.

Market-Driven

BPA firm loads would be reduced if customers choose other suppliers, but flexibility in contract terms would lessen the incentives for customers to reduce their BPA loads.

Maximize Financial Returns

Uncertainty in BPA loads would be reduced through specific negotiation of BPA obligations in individual transactions with customers.

Minimal BPA

BPA would not acquire resources; therefore, BPA loads would be determined by Federal system capability, regardless of resale.

Short-Term Marketing

Same as Market-Driven.

4.2.1.5 Marketing to Support Power System Stability and Quality

Background

Currently, BPA includes its costs to maintain system stability and power quality, such as costs for voltage support and harmonic control, in its prices for all customers. If BPA shifted costs from its customers collectively to individual customers that impose stability costs on the system, customers might be influenced to reduce their stability costs to BPA, either by persuading consumers to avoid operations that burden the Federal system, or by installing equipment to compensate for loads that adversely affect system stability.

Conversely, soliciting reserves from customer loads could create a market for reduced quality service that would reduce costs to consumers (most likely large industrial loads) that were willing to tolerate interruptions, in effect shifting the costs of higher quality service away from tolerant loads and toward intolerant loads. Such reserves might also provide a mechanism for financially stressed customers or consumers to reduce costs.

If customers could choose a lower quality of service, either in terms of energy supply or service interruptions, it would create opportunities for more efficient use of the power system. Nonfirm energy might be used to some extent to supply lower-priority loads, and nonfirm transmission could be used to deliver the power. Transmission facilities would likely operate at higher load factors. These results would reduce the need for additional generation and transmission facilities, avoiding the costs and rate impacts of new facilities.

For consumers receiving service at lower quality, the effect would depend on the arrangements for lower quality service. Retail service interruptions (most likely to large industrial loads) to accommodate

interruptions in BPA service could be prearranged, with advance notice, amount of load, duration, and frequency of interruption established by contract. Such conditions, especially if accompanied by reductions in power costs, might result in investments by affected consumers in protective devices, load controls, or actions to adapt to interruptible service. If a utility customer accepted lower quality service without such preparations, the result could be more disruptive due to unexpected power outages, potentially leading to reductions in consumer loads due to fuel switching or shutdowns if consumers chose not to tolerate service interruptions.

Market Response

Status Quo

Most system stability costs would be shared by all customers in power rates. Some standards would be enforced through power billing adjustments. DSIs would continue to provide stability reserves in exchange for a rate discount. BPA would meet stability and power quality needs largely by installation of control devices.

The DSI market for nonfirm energy and DSI system stability reserves would continue to allow BPA to avoid acquiring the firm resources and reserve capability necessary to serve an equivalent amount of firm load.

BPA Influence

Use of load reserves would be broadened to include retail industrial loads and other potential suppliers including IPPs. BPA would charge stability costs directly to responsible customers under its customer service policy. BPA's need for system control devices and the accompanying costs would be reduced.

Load interruption reserves (to the extent provided from customer loads) and lower-priority service options could reduce or delay the need for additional firm power facilities, both generation and transmission. It could also increase the load factor, and thus efficiency of use of existing facilities. Load interruptions causing occasional shutdowns could reduce production at affected facilities, with consequent economic effects.

Market-Driven

Same as BPA Influence.

Maximize Financial Returns

As in BPA Influence, use of load reserves would be broadened. Pricing according to quality of service would provide customers with price signals and incentives to consider alternatives for quality of service. BPA and its customers could negotiate different levels of service quality in individual transactions.

Minimal BPA

BPA would not offer quality of service options; DSI reserves would be limited by firm power available to DSIs under long-term contractual sales of Federal power. System stability costs would be charged as under Status Quo.

Short-Term Marketing

Same as BPA Influence, except that BPA might obtain reserves from consumer load on a short-term basis as necessary to support short-term marketing.

4.2.1.6 Unbundling of Transmission and Wheeling Services

Background

BPA provides both transmission and wheeling services over the main grid, fringe, and delivery portions of the FCRTS as well as interties. Currently, BPA's transmission service delivers Federal power to full and partial requirements customers; it amounts to approximately two-thirds of the activity on BPA transmission facilities. Presently, costs to transmit Federal power are included in the rates charged for the power.

BPA also provides transmission of non-Federal power on Federal transmission facilities (wheeling). For most of its wheeling service, BPA charges at a "postage stamp" rate, which includes a capacity and energy component but, in most cases, does not include a distance component (short-distance discount). Smaller amounts of transmission services reflect the cost of specific facilities or the distance the power is wheeled.

All BPA transmission services are based on "one-utility" planning; that is, BPA evaluates the need for transmission facilities with a long-term regional focus, as if the entire transmission and generation system were designed and operated efficiently by a single utility. BPA's transmission system is planned and constructed to a single set of reliability criteria, although actual reliability varies by area, depending on the amount and kind of load served. In addition, BPA provides network wheeling (e.g., transmission from multiple points of integration to multiple points of delivery) on both a firm (assured) and nonfirm (as capacity is available) basis.

BPA could unbundle its transmission and wheeling services in a number of ways:

- BPA's power rate schedules could charge separately to transmit Federal power, with variables for location or other attributes.
- BPA could charge for specific transmission support services (ancillary services) such as harmonics control and reactive support, or sets of facilities such as fringe, delivery, and generation integration segments (services that are now generally provided as part of transmission and/or wheeling services).
- BPA could charge separately for the use of specific new or existing main grid or intertie facilities.
- BPA could offer transmission services subject to curtailment under specified circumstances, e.g., transmission over a specific path with the right for BPA to cut service under specified conditions.

Choices related to unbundling transmission and wheeling products are closely related to choices about pricing (see section 4.2.2.2, Transmission and Wheeling Pricing). In general, the unbundling choices can be viewed along a spectrum of economic efficiency versus uniformity of pricing. BPA's current bundles of transmission services reflect a mix of uniform pricing and efficiency goals: basic sets of services generally offered at a single set of systemwide prices. If BPA were to unbundle transmission services, it might offer more choices that could support more efficient use of transmission system resources. However, costs for some utilities purchasing transmission or wheeling services would increase, while for others they would decrease.

EPA-92 and national transmission policies could affect the transmission services BPA offers in all the Business Plan alternatives described below. Under EPA-92, utilities and non-utility generators can request FERC to order a utility to provide service on the utility's transmission system, including ancillary services, and to construct new transmission capacity as necessary to provide the service. BPA already provides wheeling service over unused capacity on its transmission system, but EPA-92 might cause BPA to add transmission capacity to support FERC-ordered transmission service.

Market Response

Status Quo

BPA would continue to offer its current mix of transmission and wheeling products under existing rates schedules and contract terms, to the extent that doing so is consistent with FERC orders under EPA-92. EPA-92 specifies that costs attributable to providing wholesale transmission service pursuant to a FERC order for such access should be recovered, to the extent practicable, from the applicant, and not from the transmitting utility's existing wholesale, retail, and transmission customers. This provision of EPA-92 might result in some increased degree of unbundling of BPA's transmission services in order to charge appropriately for these transmission facilities and services. Implementation of EPA-92 might also lead to some marginal increase in transmission development in response to FERC orders to provide transmission service.

BPA Influence

BPA would offer unbundled transmission and wheeling services, with priority access provided to the integration of resources that comply with the Council's Power Plan and F&W Program. Although EPA-92 states that one standard for FERC review of wheeling requests is "public interest," it is not clear that this alternative would be fully consistent with FERC's implementation of EPA-92's transmission access provisions. For purposes of this alternative, BPA assumes it would be consistent. To the extent that BPA's customer utilities comply with the Power Plan and F&W Program by planning and acquiring resources on a long-term least-cost basis, this alternative would support long-term one-utility generation resource planning. Customers that do not comply with the Power Plan and F&W Program (e.g., by not implementing least-cost plans) would be given lower priority access to BPA's transmission system; in response, they could decide to comply with the Power Plan and F&W Program, could attempt to find transmission services from alternate sources, or could try to free themselves from the constraints of this policy by local generation and/or construction of their own transmission facilities if feasible. In the latter cases, transmission and generation development would happen less efficiently than under the Status Quo alternative.

Market-Driven

BPA would provide its customers with a broader range of choices of wheeling services. Services could include:

- separate point-to-point and network wheeling services;
- transmission services on specific contract transmission paths with options of two or three levels of curtailment; and
- separate subtransmission and ancillary transmission services (reactive support, control area services, etc.).

Providing more choices for wheeling services might generally promote more efficient development and use of facilities for transmission of non-Federal power. This effect would increase if the unbundled services were priced on an incremental basis. Utilities and non-utility generators would receive clearer price signals about the specific costs of wheeling services. To the extent that greater unbundling supports more efficient transmission system development, new generation would also be developed more efficiently, as utilities and non-utility generators have better information and price signals about the costs of delivering power.

Unbundling of wheeling services would increase efficiency over the Status Quo alternative. It might, however, increase transmission costs experienced by parties that purchase wheeling services from BPA, and might consequently lead to greater variation in the regional distribution of costs and services. However, power and wheeling customers would continue to be charged their proportionate share of the costs of the FCRTS. The delivery of Federal power would continue to be included in charges for power purchasers (rather than being

offered as a separate product). This bundling of power and transmission components of power costs would continue to provide a basic, broadly available service at systemwide embedded costs.

