Record of Decision (ROD)

Summary

BPA needs to acquire sufficient new resources to meet electricity deficits caused by growing customer loads.

The purposes of this action are to:

- Ensure that BPA can meet its contractual obligations to supply cost-effective electric power as requested by its customers--taking into account potential environmental consequences when making any decisions to acquire resources to meet those loads;
- Assure consistency with BPA's statutory responsibilities, including the Pacific Northwest Electric Power Planning and Conservation Act, taking into consideration the Northwest Power Planning Council's Conservation and Electric Power Plan and its Fish and Wildlife Program; and
- Restore and enhance environmental quality and avoid or minimize possible adverse environmental effects.

BPA's Resource Programs EIS examines the environmental trade-offs among the resource types available to meet this need and potential mitigation for environmental impacts. The EIS also examines 12 alternative ways to meet projected loads, as well as No Action. Each alternative includes a combination of resources. BPA's preferred alternative is the Emphasize Conservation Alternative. The environmentally preferred alternative is the Emphasize High Conservation Alternative.

BPA has decided to take the following actions in pursuit of its long-term conservation and generation resource acquisition objectives.

BPA's Preferred Alternative

BPA's resource acquisitions (through its Resource Programs) will be guided by the Emphasize Conservation Alternative of the Resource Programs Final EIS; that is, all cost-effective conservation and efficiency improvements will be acquired, supplemented by a mix of renewables and thermal resources such as cogeneration and combustion turbine generation.

In order to analyze maximum environmental impacts and to insure against the loss of existing resources, the amount of each resource type in the Emphasize Conservation Alternative was based on an assumption of the need to meet high load growth. High load growth is unlikely; therefore, BPA would probably not acquire the full amount of each resource type identified in the EIS for this alternative.

Environmentally Preferred Alternative

BPA's emphasis on conservation is consistent with BPA's Conservation Implementation Plan, which since late 1991 has guided BPA on an "accelerated path" to the acquisition of all cost-effective conservation. BPA will actively investigate the additional conservation resources described in the Emphasize High Conservation Alternative, and to the extent that their supply, cost-effectiveness, and reliability can be validated, BPA will seek to acquire them. This activity is also consistent with Objective 3 of the Northwest Power Planning Council's 1991 Plan: to "determine cost and availability of resources" (both conservation and renewables). The Resource Supply Expansion Program (RSEP) will be BPA's primary mechanism for confirming the supply, cost, and reliability of the additional conservation and renewable energy supplies that distinguish the Emphasize High Conservation Alternative from the Emphasize Conservation Alternative.

Resource Programs

BPA will determine the specific amounts of conservation and generation resources it proposes to acquire through its Resource Programs, which will periodically clarify and update the decisions made in this Record of Decision. Each Resource Program will update load projections and resource data, and will use information from the Resource Programs EIS regarding resource characteristics and environmental impacts to set targets for acquisition of resources of various types. Each Resource Program will include opportunities for public review and input to the BPA Administrator's resource decisions.

Resources may be acquired through a variety of resource acquisition processes, including competitive bidding, billing credits, and targeted acquisitions. Unsolicited proposals may be considered, and resource options (such as those being considered under BPA's Resource Contingency Plan) may be acquired.

Site-specific NEPA documentation (tiered to the programmatic Resource Programs EIS) will be prepared for generation projects the BPA Administrator proposes to acquire. Because conservation programs involve region-wide rather than site-specific measures, conservation programs may be implemented based on the environmental analysis of conservation measures documented in the Resource Programs EIS.

Mitigation

The BPA Administrator proposes to adopt a number of mitigations to minimize the environmental impacts associated with acquiring and operating conservation and generation resources. For generation projects, the Mitigation Action Plan specifies mitigation measures to be built into the resource acquisition process. In addition, BPA may prepare Mitigation Action Plans on a site-specific basis for individual generating resource acquisitions. These Mitigation Action Plans would be prepared in conjunction with National Environmental Policy Act (NEPA) decision documents for these acquisitions. For conservation projects, the Mitigation Action Plan identifies specific mitigation actions for programs in each conservation sector. These mitigations are described in the attached Mitigation Action Plan.

For More Information:

Copies of the Resource Programs Final EIS (DOE/EIS-0162), February 1993, and the Record of Decision are available from BPA's Public Involvement Office, P.O. Box 12999, Portland, Oregon 97212.