Maximize Financial Returns

BPA would maximize revenue from specific investments. Full and partial requirements customers would pay separately for the delivery of Federal power (i.e., transmission costs would not be rolled into power rates). Each product would be designed and priced to maximize BPA net revenues. Because EPA-92 specifies that all costs for transmission service must be recovered from applicant and charges for transmission service pursuant to FERC orders must be based on cost-recovery, BPA may be limited in charging prices for transmission and wheeling services that were significantly different from the underlying costs of providing the service. In addition, BPA's organic statutes require BPA to recover the costs of its transmission system from Federal and non-Federal customers based on their use of the transmission system. Within the current statutory framework, however, this alternative could support somewhat greater efficiency in transmission and generation development by offering clearer price signals for specific wheeling and transmission services.

The efficiency benefit might come at the cost of less uniform pricing: while for some customers, overall costs might drop, other customers might find that specific transmission or wheeling services that were previously rolled into the broader BPA power or wheeling products now had significant new costs. For these utilities, increased costs might lead to substantial rate increases and/or decreases in the level of service purchased from BPA. Some utilities are located where it is more expensive to provide transmission services (e.g., far from the existing Main Grid transmission system, or in the Puget Sound area, where existing transmission is constrained). These utilities might tend to develop more local generation and/or invest in more conservation in order to reduce overall costs of service. Utilities located where transmission can be provided at lower cost (e.g., utilities near the Main Grid transmission system on the east side of the Cascades) might rely more on power purchases or out-of-region generating resources.

Minimal BPA

BPA would offer transmission and wheeling services on its existing facilities under long-term contracts, but would not voluntarily construct new transmission facilities (although, pursuant to EPA-92, FERC might order BPA to do so). For administrative simplicity, transmission and wheeling services would be sold in their existing bundles. In the long term, this alternative would lead utilities to develop their own transmission and generation facilities independent of BPA. To the extent that such facilities are planned outside the long-term, one-utility planning framework used by BPA, transmission (and therefore generation) development would be less efficient than under other alternatives. Under current Federal law, no regulatory mechanism would ensure efficient transmission development, particularly at the local level, although some states do regulate certain major transmission facilities on a case-by-case basis. Redundant facilities and/or greater amounts of transmission at lower voltages might be developed, as utilities independently assess the need for new facilities. Alternatively, transmission facilities that are cost-effective when viewed in a long-term, one-utility context might not be constructed.

Short-Term Marketing

BPA would market its current bundle of transmission and wheeling services, but would do so only under short-term (less than 5-year) contracts, to the extent consistent with FERC orders under EPA-92. Because utilities would have little planning certainty about their transmission services, the inefficient development of transmission and generation facilities described for the Minimal BPA alternative might also occur in this alternative.

4.2.1.7 Other BPA Services

Background

BPA has developed capabilities in connection with its power marketing and transmission activities that could be offered as revenue-producing services. These capabilities include financial services to aid customer resource development, environmental analysis and cleanup, communication services using facilities associated with the transmission system, and other technical, administrative, or information services.

In the near term, such services are not likely to produce significant revenues in relation to current and expected revenues from power and transmission products and services. If new BPA services are competitive, however, they could eventually generate substantial revenues, which could reduce the amount of revenue BPA would require from power and transmission marketing. As a result, BPA power and transmission rates might be lower and less uncertain.

Market Response

Status Quo and Minimal BPA

No new services. All required BPA revenue would have to come from power and transmission marketing.

BPA Influence, Market-Driven BPA, Maximize Financial Returns, and Short-Term Marketing

New services could potentially help to lower or stabilize BPA's rates, reducing the incentive for BPA customers to shift load to non-BPA suppliers.

4.2.2 Rates

4.2.2.1 Power Pricing and Rate Attributes

Background

Much of the market response to BPA's decisions is a function of pricing, as shown in figure 4.1-1. Pricing is the marketing manifestation of BPA's decisions on resource acquisitions, transmission development, fish and wildlife activities, and other costs. Although each element of BPA's costs contributes to BPA’s revenue requirement and rate levels, the total revenue requirement ultimately drives the need to change rates. The exception is the Maximize Financial Returns alternative, where rates would not be based on costs, but on market prices for products and services BPA would offer. The pricing structure for power services would determine how costs would be distributed among customers and which costs customers would consider when comparing BPA services to those of other suppliers.

Many pricing and rate structure alternatives exist for BPA power products. The range of possible rate attributes and their market responses are addressed in detail in Appendix B. A simplified analysis of rates under the six alternatives is presented in section 4.4, together with conclusions about the effects of those rates on resource development and forecasted electrical loads. Depending on retail rate structure, consumers would pay prices reflecting the cost of new resources, and would apply energy efficiency measures, switch fuels, or reduce consumption. Effects of specific rate design modules are discussed in section 4.5.2.

Current BPA power pricing is based on anticipated average costs over the rate period, using BPA costs allocated to the production and delivery of power to customers. Rate schedules include time-of-day pricing for capacity; seasonal pricing for energy; market-indexed pricing for aluminum DSIs; discounts for quality of service to the DSI first quartile; and rates for customers with low load density or irrigation loads.

Alternative BPA power pricing could include:

- tiered rates for power or power services, with an initial block of service at one price, and additional purchases at a different, presumably higher price related to the marginal cost of new power resources;
- streamflow-based rates, to provide an incentive for consumers to shift power consumption to better match stream flows on the hydro system;
- seasonal rates, to provide an incentive for consumers to shift power consumption to better match overall power availability and cost;
- elimination of existing discounts, to provide more uniform price information to customers and consumers;
- surcharges for customers not in compliance with the Council's Power Plan and F&W Program or other purpose; or
- market-based pricing, with BPA prices set using information about costs and prices of alternative suppliers.

Market Response

Status Quo

BPA would continue to price power services under present ratemaking methodologies, including cost allocation and rate schedules. Rates would continue to rise as BPA's anticipated costs increase, improving the cost comparison of non-BPA supplies to BPA service. More customer load growth and some existing loads—especially among generating customers and DSIs—would switch to non-BPA suppliers, increasing the upward pressure on BPA's rates as increasing costs of continuing resource acquisition, transmission development, and other actions were distributed over a stable or possibly shrinking sales volume. If customers selected non-BPA suppliers, generation development would shift toward the resource choices of non-BPA suppliers and might increase the need for transmission facilities.

BPA Influence

BPA would sell rebundled firm power and services under a tiered rate, with the first tier limited to 75 percent of historical firm loads, and the second tier priced at the cost of new resources[1].

BPA would sell other power services as unbundled products at market-based rates. Irrigation discounts would be eliminated. Rates would include surcharges to customers not in compliance with the Council's Power Plan and F&W Program, and adjustments that priced power products according to streamflow on the hydro system. The tiered rate would provide an incentive for customers to obtain their firm power needs above BPA's first tier from alternative suppliers, but unbundled generation services, such as shaping or reserves, would add to the cost of non-BPA power, whether BPA or another supplier provided those services. As with the Status Quo alternative, if customers selected non-BPA supplies, generation development would shift toward the resource choices of non-BPA suppliers and might increase need for transmission facilities.

Full requirements customers would continue to purchase their full requirements from BPA, but the second-tier price would provide an incentive for those customers to implement their own conservation programs. The retail price resulting from BPA's second-tier price would also stimulate price-induced energy conservation, fuel switching, and reduced electric energy use by consumers.

[1] First-tier allocations could distinguish between customers that had engaged in energy conservation activities and those that had not, providing a larger first-tier allocation to those with more efficient loads through conservation actions. For the purpose of showing the effect of efficiency allocations, a 75-percent first-tier allocation serves as an average of larger and smaller allocations based on efficiency.

Market-Driven

In the short term, BPA might continue to sell power without using a tiered rate structure. In the longer term, as the marginal cost of power increases, BPA might sell rebundled firm power and services under a tiered rate. The first-tier price would apply to 90 percent of historical firm loads; the second tier would be priced at the marginal cost of power. BPA would market unbundled services at market-based prices. Irrigation discounts would be eliminated. As with the BPA Influence alternative, the tiered rate would provide an incentive for customers to obtain their firm power needs above BPA's first tier from alternative suppliers, but unbundled generation services necessary to support non-BPA power rates would add to their costs.

Also, as under the BPA Influence alternative, full requirements customers would continue to purchase their full requirements from BPA. However, the second-tier price would provide an incentive for utility-sponsored conservation programs and generating resources, while the retail price resulting from BPA's second-tier price (whether or not the retail price, too, were tiered) would stimulate price-induced energy conservation, fuel switching, and reduced electric energy use by consumers. The effect of the tiered rate in motivating customers to purchase from non-BPA suppliers would be less than under the BPA Influence alternative due to the larger first-tier allocation and the lower second-tier price. Compared to the Status Quo or BPA Influence alternatives, resource development would conform more to BPA's resource priorities (see Generation Acquisition, section in 4.2.3.2) than to those of non-BPA suppliers.

Maximize Financial Returns

BPA would price its products and services to the fullest extent possible based on market prices, with the goal of encouraging sales at a net financial gain. Because prices would not be tiered, any price signal would be limited to that of BPA's market-based price, and, consistent with BPA's marketing goal of maintaining sales, would not result in customers purchasing from non-BPA suppliers to the same extent that the BPA Influence and Market-Driven alternatives would. Because BPA would serve a greater portion of load growth, resource development would conform more to BPA's resource priorities than to those of other suppliers.

Full requirements customers would have a lesser price incentive to implement energy conservation programs than under the BPA Influence or Market-Driven alternatives, and the retail price effect of BPA's rates would be less than under the BPA Influence and Market-Driven alternatives.

Minimal BPA

BPA would sell bundled services at average cost under long-term contracts. For administrative simplicity, discounts and other rate attributes would be eliminated. Customers would have to obtain all of their requirements for power services beyond those available from existing BPA facilities, and committed under long-term contracts, from non-BPA suppliers. Generating customers could expand their resource acquisition and management activities to provide all of their new resource needs. Non-generating customers would have to develop resource acquisition and management capability, either individually or collectively via generating cooperatives or pools.

All customers would face the price of new resources for their incremental needs above BPA supplies, and would have corresponding motivations for energy efficiency.

Short-Term Marketing

BPA would sell rebundled firm power under tiered rates, and unbundled power services at flexible market-based rates in short-term transactions. Prices would be negotiated to reflect the allocation of cost risks between BPA and purchasers. Where BPA would bear the risks of price or supply uncertainty, the price would be higher, and the customer would have stronger incentives to purchase from non-BPA suppliers. Where the customer accepted risks, BPA's price would be lower. The extent to which customers purchased power and services from BPA compared to other suppliers would depend in part on the extent to which other suppliers' prices reflected these risks; if suppliers did not price according to risk, their prices might be more attractive than BPA's. Regardless of whether a customer relied on BPA or other suppliers, the wholesale price and

resulting retail prices would tend to reflect the market price of new resources for all power services not provided by rebundled BPA firm power.

4.2.2.2 Transmission and Wheeling Pricing

Background

BPA's current transmission and firm wheeling rates are based on embedded costs incurred for transmission and incremental costs. The costs of transmitting Federal power are determined from the appropriate share of overall transmission system costs and are included in power rates. The cost of transmitting non-Federal power over BPA facilities is reflected in BPA's wheeling rates. The Integration of Resources (IR) rate for firm network wheeling is a "postage stamp" rate based on the embedded costs of the main grid and secondary transmission systems. The IR rate also includes a discount for short distances. Wheeling services under the Formula Power Transmission (FPT) rate are priced based on embedded costs using a formula that has a distance component. Certain transmission services are sold through rates that reflect the costs of using specific facilities (e.g., the Use of Facilities Transmission rate or the Townsend-Garrison Transmission rate over BPA's section of the Montana [Eastern] Intertie).

BPA could change how it prices transmission and wheeling services in a number of ways:

- BPA could charge the costs of transmitting Federal power to customers separately from power rates, instead of rolling those transmission costs into power rates as at present.
- BPA could offer discounts or impose surcharges for integrating specific resource types (such as renewables) or locations (e.g. west-side) for certain types of transactions (such as conservation transfers), or for other reasons.
- BPA could use opportunity cost pricing in its rates, subject to statutory constraints.
- BPA could increasingly use incremental pricing for transmission or wheeling over specific facilities, as appropriate.
- BPA could price transmission services in tiers, on the basis of new facilities and capacity versus existing facilities and capacity.
- BPA's wheeling rates could have zonal components (i.e., a hybrid of distance and "postage-stamp" rates).

Choices related to pricing transmission and wheeling services are closely related to choices about unbundling transmission and wheeling services (see Unbundling of Transmission and Wheeling Services, above). Choices about transmission and wheeling pricing can similarly be considered in terms of choices along a spectrum of economic efficiency versus uniformity of pricing. To the extent that BPA charges for specific, more narrowly defined transmission and wheeling services, or on the basis of incremental or opportunity costs, the transmission and generation system could be operated and developed more efficiently, because there could be clearer price signals that indicate the costs of delivering power.

Unbundling services and/or charging incremental or opportunity costs for specific services could, however, increase the range of costs that different utilities would experience for the services they receive from BPA. For example, if BPA charged separately for transmission of Federal power, and priced transmission services over new facilities at their incremental cost, the price for power delivered to the Puget Sound area could rise, as new cross-Cascades transmission facilities have to be added. The general result could be increased disparities in the prices utilities throughout the region pay for many services that are now priced more uniformly across the region on the basis of embedded costs (although, overall, BPA would have to continue to allocate costs of transmission between Federal and non-Federal customers on the basis of their use of the system). These disparities could influence customers' decisions on resource siting, or the marketability of resources output based on the influence of wheeling costs on the total cost to the purchaser of power services offered by different suppliers.

Market Response

Status Quo

BPA would continue to offer transmission and wheeling services under current rates schedules, to the extent that doing so was consistent with FERC's implementation of EPA-92's transmission access provisions and transmission pricing policy. Most wheeling might be provided under embedded cost pricing.

BPA Influence

BPA would offer a rate discount for wheeling energy from resources identified in the Northwest Power Act as priority resources (i.e., conservation, renewable resources, cogeneration, and high-efficiency resources) and/or for services for utilities that comply with the Council's Power Plan and F&W Program, consistent with EPA-92. As stated under Unbundling of Transmission and Wheeling Services, providing this type of access priority for certain resources could support the goal of coordinated, long-term generation resource planning. Utilities that do not comply with the Council's Plan and Program might see rate increases to cover the discounts. This could cause them to purchase transmission services from other sources or to build their own transmission or local generation, leading to less efficient transmission and generation development than under the Status Quo alternative. However, little effect on transmission and generation development decisions would be expected, since the transmission cost increase would be small compared to the overall project cost.

Market-Driven

BPA might continue to roll the costs of delivering Federal power into power rates; however, BPA power bills would identify the costs associated with transmission (which would have the same cost basis as applied to wheeling services). While continuing to use embedded costs for some wheeling services, BPA would also use more opportunity and incremental cost pricing and distance-based rates (consistent with national transmission pricing policy). The objective would be to offer more flexibility to some customers, and to provide clearer price signals about the costs to BPA of providing wheeling services.

New applications of distance-based rates and opportunity and incremental cost pricing might include:

- Zonal rates that charge for wheeling on the basis of the number of zones involved in the transaction.
- Use of opportunity costs to price intertie wheeling in congested conditions, when providing firm transmission service/access over Federal facilities would cause BPA to forego nonfirm transactions (e.g., when congestion over a specific transmission path caused BPA to spill water or use other, more expensive resources to meet its loads). Opportunity cost pricing would compensate BPA for such verifiable costs.
- Use of incremental costs that reflect the costs of constructing new facilities.
- Network service (as proposed in the 1995 FERC NOPR) that would provide additional flexibility and multiple points of integration and delivery and that would treat network service customers for planning purposes as if they were BPA load.

Pricing more wheeling services using cost bases other than embedded costs could promote more efficient development and use of transmission and generation facilities by other utilities and non-utility generators, and overall, could lead to a more efficient power system.

Maximize Financial Returns

BPA would rely much more on incremental, opportunity, and distance-based costs in its wheeling rates, and would charge separately for transmitting Federal power to customers. BPA's rate-setting objective would be to maximize financial returns on all facilities, particularly in the short term, with less concern for the widespread

provision of basic transmission services. Both wheeling and transmission rates would more closely reflect market signals, and, in that respect, would promote efficient use of facilities; however, the range of costs faced by regional utilities would vary widely. Some utilities might face substantially increased costs, while others might experience significantly lower costs. In the context of EPA-92, and BPA's organic statutes, there likely would be limits to the market prices of transmission and wheeling services.

Minimal BPA

BPA would offer transmission and wheeling services on its existing facilities under long-term contracts, but would not voluntarily construct new transmission facilities (although, pursuant to EPA-92, FERC might order BPA to do so). For administrative simplicity, existing transmission and wheeling rate schedules would be used. In the long term, this alternative could lead utilities to develop their own transmission and generation facilities independent of BPA. To the extent that such facilities are planned outside the one-utility framework used by BPA, transmission (and therefore generation) development would be less efficient than under other alternatives. Although some states regulate major transmission facilities on a case-by-case basis, under current law no regulatory mechanism ensures efficient transmission development, particularly at the local level. Redundant facilities and/or greater amounts of transmission at lower voltages might be developed as utilities independently assess the need for new facilities. Alternatively, transmission facilities that are cost-effective when viewed in a long-term, one-utility context might not be constructed.

Short-Term Marketing

BPA would market transmission and wheeling services under its current rate schedules, but would do so only under short-term (less than 5-year) contracts to the extent not ordered otherwise by FERC under EPA-92. Because utilities would have little planning certainty about their transmission services, the inefficient development of transmission and generation facilities described for the Minimal BPA alternative would also occur in this alternative.

4.2.3 Energy Resources

4.2.3.1 BPA Conservation Acquisition

Background

Energy conservation includes a wide range of methods to save energy and capacity in the commercial, industrial, residential, and agricultural/irrigation sectors. Since 1980, when the Northwest Power Act was passed, BPA has acted as a catalyst to encourage energy conservation in its service territory. BPA has stimulated conservation by spending roughly $1 billion over the past decade building an infrastructure to support conservation activities and to prove their viability as an energy resource. BPA's energy conservation efforts have included a variety of approaches in all four sectors. BPA provided financial and technical support for State and local codes and standards and funded centrally designed programs, R&D programs, and some third-party program designs. In the past, most of BPA's energy conservation efforts used BPA-designed programs with a discrete set of measures that were to be taken as an all-or-nothing package. For the last few years, BPA has been testing third-party program designs such as billing credits, competitive bidding, and targeted acquisitions. Currently, BPA is trying to communicate the minimum standards, requirements, and conditions under which it will purchase conservation resources, allowing others to offer specific programs for conservation. In all approaches BPA has funded the programs, except for some limited cost-sharing.