FOR FURTHER INFORMATION CONTACT:

Mr. Charles Alton
Environmental Coordinator for the Office of Energy Resources - RAE
Bonneville Power Administration
P.O. Box 3621, Portland, Oregon 97208
(503) 230-5878.

For copies of the documents listed above, you may also contact BPA's Public Involvement Office at (503) 230-2378. Oregon callers may use (800) 452-8429; callers in California, Idaho, Montana, Nevada, Utah, Washington, and Wyoming may use (800) 547-6048. Information may also be obtained from:

Mr. George Bell, Lower Columbia Area Manager, Suite 243, 1500 N. E. Irving Street, Portland, Oregon 97232, 503-230-4558.

Mr. Robert N. Laffel, Eugene District Manager, Room 206, 211 East Seventh Avenue, Eugene, Oregon 97401, 503-465-6958.

Mr. Wayne R. Lee, Upper Columbia Area Manager, Room 561, 920 West Riverside Avenue, Spokane, Washington 99201, 509-353-2515.

Ms. Carol Fleischmann, Spokane District Manager, Room 112, 920 West Riverside Avenue, Spokane, Washington 99201, 509-353-3279.

Mr. George E. Eskridge, Montana District Manager, Room 307, 800 Kensington, Missoula, Montana 59801, 406-329-3060.

Mr. Ronald K. Rodewald, Wenatchee District Manager, Room 307, 301 Yakima Street, Wenatchee, Washington 98801, 509-662-4377, extension 379.

Mr. Terence G. Esvelt, Puget Sound Area Manager, Suite 400, 201 Queen Anne Avenue North, Seattle, Washington 98109-1030, 206-553-4130.

Mr. Thomas V. Wagenhoffer, Snake River Area Manager, 1520 Kelley Place, Walla Walla, Washington 99362, 509-522-6225.

Ms. Jerry Leone, Idaho Falls District Manager, 1527 Hollipark Drive, Idaho Falls, Idaho 83401, 208-523-2706.

Mr. James Normandeau, Boise District Manager, Room 450, 304 North Eighth Street, Boise, Idaho 83702, 208-334-9137.

Supplementary Information

1. Background

On April 2, 1990, BPA published a Notice of Intent to Prepare an EIS in the FEDERAL Register. The official comment period on the scope of the Resource Programs EIS was from April 2 through May 15, 1990. However, comments were accepted through October. A scoping meeting was held in Portland on May 1, 1990. In all, 20 comment letters were received on the scope of the EIS.

Persons involved in BPA's Resource Program, as well as fishery agencies and Tribes, environmental groups, and other special interest groups were invited to participate in a Technical Review Panel (TRP) to assist in the development of the EIS. Those who were interested came to an initial meeting on August 13, 1990, and participated at various levels thereafter as they chose. Because of the size of the TRP and the variety of interests, three work groups -- Environmental Effects, Environmental Costs, and Modeling and Analysis -- were formed.

On May 15, 1992, the Draft Resource Programs EIS was released for public review (through July 6, 1992). On June 16, 1992, BPA held an open house and public hearing on the Draft EIS. Fifty-two people commented at the hearing or by letter. Comments on the Draft EIS were addressed in the Final EIS, issued in February 1993. The comments and responses as well as the complete text of the comment letters are included in Volume 3 of the Final EIS.

2. BPA's Resource Program

2.1 The Process

Every two years, BPA prepares a Resource Program, which identifies projected loads and the amounts and types of resources that BPA will acquire to meet the power requirements of its customers. In developing the Resource Program, BPA prepares load forecasts in cooperation with the Northwest Power Planning Council (Council). A range of forecasts (currently: low, medium-low, medium, medium-high, and high) is prepared to reflect uncertainties about future load growth. A corresponding range of load/resource balances is prepared by comparing the energy capability of Federal system resources to the range of projected Federal system energy loads over the next 20 years. In a parallel process, BPA and the Council develop new resource supply forecasts.

According to the 1991 joint forecast, if medium load growth were to occur, the Federal system would be 400 to 500 aMW in deficit in the near term, and would require 800 aMW by the year 2000. If demand grows faster than the medium loads case or if resources do not perform as expected, BPA could face a larger deficit. Under high load growth, BPA would have almost 5,000 aMW of additional load to meet by the end of its 20-year planning period. The uncertainty surrounding load growth and supply is part of the reason BPA must use the Resource Programs to update and clarify the resource decisions described in this Record of Decision.

In addition to this projected energy load growth, changes in the operation of the hydroelectric system to increase fish survival may reduce the capacity of the Federal system. As a result, the capacity characteristics of conservation and

generation resources may become an increasingly important goal of BPA's future Resource Programs.

2.2 The 1992 Resource Program

The 1992 Resource Program was developed through a collaborative process involving a technical review panel that included representatives from customer utilities and many other interests. In addition, working groups dealt with specific technical issues, such as modeling and analysis, conservation implementation, generating resource implementation, fuel choice, environmental costs, and Local Conservation Plan development. The priorities of the 1992 Resource Program were based on the Northwest Power Planning Council's 1991 Northwest Power Plan, the 1991 Joint Load Forecast, the most current information on resource supplies, and information about environmental impacts of conservation and generation resources from the Resource Programs Draft EIS.

The 1992 Resource Program proposes that BPA set budgets for the 1994-95 period that would allow it to acquire all cost-effective conservation (targeting 660 aMW) and 120 aMW of efficiency improvements through 2003. The 1992 Resource Program also proposes that BPA acquire an additional 400 aMW of generating resources or interregional power purchases or exchanges in addition to 350 aMW of resources previously committed to through the billing credits program and a competitive bid. The 1992 Resource Program also recommends a total of 1,450 aMW of options and contingency resources.

3. Alternatives Examined in the Resource Programs EIS

The Resource Programs EIS examines both resource *types* (e.g., conservation, geothermal, combustion turbines) and resource *alternatives* (combinations of resources to meet long-term need, each of which emphasizes a particular resource type).

3.1 Resource Types

For most resource types, information is provided on technical characteristics, operating characteristics, contribution to system capacity, costs (both direct and environmental), environmental effects and possible mitigations, and supply. The following resource types are examined in the Resource Programs EIS:

- Conservation (commercial, residential, industrial, irrigation, and agricultural sectors)
- Renewable resources (hydropower, geothermal, wind, and solar)
- Cogeneration
- Combustion turbines
- Nuclear (the completion of WNP-1 and WNP-3)
- Coal (both conventional pulverized coal and clean coal technologies)
- Fuel switching
- Energy imports
- Efficiency improvements

Figure 1 compares principal resource types in terms of their environmental impacts (relative to each other).

Information is also provided on load management and emerging technologies (fuel cells, hydrogen, and new nuclear fission technology). If these resources become more cost-effective and commercially viable, they could replace one or more of the resources in the resource stacks analyzed in this EIS. The Resource Programs will help identify and evaluate how emerging technologies become viable and how they could replace other resources.

3.2 Alternatives

The Resource Programs EIS examines 13 alternatives, which represent the range of actions BPA could take to meet its load obligations. In the *No Action Alternative*, the underlying need for energy to meet the growing loads of BPA customers would not be satisfied. Neither BPA nor the region would acquire new resources to meet these loads.