If BPA funds fewer grant-type activities and instead promotes conservation through price-induced (power rate) incentives such as tiered rates and energy service charges, will the region continue to move toward maximizing its energy conservation potential? There is a disputable balance between the costs of conservation (such as lost revenues to BPA and other utilities and the amount of wholesale and retail power rate increases) and the benefits (such as the displacement of the need for new generating resources [avoided resource costs]

and the decrease in participating retail consumers' bills). The point of this balance determines the level of conservation or energy efficiency that occurs in the region. Driving this issue are uncertainties about whether BPA's continued financial presence in energy conservation is needed, whether present or future regulatory processes through the states and/or public utilities commissions can stimulate utilities to continue improving energy efficiency, whether electric utilities will maximize energy conservation as part of their own least-cost planning, and whether consumers will increase conservation in response to rate increases.

Market Response

Status Quo

BPA would continue to fund and pursue the 660 aMW of energy conservation by 2003 set forth in BPA's 1992 Resource Program. It would continue to stimulate the region's energy conservation activities by spending approximately $1.3 billion from 1996 to 2003, through centrally designed programs and acquisition of other utility-designed projects in the region. BPA would continue to fund R&D for testing additional energy conservation opportunities. Because of the costs to fund energy conservation and the potential lost revenues from reduced power sales, BPA wholesale rates would creep upward, causing some utilities with perceived lower-cost resource options to purchase power from other suppliers. This action would, in turn, reduce loads placed on BPA and cause its rates to rise even further. A small amount of additional price-induced conservation would be expected as rates increased. As the utilities developed other resources, the need for BPA transmission would likely grow, increasing BPA's transmission revenues and offsetting some portion of the lost power revenues.

BPA Influence

BPA would require all utilities desiring BPA power and transmission services to have a Council-approved least-cost plan that included the implementation of all cost-effective energy conservation. BPA would also institute price incentives such as tiered rates to promote increased energy conservation. Most conservation programs would be utility-designed and -funded. BPA would reduce its spending for incentive programs and direct its efforts at programs such as transfer programs (utility energy conservation savings which are permitted for resale to others without reducing BPA power supply) and R&D energy conservation opportunities. Where these mechanisms did not achieve targeted cost-effective energy savings, BPA would support further incentive programs. To the extent that BPA's transmission and power services costs were below the costs of the utilities' other resource options, utilities would continue to purchase their power requirements from BPA and implement their approved least-cost plans. Where utilities had resource options with costs comparable to BPA's services and the utilities' conservation costs, the utilities would likely take steps to reduce their loads on BPA. The costs and rate impacts from the changes in the resources and associated transmission in this alternative would be similar to those in the Status Quo alternative.

Market-Driven

BPA would continue to pursue the 660 aMW of conservation according to its 1992 Resource Program, by taking its lead from the market and responding with a mix of energy service changes, pricing strategies, and BPA-funded activities. In the long term, pricing strategies might include tiered rates to induce conservation. BPA-funded programs would be tailored to utilities' needs and BPA would become a “seller” of conservation through items such as specially structured loans to utilities. BPA would also fund a small R&D program to identify marketable conservation products. As utilities began to respond to BPA's price signals, BPA could adjust appropriately between pricing and funding efforts to mitigate the rate effects and subsequent load, resource, and transmission responses described in the Status Quo alternative. Where these mechanisms did not achieve targeted cost-effective energy savings, BPA would support further incentive programs.

BPA would engage in regional market transformation efforts designed to bring about lasting efficiency improvements or changes in energy consuming behaviors.

Maximize Financial Returns

BPA would sell its products and services at market value, providing utilities the price signal for doing their own conservation. BPA would fund only conservation that had a proven market and a cost below the near-term marginal rate impact of acquiring the next least-cost resource (presently gas-fired CTs and cogeneration). This would considerably reduce the amount of conservation available to BPA. Conservation R&D would be limited to measures commercially available in the near term and priced below the rate impact of a new resource. Sales of BPA power and transmission products and services would be more important than conservation. BPA rates would remain stable, and utilities would be less likely to leave or reduce load on BPA. Some customers might place more load on BPA, increasing the amount of resources BPA would acquire and the associated transmission it would construct.

Minimal BPA

BPA would not need to acquire conservation because it would not be acquiring any new resources. BPA would stop its current conservation acquisition activities and would buy out or terminate many conservation projects underway. BPA would discontinue conservation R&D efforts. Some customers would likely continue their conservation activities as part of least-cost plans required by state and local regulations. The region would build more generating resources and associated transmission to compensate for the reduction in conservation by BPA. BPA rates would stabilize.

Short-Term Marketing

BPA would acquire only conservation that could be paid for within short-term contracts. This would reduce the amount of conservation achievable. In addition, BPA would market its conservation services and R&D conservation technology. BPA's marketing of conservation services would enhance utility conservation efforts but would lead to relatively small increases in regional conservation because of the lack of additional funding for longer-term measures. BPA would replace the conservation not acquired with spot-market and import purchases. Conservation by the rest of the region would continue, as in the other alternatives, because of state and local regulations. In the near term, BPA rates would stabilize and customer loads would increase.

4.2.3.2 BPA Generation Acquisition

Background

Under the Northwest Power Act, BPA can acquire the output or capability of an electric generating facility, but cannot own the facility. Consistent with the Council's Power Plan, BPA acquires generating resources in order to meet its contractual obligations to supply cost-effective electric power to its customers. BPA's 1992 Resource Program is the planning document that describes the actions BPA will take to meet these power requirements through 2003. The supply of generating resources available to BPA includes renewables (hydro, geothermal, wind, and solar), cogeneration (including solid waste-fired, wood-fired, and natural gas-fired), CTs, coal, and clean coal. The WNP-1 and -3 plants have been terminated and are no longer potential additions to BPA’s power resources. Unless new technology resolves issues such as large unit size, long lead times, non-displaceability, high capital costs, concerns over waste disposal, and public controversy over siting, nuclear energy is not likely to be a part of the region's energy future.

Fuel choice, the decision consumers face when they have options to meet end-use energy needs, affects generating resource acquisitions. Consumers who choose alternate fuels can potentially reduce the load obligations (both peak loads and overall energy requirements) placed on electric utilities. BPA's 1992 Resource Program included an analysis of the choice between electricity and natural gas for residential space and water heating. Although residential fuel choice is the near-term issue, there is a potential for fuel choice to be an issue for commerce and industry in the future.

Location and transmission system integration are important issues associated with generating resource development. Generally, resources located farther from load centers require more transmission. But dispersed generation has the potential to improve the operational efficiency of transmission and distribution systems.

BPA was pursuing about 350 aMW of new generating resources through competitive acquisition and billing credits, plus 1,150 aMW of options through the Resource Contingency Program (RCP). BPA is also pursuing renewable energy resources in the region through the Resource Supply Expansion Program (RSEP). Because of changes in the wholesale power market, BPA is considering terminating those resources that are no longer cost-effective.

Market Response

Status Quo

BPA would have acquired 400 aMW and option 250 aMW of additional resources as specified in the 1992 Resource Program. The output of these resources would be acquired competitively and consistent with the Council's Power Plan. How the cost of these resources affected BPA's power rates would determine whether customers relied on BPA or pursued other options. To the extent that BPA's power rates were below the cost of the customers' other options, customers would remain with BPA. As BPA's costs approached the cost of the customers' other options, customers would begin pursuing those other options. Under this alternative, BPA likely would overbuild relative to demand. BPA would continue its commitment to the RSEP. Transmission development would be determined by the location of the generating resources selected by BPA and by any transmission needs associated with the customers' other options.

BPA Influence

BPA would require all customers requesting power and transmission services to buy or build generating resources that were consistent with the Council's Power Plan. Because BPA would implement tiered rates, the cost of power from BPA to serve load growth could be above the marginal cost of the customers' other resource options. Many of BPA's customers would pursue these other resource options. In addition, under this alternative, many end-use consumers would probably exercise fuel choice and move away from electricity for their energy needs. BPA would acquire fewer resources than under the Status Quo alternative but would still follow the priorities of the Council's Power Plan. BPA would hold options on contingency resources in proportion to firm requirements load. BPA would continue its commitment to the RSEP and thermally matched cogeneration. To the extent that customers planned and acquired resources on the basis of a Council-approved least-cost plan, this alternative would support the one-utility planning concept. Customers not complying with this requirement would be denied the more desirable and lower-cost benefits of BPA's power and transmission system. As in the Status Quo alternative, the amount and type of new transmission would be determined by the location of new generation and by customer requests. As customers reduced the loads placed on BPA, BPA's rates would rise. Some of this increase would likely be offset by the revenues from transmission services.

Market-Driven

BPA would rely on strategic purchases of short-term energy to meet part of its firm load obligations. Therefore, BPA would acquire fewer generating resources than under the Status Quo alternative, although those resources still would be consistent with the Council's Power Plan. BPA resource acquisitions could include joint ventures with customers. Additions of CTs would enhance BPA's ability to supply high-value products and services. Retail curtailment options would add to Federal hydro dispatchability. Despite BPA's competitiveness and diverse marketing efforts, fuel choice would still influence the amount of generating resources BPA acquired. BPA would provide minimal funding of the RSEP to prove the cost-effectiveness of renewable energy resources. Fuel options (gas ventures) would provide for contingencies not covered by short-term purchases. BPA analyzes all planned and existing generation projects and considers terminating those

that are more expensive than firm power purchases or new resources. Under this alternative, new transmission would depend more on customer requests than on new resource development by BPA.