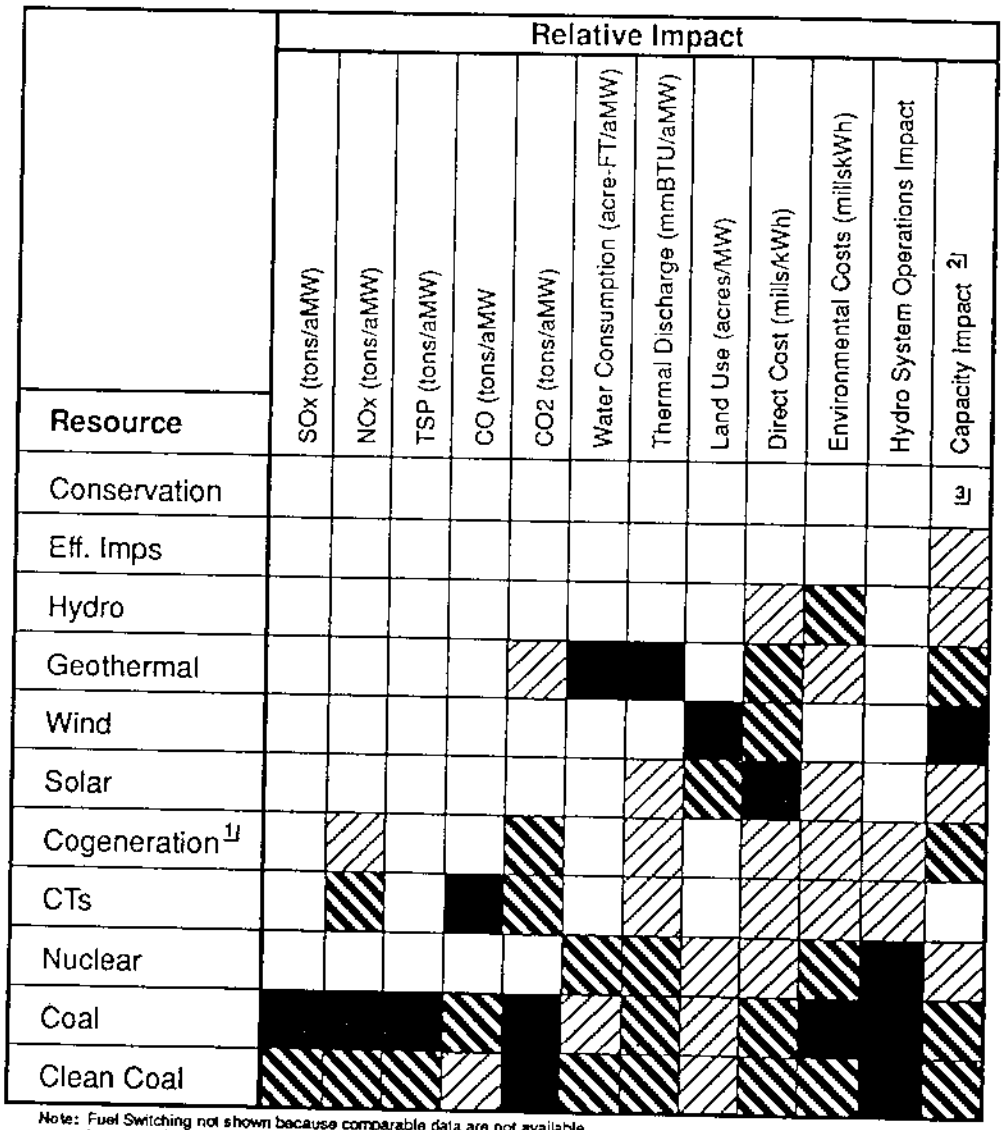
Each of the alternatives other than the No Action Alternative comprises a combination of the resource types listed above, as seen in Tables 1 and 2. The *Status Quo Alternative* is based on minimizing total system costs, with no dollar quantification of environmental costs (as was done in the 1990 Resource Program). The *Base Case Alternative* is also a least-cost resource mix, but the costs considered in ordering the resource mix include quantified environmental costs. The environmental costs used to rank resources in the resource stack did not include CO_2 because of the uncertain evidence supporting CO_2 impacts costs. However, CO_2 was included in the analysis of environmental effects of resource types and alternatives illustrated in Figures 1, 2, and 3.

Each of the other alternatives analyzed in the EIS emphasizes a particular resource type, and is evaluated in comparison to the Base Case. The resource stacks for these remaining alternatives were developed by placing the available supply of the emphasized resource at the top of the Base Case stack (without regard to cost) after non-discretionary conservation. These alternatives were developed in the recognition that the supplies of most resource types are insufficient to serve all the resource need (if high load growth occurs), and in order to look at potential interactions and cumulative impacts of emphasizing particular resource types. The following alternatives were compared to the Base Case:

- Emphasize Conservation Alternative
- Emphasize High Conservation Alternative
- Emphasize Renewables Alternative
- Emphasize Cogeneration Alternative
- Emphasize Combustion Turbines Alternative
- Emphasize Nuclear Alternative
- Emphasize Coal Alternative
- Emphasize Clean Coal Alternative
- Emphasize Fuel Switching Alternative
- Emphasize Imports Alternative

Figure 1

Selected Environmental Impacts of Conservation and Generation Resource Operations



Note: Fuel Switching not shown because comparable data are not available, but generally has low impact in all areas.