Maximize Financial Returns

BPA would focus on near-term resource costs. The agency would import more power because of this focus on low-cost, high-discount resources. Since BPA would pursue only those resources with a high probability of being commercially available in the near term, the RSEP would be smaller than under the Status Quo alternative. BPA would make strategic investments from retained earnings, acquiring only resources that supported a competitive advantage in unbundled markets. In this alternative, some end-users might actually choose electricity over fuels. BPA analyzes all planned and existing generation projects and considers terminating those that are more expensive than firm power purchases or new resources. Because BPA would rely on the market to respond to resource needs, BPA probably would not hold options on generating resources. As a result of the focus on power purchases, BPA would invest in extraregional transmission. Transmission needed to integrate generation would be developed at the request of customers.

Minimal BPA

BPA would allocate current system capability. Therefore, it would acquire no resources beyond those already under construction. Other planned but unbuilt generation projects would be terminated. Because BPA would only allocate existing resources and not meet additional load, the agency would not acquire contingency resources or options. In addition, the RSEP would be discontinued. Because BPA would not develop new resources, it would not develop new transmission.

Short-Term Marketing

BPA would function primarily as a broker, relying on spot-market purchases for up to 5 years to meet firm loads. Long-term acquisitions would be made only if justified based on economic advantage or flexibility. Part of BPA's load would come from consumers changing to electricity to meet some end uses. Funding for the RSEP would be minimal. Options pursued would include “off ramps” to give BPA flexibility. Transmission system development related to new generation would be minimal. Transmission system additions would be planned to secure marketing benefits for BPA.

4.2.3.3 Off-System Purchases

Background

Although BPA resource planning historically has relied on long-term firm power acquisitions to meet forecasted firm loads, interregional system connections facilitate sales of power between systems. These purchases are frequently used to meet near-term operational needs. Deregulation of wholesale electric power markets could stimulate development of generating resources and enable developers to offer power for system sales to BPA or other purchasers. BPA might be better suited than other suppliers to take advantage of off-system purchases due to the storage and shaping capability of the Federal hydro system, which would give BPA more flexibility in timing energy deliveries.

If BPA used more off-system purchases to meet firm power requirements, it could avoid acquiring other firm, long-term energy resources. Resources in other regions would be operated to supply power for BPA purchases. Costs to BPA would depend on the market; if deregulation of the market led to overbuilding of generation among interconnected systems, the price for system sales would likely approach the operating and delivery costs of marginal resources, and might be less than the cost of long-term firm acquisitions. If demand exceeded supply, off-system purchases could be more expensive than firm acquisitions. These costs would lead to rate impacts on BPA's customers and retail consumers. In an uncertain market, a strategy to meet some portion of firm loads with off-system purchases would avoid the risks of long-term commitments, while increasing the cost and supply risks of relying on the market. Transmission capability might limit the extent

to which BPA could rely on off-system purchases. Outages, especially on the PNW/PSW Intertie, could interrupt deliveries and require emergency actions to meet BPA loads.

Market Response

Status Quo

BPA would continue to acquire firm resources to meet forecasted firm loads, using off-system purchases to respond to short-term needs and opportunities during the operating year.

BPA Influence

Same as Status Quo.

Market-Driven

Supplying a portion of firm loads with off-system purchases would reduce long-term firm resource acquisitions and shift generation from planned new resources to existing generation in other regions.

Maximize Financial Returns

Similar to Market-Driven, but off-system purchases would be used more, in response to short- or long-term marketing opportunities.

Minimal BPA

BPA firm power obligations would be limited by Federal system capability, so no off-system purchases would be necessary to support those obligations.

Short-Term Marketing

The potentially better match between off-system purchases and the terms and risks of short-term marketing could result in greater reliance on purchases under Short-Term Marketing than under any other alternative. Firm resource acquisitions and related transmission development would be correspondingly reduced.

4.2.3.4 Least-Cost Power Resource Planning

Background

The two most influential factors in least-cost power resource planning are environmental costs and the discount rate. Variations in the values of these factors can alter priorities among resource types, and change the composition of the supplier's resource portfolio. Environmental costs particularly add to the costs of combustion-type energy resources. Fossil fuels also have environmental costs related to extraction. Of major concern with these energy technologies is carbon dioxide and its relation to global warming. Where environmental costs are given greater weight, any cost advantage held by fossil fuel and combustion resources over energy efficiency and renewable resources tends to be diminished.

The discount rate applied in calculating the costs of resources can also alter the relative costs of different resource types.[2] A low discount rate favors capital-intensive resources, while a high discount rate favors

[2] The discount rate indicates the purchaser's perception of the future value of a present cost. A high discount rate means that the purchaser believes future value declines rapidly; a low discount rate means that the purchaser believes the value of the item extends farther into the future.

resources with low financing costs and relatively higher operating costs. In the current market for energy resources, a low discount rate favors energy conservation and renewable resources, while a high discount rate favors CTs.

Where, as in the BPA Influence alternative, a least-cost standard is a condition of service, the degree of consensus on environmental cost and discount rate incorporated into that standard will contribute significantly to the customer's willingness to conform to such conditions. The less the customer agrees with the values of the required standard, the more likely it is that the customer will choose to purchase power services from suppliers who do not attach such conditions to service.

Market Response

Status Quo

BPA resource acquisitions would conform to the Council's direction on least-cost planning. Regulated utilities would be subject to least-cost requirements of public utility commissions. For resources that fall under state siting processes, resource developers also would be subject to least-cost planning requirements of siting authorities. Customers' decisions on whether to purchase power services from non-BPA suppliers would not be significantly affected by BPA's assumptions on least-cost planning conditions.

BPA Influence

Council-approved least-cost plans would be a condition for unbundled services and other BPA service flexibility. Surcharges would apply to BPA services to customers without approved plans. BPA would apply conditions to all customer resource acquisitions, including resources developed by unregulated utilities and outside of the control of state siting authorities. Customers developing or acquiring resources inconsistent with Council direction would pay surcharges, and might take steps to meet all power service needs (existing loads and load growth) without BPA services.

Market-Driven

Same as Status Quo.

Maximize Financial Returns

BPA least-cost planning would be more heavily weighted by near-term monetary costs; environmental costs would be considered as a decision factor. BPA would develop fewer conservation and renewable resources. Customer resource development decisions would be made on the same basis as under Status Quo.

Minimal BPA

BPA would not develop resources. Customer resource development decisions would be made on the same basis as under Status Quo.

Short-Term Marketing

The short-term marketing focus would result in few BPA long-term acquisitions. BPA resource development would be consistent with Council direction, but power purchases would replace most conventional resource acquisitions. Customer resource development would be the same as under Status Quo.

4.2.4 Transmission

4.2.4.1 Transmission System Development

Background

BPA transmission system development is driven by several factors. The BPA Reliability Criteria for System Planning (Criteria) are the rules that determine the capacity the system must provide to maintain continuity and quality of service to electrical loads during certain more common system disturbances. The aim is to ensure cost-effective reliability for the electricity consumer. The Criteria are well defined and are applied uniformly across the system. They have been developed in cooperation with the public, and the reliability levels provided are largely determined by public input. The Criteria and the focus on continuity of service to load are major drivers of internal grid development.

In the future, EPA-92 may influence transmission development. The statute provides that FERC may order any transmitting utility to provide transmission service, and to construct new facilities if necessary to provide such service. The effect of this statute, which may lead to additional transmission system development, applies to all the alternatives described below.

BPA does not have its own formal, detailed criteria that specify the level of transmission reliability that must be provided for BPA economy transactions, wheeling for others, or resource-integration; however, the agency must adhere to WSCC criteria governing these services. These functions normally do not directly affect continuity of service to load. Reliability requirements are generally determined on a case-by-case basis and may involve internal network or intertie development. Economy transactions, resource integration, and wheeling are virtually the sole drivers of intertie development and are also significant for internal grid development.

A public review of the Reliability Criteria for System Planning is now underway. It is likely that any resulting revisions to the Criteria could be common to all of the following alternative business approaches. Based on the results of the last review of the planning criteria in 1989 and developments since then, it is unlikely that the public will call for increased reliability at the cost of increased rates. If reliability were lowered, there would be less need for transmission system expansion. Line and substation construction would be reduced, and overall transmission system costs would decline. System outage severity and service interruptions to some customers would increase. The degree of decrease in service level would depend on the level of reliability provided.

As part of the Criteria review, BPA plans to discuss the development of reliability criteria for economy transactions, wheeling, resource integration, and interties. These criteria, if developed, or the ad-hoc approach to these services, could vary among the alternatives.

Market Response

Status Quo

BPA would continue to plan and construct transmission as it does now; that is, with a long-term, one-utility focus and defined reliability criteria that result in a high level of system-wide reliability. Transmission system expansion plans and associated budgets and construction activity would be about the same as in the recent past when averaged over several years. Year-to-year variations in expansion plans could continue to be significant because system problems occur randomly and because transmission capacity is added in large blocks. System outage rates and severity and service interruptions for consumers would remain about the same as at present.

Good-faith requests or FERC-ordered transmission service for non-utility generators and utilities pursuant to EPA-92 might lead to some increase in BPA transmission development. Because this development would be intended to expand service while maintaining existing transmission system reliability, outage rates and

severity would be about the same and consumers would see no significant change in frequency and duration of outages.

If the public were to make a strong call for a substantial change in the BPA Reliability Criteria, it would be difficult to justify continuing to plan transmission system development using existing criteria, especially if the call were for lower reliability to hold down system costs. (BPA would still need to follow Northwest Power Pool, WSCC, and North American Reliability Council reliability criteria.)

BPA Influence

BPA would continue to plan and develop its transmission system as under the Status Quo alternative; however, as described under Transmission Access, priority would be given to utilities that comply with the Council's Power Plan and F&W Program. Within the constraints of EPA-92, shaping transmission services to include integration of resources, and wheeling to promote compliance with the Plan and Program, could either increase or decrease system development compared to present levels. The influence would likely depend on specific situations and might have no significant overall effect on system development.

Market Driven

BPA would follow the public's guidance in setting appropriate levels of transmission system reliability and risks associated with system development decisions (still bearing in mind the need to abide by WSCC and other reliability criteria). At this time, it is not known whether the public would want to change current reliability levels after review of the planning criteria now underway.

BPA could also offer unbundled reliability levels where practical. BPA could offer different levels of priority for interruption of service when necessary to relieve a transmission system problem (e.g., transmission over a constrained transmission path). Interruption of service is an alternative to reinforcing the system to maintain the service. The average overall level of system reliability could shift up or down depending on whether, on balance, individual customers called for higher or lower reliability. The net effect would likely be lower reliability, which would reduce the need for new transmission line and substation construction. System outages would be more severe, but service interruptions would increase only for those utility customers that opted for lower reliability (and lower rates) for such service.

Unbundling could affect either service to loads or wheeling. Interrupting load could lead to scheduled or unscheduled brown-outs or black-outs of electrical service. To interrupt wheeling requires adjustments or dropping of schedules or generation; however if generation reserves were adequate, all loads would continue to be served. Some parties would experience higher production costs and other economic consequences.

With both unbundling and a public call for reduced reliability overall, service interruptions might increase for all utility customers, but would increase more for those that opted for lower reliability.

Maximize Financial Returns

BPA would maximize returns from existing transmission facilities. BPA would probably "squeeze" the transmission system as hard as possible by minimizing development and promoting maximum use of the system. BPA might consider selling facilities when receipts from the sale would exceed the expected net value of future revenues provided by the facilities.

System reliability could be reduced to the point where BPA would begin to lose profitable business, captive customers would press BPA to improve service, or FERC, pursuant to EPA-92, might order BPA to provide transmission service and to add capacity to do so. With curtailed development, there would be less need for transmission line and substation construction. With lower reliability, system outage severity and service interruptions to customers would increase.

This alternative suggests an inherent short-term approach to business planning. Risks under this option would vary, depending on how much flexibility and margin BPA would build into the system to take advantage of future business opportunities and to protect against reliability problems. BPA could choose to build only when

a profitable, confirmed, and near-term opportunity to provide service or to access a power market were identified. Financial risk under this approach would be loss of business opportunities that occur quickly and that require new transmission capacity to access. Lead time on major new transmission might be 6 or 7 years. Providing absolute minimum facilities for reliability, especially if the criteria were revised downward as a result of the present review, offers no margin for long-term catastrophic loss of facilities such as might occur to transmission lines in mountain passes or from an earthquake.

If BPA chose to provide system capacity margin, BPA would be better able to take advantage of future unanticipated business opportunities and maintain reliability in the event of major system problems. The risk would be that the investment in margin might not pay back if the potential business opportunities or system problems did not occur.

This approach would not provide much incentive for BPA to pursue regional one-utility planning. What is best for BPA maximum profit might not be best for the region. However, FERC orders pursuant to EPA-92 and the new Regional Transmission Groups (RTGs) for regional and western transmission planning might push the region in the direction of more optimal transmission system development.

Minimal BPA

BPA would freeze its system development, and, because it would have withdrawn from the competitive market, system development would likely be assumed by others. Over the long term, BPA would effectively give up control of system reliability to other parties. This would have unknown effects on transmission construction and reliability of service to consumers. If regional transmission planning became disjointed and competitive, future development might become duplicative and non-optimum, or inadequate. This might not occur if RTGs now forming effectively foster regional coordinated transmission planning.

Even with development frozen, BPA would remain a major provider of transmission for the region for a long time because it now owns about three-fourths of the region's transmission capacity. This option would preclude BPA's serving as the provider of new transmission *facilities* for the region, but BPA might still be able to provide new transmission *services*. For example, existing committed capacity could become available for new business if old customers departed or BPA were willing and able to avoid renewing uneconomical contracts for serving loads or wheeling services.

Short-Term Marketing

BPA would phase out long-term contracts and market new power and transmission services only on a short-term basis. There would be virtually no incentive to build new transmission. Major transmission investments have long payback periods and require long-term sales commitments to recover costs. Unless a long-term stream of profitable short-term sales were assured, major transmission investments would be too risky. As a result, BPA probably would not construct discretionary transmission facilities. Regional transmission development likely would follow the course described under the Minimal BPA alternative.

4.2.4.2 Transmission Access

Background

BPA's transmission system was constructed primarily to deliver power from the FCRPS to the customers that purchase power from BPA. As provided by statute, BPA provides other utilities access to transmission capacity as available. EPA-92 gives FERC the authority to order BPA to provide wheeling services to eligible requesting entities, which can include utilities and non-utility generators.

Market Response

BPA Influence

BPA would provide priority transmission access to utilities and resources that comply with the Council's Power Plan and F&W Program. Although EPA-92 includes a "public interest" standard for FERC review of requests for transmission service, it is not clear whether such priorities would be acceptable to FERC in a dispute regarding access provisions of EPA-92. In such case, it is not clear that there would be any long-term effect with such priorities, as FERC might also require utilities to add transmission capacity if necessary to respond to orders for transmission service. Therefore, while in the short run BPA may provide priority access to resources and utilities that comply with the Council's Power Plan and F&W Program, in the long run, BPA could be obliged to construct additional transmission capacity as necessary to serve all parties. BPA would not provide wheeling for resources that violated the Council's Protected Areas Rule.

Market-Driven

BPA would treat non-Federal wheeling loads comparably to Federal power loads, and would not use its dominant share of the transmission system to the disadvantage of any of its competitors in serving regional utility loads. In case of transmission constraints, transmission to regional loads would have priority over transmission to extraregional loads. BPA would expect reciprocal treatment from other transmission providers, to the extent allowable by applicable law or FERC requirements. BPA would not provide wheeling for those resources within the Columbia River Basin that violated the Council's Protected Areas Rule.

Short-Term Marketing

BPA would reallocate transmission capacity when current contracts expire; new contracts would be short-term (less than 5 years), to the extent not ordered otherwise by FERC pursuant to EPA-92. Because these contracts would provide no long-term certainty of transmission access, efficient transmission and resource planning and development would be frustrated. There might be a trend to construct new transmission facilities that duplicate some of the paths of existing BPA transmission; alternatively, more generation might be located closer to loads, and integrated by means of transmission lines constructed by parties other than BPA.

Status Quo, Maximize Financial Returns, and Minimal BPA

In all other alternatives, BPA would provide short- and long-term access to surplus transmission capacity on a non-discriminatory basis. BPA currently provides access to surplus transmission capacity to utilities; EPA-92 also supports access by other entities, such as IPPs. Such access provisions should support efficient development of transmission and generation. By reducing barriers to transmission access, and by including non-utility generators among entities that may request access, EPA-92 supports increased efficiency in transmission and generation planning and development. EPA-92 might cause some of BPA's customers to purchase more of their power requirements from sources other than BPA. EPA-92 prohibits FERC from ordering wheeling to serve retail loads (although it does not prohibit such wheeling on a voluntary basis); therefore, EPA-92 should have no direct effect on utility retail loads.

4.2.4.3 Assignability of Rights Under BPA Wheeling Contracts

Background

BPA's wheeling contracts are currently written to provide specified services for specific wheeling customers for specific periods of time. BPA's wheeling customers have expressed interest in having the right to reassign wheeling contracts to third parties or to use the contract to wheel for third parties (third-party wheeling).

Market Response

Status Quo

BPA would continue restrictions against reassigning wheeling contracts and third-party wheeling. Some transmission capacity would go unused during periods when the utility holding the wheeling contract could not use it, and administrative or rate barriers would prevent BPA from making the capacity available to others.

BPA Influence

BPA would allow wheeling rights to be transferred, but discounted or priority service could be assigned only to customers that comply with the Council's Power Plan and F&W Program. To the extent that being able to transfer wheeling rights provides an economic incentive large enough to influence resource acquisition choices, the provision could encourage customers to use long-term least-cost resource planning and to comply with the goals of the Council's F&W Program.

Market-Driven

BPA would allow wheeling customers to reassign their wheeling contracts to third parties or to wheel for third parties. The party receiving the wheeling right would receive no greater transmission rights than the original party (e.g., if the original transmission right were on a specific transmission path, rights to the same transmission path only could be reassigned). BPA would suffer no substantial revenue loss. Under existing circumstances, BPA wheeling customers typically pay a demand and energy charge; if they are not using their full-capacity right, they continue to pay the demand charge, but not the energy charge. In that case, BPA attempts to "fill up" the unused capacity with nonfirm transmission services, for which it charges nonfirm rates. If BPA allowed third-party wheeling and reassignment, BPA might more often receive the firm capacity demand *and* energy charges. It is possible that allowing reassignment would mean that the BPA transmission system would be operated at higher load factors (i.e., closer to "full capacity"), but doing so would provide additional flexibility in the use of the BPA transmission system and would foster increased efficiency in the operation and development of generation resources. Overall, fewer generation and transmission resources might be developed.