1/ Natural gas fired cogeneration assumed

2/ "More" means a more negative impact to capacity

3/ Capacity value of conservation varies considerably among conservation measures, from positive to negative

Table 1

New Resource Operations - 2000

	Alternatives											
Resource Types (in aMW):	Status Quo	Base Case	Conservation	High Conservation	Renewables	Cogeneration	CT's	Nuclear	Coal	Clean Coal	Fuel Switching	Imports
Conservation	477	477	477	815	477	458	477	404	441	452	477	197
Effic Imp	134	134	134	134	134	134	134	114	134	134	134	134
Renewables	60	105	105	60	716	49	105	46	49	60	105	0
Cogen	140	260	260	260	140	1380	260	10	170	140	260	0
CT's	185	140	140	277	185	70	141	35	109	176	283	0
Nuclear	613	613	613	0	0	0	613	1619	0	0	0	0
Coal	0	0	0	0	0	0	0	0	958	0	0	0
Clean Coal	0	0	0	0	0	0	0	0	0	697	0	0
Fuel Switching	0	0	0	0	0	0	0	0	0	0	241	0
Imports	0	0	0	0	0	0	0	0	0	0	0	681

Table 2

New Resource Operations - 2010

	Alternatives											
Resource Types (in aMW):	Status Quo	Base Case	Conservation	High Conservation	Renewables	Cogeneration	CT's	Nuclear	Coal	Clean Coal	Fuel Switching	Imports
Conservation	1033	1033	1033	1881	1033	1029	1033	1011	1029	1033	1033	858
Effic Imp	134	134	134	134	134	134	134	134	134	134	134	134
Renewables	367	480	480	349	967	405	480	412	314	213	367	60
Cogen	390	840	840	400	490	1380	840	930	340	280	430	120
CT's	315	316	316	253	290	198	316	315	200	198	305	613
Nuclear	1619	1619	1619	1619	1619	1619	1619	1619	1619	1619	1619	0
Coal	534	0	0	0	0	0	0	0	1032	0	0	0
Clean Coal	0	0	0	0	0	0	0	0	0	1176	0	0
Fuel Switching	0	0	0	0	0	0	0	0	0	0	556	0
Imports	0	0	0	0	0	0	0	0	0	0	0	1235

Figures 2 and 3 compare the environmental impacts and costs of these alternatives to the Base Case.

Figure 2

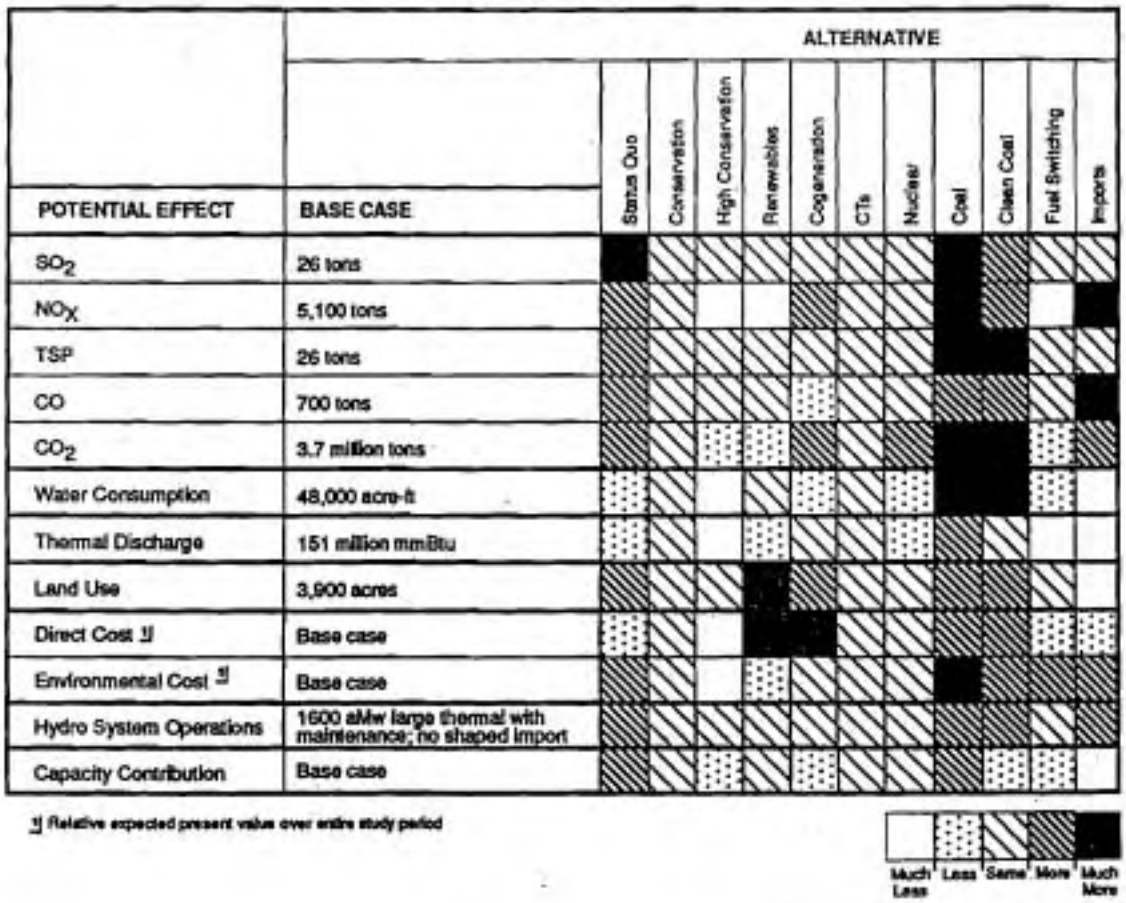
Selected Environmental Impacts of Operations of Resource Alternatives Compared to the Base Case Alternative - 2000