Maximize Financial Returns

BPA would not allow wheeling contracts to be reassigned, but would instead aim to maintain strategic control over the transmission network (to the extent allowed under EPA-92). Transmission and generation development might not be as efficient as under the Market-Driven BPA alternative.

Minimal BPA, Short-Term Marketing

In these alternatives, BPA would allow wheeling rights to be transferred to third parties. In the **Minimal BPA** alternative, transfer rights would be part of long-term wheeling contracts using BPA's existing transmission capacity. Allowing reassignment could help BPA's limited transmission capacity to be used more efficiently as loads grew and the regional power transmission network grew without BPA's participation. In the **Short-Term Marketing** alternative, BPA would offer wheeling contracts only of less than 5 years' duration, but wheeling rights could be reassigned. Even on this short-term basis, reassignment could provide flexibility that could increase system efficiency.

4.2.4.4 Retail or DSI Wheeling

Background

Currently, the principal end-use consumers served directly by BPA are the DSIs. (BPA also serves some Federal agencies.) For a variety of reasons, the DSIs have been exploring options for power service, both for part or all of their existing loads and for new loads associated with future expansions. In most cases, BPA would have to provide wheeling over its transmission system in order for other suppliers to serve the DSIs. In the past, BPA has not wheeled power to DSIs, except for Industrial Replacement Energy (IRE); however, BPA believes that it is authorized to do so by the Federal Columbia River Transmission System Act. There is nothing in EPA-92 that would prevent BPA from voluntarily providing wheeling service to other retail loads.

Market Response

Status Quo

BPA would continue its current policy of not providing long-term wheeling for the DSIs. The DSIs would have to continue to rely on BPA to serve their loads. Given the language in EPA-92 regarding retail wheeling, it is unlikely that FERC could require BPA to provide access over its transmission system for other utilities or non-utility generators seeking to serve DSI loads. It is possible, however, that a DSI could become a customer of its local utility, which might then purchase power on the market for the DSI. Failing this, the DSI loads would continue to be a major BPA contract load, and the economic factors that influence the amount of their load on BPA would continue to lead to significant uncertainties in BPA's power sales revenues.

BPA Influence

BPA would provide wheeling to DSIs, but only for resources owned by utilities that complied with the Council's Power Plan and F&W Program. Adding such a policy requirement could support long-term least-cost power planning and fish and wildlife enhancement, and would essentially continue the status quo regarding the types of resources that would serve DSI loads; that is, DSIs would either be served by BPA (which would comply with the Plan and Program) or by utilities or other entities that complied with the Plan and Program in order to receive wheeling services from BPA.

Market-Driven

BPA would provide wheeling to DSI loads, but not to other retail loads. In cases where DSIs needed wheeling services from an intervening utility or other suppliers in addition to services from BPA, BPA would act as the DSIs' agent, and contract directly with the intervening utility for the wheeling service. Providing wheeling to DSIs would increase the DSI customers' power options, and therefore potentially could reduce the amount of load for which BPA would have to acquire resources in the future. Providing wheeling to DSI loads could mean the loss of some Federal power sales revenue, but it would also reduce the revenue uncertainty associated with the relatively volatile DSI loads. Providing wheeling to DSIs would likely be an incentive for IPPs or other utilities to develop CTs, because DSIs could firm nonfirm power by using displaceable CTs to back up purchases of nonfirm power from BPA or other utilities.

Maximize Financial Returns

BPA would provide wheeling to serve DSI loads and to serve other retail loads where doing so would be financially beneficial and legally feasible. As noted above, EPA-92 leaves regulation of retail wheeling to state and local governments. Currently, most states restrict wheeling to end-use customers by establishing utility franchises, which are generally defined on a geographic basis. However, this might change in the future. Wheeling to retail loads other than DSIs could require construction of delivery and/or transmission facilities. In this alternative, BPA would provide such services where the wheeling revenues to be earned would exceed

the costs of new and existing facilities required to make the delivery. Assuming that legal and facility obstacles were overcome, BPA's provision of wheeling to end-users other than DSIs could introduce a new degree of competition for power supplies that could put some downward pressure on generation supply costs. On the other hand, retail wheeling could also introduce considerable uncertainty into regional utility planning. Generation and resource investments of the utility losing the retail load could be stranded, and the development of conservation and other resources on the basis of long-term least cost could be hindered.

Minimal BPA

BPA would acquire no new generation resources. BPA would allow wheeling only to utilities serving areas where DSI loads are located to the extent capacity was available over existing facilities (where legally feasible and financially beneficial). The market responses would be as described above for the Maximize Financial Returns alternative.

Short-Term Marketing

BPA would market power only under short-term (less than 5-year) contracts. BPA would allow wheeling to DSI and retail loads to provide customers access to long-term power sources. The market responses would be as described above for the Maximize Financial Returns alternative.

4.2.4.5 Customer Service Policy and Subtransmission Facilities

Background

BPA's CSP divides responsibilities between BPA and its customer utilities for planning, construction, maintenance, and allocation of costs associated with facilities needed to deliver Federal power from BPA to customers. The current CSP, most recently comprehensively revised in 1984, states that BPA is responsible for constructing and financing transmission facilities (115-kV and higher voltage), and generally delivers power at the prevailing transmission voltage (normally at least 115 kV, but in some cases 69 kV). The CSP also states: "BPA will be financially responsible for providing a limited amount of capacity for deliveries at distribution voltage level for small power sales customers." This means that BPA provides 50 MVA of distribution transformation capacity for utilities with under 25 MW average load. BPA does not impose extra charges to provide subtransmission delivery facilities for those customers that qualify for such facilities under the CSP. Facilities are planned and constructed on the basis of long-range joint planning studies based on the one-utility concept.

Market Response

Status Quo

The existing CSP would continue to shape BPA's planning, construction, and cost-sharing of facilities to deliver electrical energy to customers.

BPA Influence

BPA would add a new condition to the CSP—BPA would provide "one-utility"-type facilities (including delivery facilities to small power sales customers) only if the customer complied with the Council's Power Plan and F&W Program. For other customers, BPA would add facilities only to the extent that they served the needs of BPA and those of its customers that complied with the Plan and Program. For BPA's customers that do not own or operate generation (generally its smaller customers), this provision would have little meaning (presumably they would comply with the Plan and Program). For customers that do own and/or operate generation resources, and that do not comply with the Plan and Program, this restriction on BPA's provision of transmission and delivery facilities could force those utilities to comply (i.e., to divest themselves of

noncomplying resources or cease non-compliant practices or operations). Alternatively, it could drive them to develop their own facilities. In the latter case, transmission development would depart from the one-utility model, and would therefore occur less efficiently.

Market-Driven

BPA would narrow its role to providing bulk power transmission to its power customers. Subtransmission facilities (i.e., fringe and delivery segments) and new substation facilities would increasingly be the responsibility of the customer utilities. BPA would develop a feasibility test (based on what makes good business sense from BPA's perspective) that would be used to determine the extent of BPA's participation in the development of new delivery and transfer arrangements. BPA would charge a wholesale power rate surcharge for those customers not taking power at prevailing voltage levels (i.e., voltage used for bulk power transmission in the locality served), in order to encourage customers to purchase and operate existing BPA delivery substations and associated facilities. Customers could avoid the rate surcharge by owning delivery facilities serving their loads. At jointly owned substations, BPA contracts would require cost-sharing for hazardous waste prevention and clean-up.

This alternative would primarily affect which parties pay the costs of subtransmission facilities rather than the kinds of facilities constructed. It would reduce costs associated with BPA's most basic power service (delivery of power at transmission voltages), and send a price signal that reflects the cost of providing subtransmission services. In turn, this could lead to reductions in the price of the basic service.

Customer utilities for which BPA now provides subtransmission facilities might face significant new capital and operations costs. Low-density utility customers of BPA might pay more per unit of energy delivered as they assume more of the costs of subtransmission facilities. For some utilities, the capital and operations costs of subtransmission facilities might be great enough that utility take-overs or consolidations might occur.

This alternative would affect the types and locations of new subtransmission facilities only to the extent that customers who build their own facilities do not use the one-utility planning concept that BPA currently uses under its CSP. In that case, subtransmission facilities might be constructed less efficiently and therefore would have greater environmental impacts (see section 4.3) than would be the case under the Status Quo alternative. However, it could also be argued that by sending more direct price signals to customers about the cost of developing new subtransmission facilities, subtransmission planning would occur more efficiently. It is not likely that this alternative would have a substantial effect on the location and capacity of transmission facilities, which would continue to be planned and constructed by BPA on a long-term, one-utility basis (except as modified by requests for access made pursuant to EPA-92).

Maximize Financial Returns

BPA would provide only bulk transmission service, and would price all subtransmission services at the incremental costs of the facilities required to provide the service. If subtransmission services required long tap lines or other facilities that were expensive in relation to the load served, the price charged for subtransmission services could be substantial. If the incremental costs could not be recovered from rates, BPA would not construct the facilities. The impacts on smaller and low-density customers would be similar in nature to those of the Market Driven alternative.

Minimal BPA

BPA would construct no new subtransmission or distribution facilities and would no longer maintain or replace facilities at voltages lower than the local transmission voltage. All BPA customers would have to develop their own facilities to meet any incremental load growth not served by their allocation of BPA power. For small customers, increasing shares of the costs of subtransmission and distribution could raise these utilities' cost of service, perhaps causing them to increase their rates. For larger utilities that already provide most of their own subtransmission and distribution facilities, this change would have proportionately less effect on their cost of service and rates.

Short-Term Marketing

BPA would construct no new subtransmission or distribution facilities once the existing power sales contracts expire. Market responses would be similar to those of the Minimal BPA alternative.

4.2.4.6 Operations, Maintenance, and Replacement

Background

Alternative priority-setting schemes for transmission system maintenance and replacement would affect how outage risks are distributed among customers. Customers served by facilities with higher priority for maintenance would experience fewer and shorter outages than customers served by lower-priority facilities. Outages would be more likely if necessary maintenance activities could not be sustained by available funds. Constricted budgets increase the potential that BPA would be unable to meet all maintenance needs.

The effect of outages would depend on the capabilities and options available to the customer. For those facilities with lower priority for BPA-supplied maintenance, BPA could transfer ownership, along with responsibility for maintenance, to the customer, or arrange for the customer to perform maintenance on those facilities. Another option would be for the customer to reduce reliance on low-priority facilities by arranging for load-shedding measures, acquiring reserve power supplies to substitute for service lost to outages, or constructing additional transmission facilities. Finally, a customer could choose to abandon BPA service, either by substituting service from another supplier, or by developing generation and reserves that eliminate reliance on BPA facilities.

For customers without financial or technical resources to construct or maintain their own facilities, the effects of outages on low-priority facilities would be passed along to consumers. At the retail level, some consumers might be able to mitigate the impacts of outages—for example, by using backup generation. Others would have to bear the costs of outages. For some consumers, such as commercial or industrial enterprises, outage costs might determine the viability of the business, so that longer or more frequent outages would cause the consumer to cease operation. As a result, loads served by customers with lower priority for maintenance could decline.

Market Response

Status Quo

Maintenance based on the length of time facilities are in service would place risk of outages more with facilities receiving intensive use. Assuming intensive use occurs more in high load and high load-growth areas, outage risks could be higher in those areas compared to other areas.

BPA Influence

Maintenance priority based on compliance with regional plans would place increased risk of outages on customers failing to comply with those plans, to the extent possible in an interconnected system, providing an additional incentive for compliance.

Market-Driven

BPA's maintenance priorities would be set according to outage duration and frequency criteria. Risk of outages should be fairly uniformly distributed over BPA's facilities in the long run, as the “trailing edge” of facilities performance is brought up to standards.

Maximize Financial Returns

Priority to facilities producing the most revenue would place risk of outages increasingly on facilities serving small loads or areas of low load-growth rates.

Minimal BPA

Same as Status Quo.

Short-Term Marketing

Same as Market-Driven.

Table 4.2-1: General Market Responses to Issues

Issue	Resource Development	Resource Operation	Transmission Development	Transmission Operation	Consumer Behavior
PRODUCTS AND SERVICES					
Bundling or Unbundling of BPA Power Products and Services	Unbundling encourages efficient use of BPA power products and might stimulate the market for separate power services; might add to resource development cost.	Unbundled services might provide an incentive for resource owners to provide separate services from their own facilities.	Resource development to supply unbundled power services might increase the need for transmission facilities.	Unbundling promotes more efficient use of power system facilities, such as operation at higher load factors.	Redistribution of costs among BPA customers with unbundling might shift BPA costs, increasing some consumers' costs and reducing costs for others.
Surplus Products and Services	Long-term BPA firm export sales might shift resource development toward BPA, emphasizing resources that complement Federal hydro power.	Export purchasers might operate resources differently with long-term BPA surplus products.	BPA might participate in transmission development to enhance surplus marketing.	No significant effect; the system would operate to deliver from all resources and to all loads.	Revenues from surplus sales might have a minor effect on costs at the retail level.
Scope of BPA Sales	Wider sales would increase BPA loads, increasing BPA resource needs or reducing surpluses.	BPA sales could displace others' resources, changing operations.	Little or no change.	Little or no change.	Might reduce costs to consumers served by new BPA customers.
Determination of BPA Firm Loads	Broad definition would increase BPA loads, increasing BPA resource needs or reducing surpluses.	Operations would respond to availability and pricing of BPA services, as with unbundling.	Little or no change.	Resale transactions could shift transmission use among customers.	Might reduce costs to consumers served by new BPA customers.
Marketing to Support System Stability and Power Quality	Availability of lower-quality service could reduce new resource needs by fuller use of existing resources.	Resource owners could operate to compensate for choice of lower-quality BPA service.	Lower-quality service could reduce new facility needs by fuller use of existing facilities. Charges for burdensome loads could reduce need for compensating facilities.	Greater use of nonfirm capability could increase use of facilities and raise load factors. Charges for loads that burden the system could reduce the need for operations to accommodate those loads.	Might reduce power costs to consumers served by utilities selecting lower-quality service. Specific loads could face increased costs for reactive loads or harmonics. Consequences would depend on the consumer's circumstances.
Unbundling of Transmission and Wheeling Services	Distance-based costs could discourage remote resource siting. Priority service could influence resource choices.	Little or no change.	Unbundling might reduce demand for some services, lessening the need for new facilities.	Unbundling might reshape current uses.	Redistribution of costs with products could reduce loads of consumers served by transmission-intensive utilities.

Table 4.2-1 (continued): General Market Responses to Issues

Issue	Resource Development	Resource Operation	Transmission Development	Transmission Operation	Consumer Behavior
PRODUCTS AND SERVICES (CONTINUED)					
Other BPA Services	Revenue could reduce BPA loads shifting to non-BPA suppliers, increasing BPA resource needs or reducing surpluses.	Little or no change.	Little or no change.	Little or no change.	Lower BPA power costs could result in increased demand.
PRICING					
Power Pricing and Rate Attributes	Total costs under tiered rates and other rate features might influence customers' choice of power supplier.	Total power costs might influence operations by resource owners.	Little or no change.	Changes in load shape due to power pricing could shift timing or location of transmission use.	Wholesale power costs would affect loads to the extent costs are reflected in retail rates.
Transmission and Wheeling Pricing	Price levels and incentives could influence resource choice or location.	Little or no change.	Pricing for more efficient use of the system could reduce the need for new facilities.	More efficient use in response to pricing might shift timing or location of use.	Pricing could reduce loads of consumers served by transmission-intensive utilities.
ENERGY RESOURCES					
BPA Conservation	Conservation achieved would be influenced by the extent and form of BPA investment.	Little or no change.	Need for transmission facilities would be affected by load reductions from conservation.	Little or no change.	Consumers might benefit from conservation programs or adopt measures in response to price.
BPA Generation Acquisition	BPA acquisitions could lead to surplus, displacing other resource acquisitions.	BPA short-term purchases could increase operation of sellers' resources.	Customer choice of supplier could shift need for transmission facilities.	Little or no change.	Little or no change.
Off-System Purchases	Off-system purchases would reduce need for new resources.	Little or no change.	Little or no change.	Little or no change.	Little or no change.
Least-Cost Planning	If required least-cost planning should vary from near-term economic choices, resources selected might be altered by least-cost requirement.	Little or no change.	Transmission needs might change if least-cost planning results in a different mix of resources.	Little or no change.	Consumers might be affected if least-cost planning increases development of demand-side management.
TRANSMISSION					
Assignability of Rights under BPA Wheeling Contracts	Assignability could expedite wheeling, facilitating resource development.	Little or no change.	Assignability could lessen need for new facilities.	Assignability could intensify use of existing rights, increasing load factor.	Little or no change.
Transmission System Development	Additions for reliability or to provide access might facilitate resource development.	Little or no change.	Reliability criteria and planning would set direction for regional system.	Operations would adjust to new facilities.	Revised reliability standards might modify service to consumers.

Table 4.2-1 (continued): General Market Responses to Issues

Issue	Resource Development	Resource Operation	Transmission Development	Transmission Operation	Consumer Behavior
TRANSMISSION (CONTINUED)					
Transmission Access	Priority for transmission access might affect resource choice.	Little or no change.	Access requests would influence system additions.	Service for requested access might change use.	Little or no change.
Retail or DSI Wheeling	DSI wheeling could increase DSI generation development to serve existing load and load growth. Retail wheeling would reduce utility loads and resource needs, and increase nonutility resource development.	Change in utility loads from retail wheeling might change resource operations. Major load losses to utilities could lead to generation shutdowns.	Increased resource development for DSIs or retail loads might affect the need for new transmission facilities.	Little or no change.	Consumers wheeling resources would respond to market prices rather than utility rates in deciding on efficiency measures.
Customer Service Policy and Subtransmission	Little or no change.	Little or no change.	Would affect facility development criteria and the extent of BPA development.	Little or no change.	Charges could redistribute costs among BPA customers, raising some consumers' costs, reducing costs for others.
Operations, Maintenance, and Replacement (OM&R)	Little or no change.	Little or no change.	OM&R direction might affect the need for new facilities.	Would affect maintenance costs, capability of facilities.	Might affect quality of service locally and related costs.