		ALTERNATIVE										
POTENTIAL EFFECT	BASE CASE	Status Quo	Conservation	High Conservation	Renewables	Cogeneration	CTs	Nuclear	Coal	Clean Coal	Fuel Switching	Imports
SO_2	9 tons											
NO_X	1,800 tons											
TSP	9 tons											
CO	300 tons											
CO_2	1.24 million tons											
Water Consumption	17,000 acre-ft											
Thermal Discharge	52 million mmBtu											
Land Use	1,900 acres											
Direct Cost [1]	Base case											
Environmental Cost [1]	Base case											
Hydro System Operations	800 aMw large thermal with maintenance; no shaped import											
Capacity Contribution	Base case											

[1] Relative expected present value over entire study period

Much Less | Less | Same | More | Much More

Figure-3
Selected Environmental Impacts of Operations of Resource Alternatives Compared to the Base Case Alternative - 2010



4. Decision Factors and Issues

The alternatives examined in the Resource Programs EIS were evaluated against the purpose of and need for the action (see the Summary of this ROD).

Meeting BPA's Contractual Obligations: All of the alternatives except No Action were designed to meet the need of assuring that BPA can cost-effectively fulfill its contractual obligation to meet the electrical loads of its customers. The alternatives with the lowest total system costs (i.e., direct plus environmental costs) were the Emphasize High Conservation and Emphasize Fuel Switching Alternatives, followed by the Emphasize Conservation Alternative.

Consistency With BPA's Statutory Responsibilities: All of the alternatives were designed to be consistent with BPA's statutory obligations, including the Northwest Power Act (which requires consideration of the Council's Plan and its Fish and Wildlife Program). Specifically, load assumptions were developed jointly with the Council. The environmental costs used in the EIS were developed using the Council's methodology and data. The hydropower supply curves used in the EIS excluded projects located in the Council's Protected Areas (see paragraph 6, Mitigation). The Northwest Power Act specifies that cost-effective resources

are to be acquired according to the following priorities: 1) conservation, 2) renewables, 3) high-efficiency resources such as cogeneration, and 4) other resources. The conservation emphasis of the preferred alternative is consistent with these resource priorities.

Environmental Quality: The EIS examines the potential environmental impacts of resource types and combinations of resource types. It evaluates a range of environmental impacts, including air quality, water consumption, thermal discharges, and land use. It also compares the quantified environmental costs of each alternative, looks at potential impacts on hydroelectric operations, and evaluates the potential contribution of each alternative to the overall capacity of the Federal system.

The EIS shows that the alternative with the lowest environmental impacts overall, as well as the lowest environmental costs and total system costs, is the Emphasize High Conservation Alternative. The Emphasize High Conservation Alternative is not the BPA Administrator's preferred alternative, although it is the environmentally preferred alternative, because the cost-effectiveness, reliability, and commercial availability of the additional conservation resources that distinguish the Emphasize High Conservation Alternative from the Emphasize Conservation Alternative have not been confirmed. Although BPA has established the goal of acquiring all cost-effective conservation, it is not clear that all of the conservation resources that make up the Emphasize High Conservation Alternative can be acquired reliably or cost-effectively. Through RSEP, the supply of reliable, cost-effective conservation will be expanded. Therefore, BPA will establish conservation acquisition targets near the level represented by the Emphasize High Conservation Alternative in order to try to reach a higher level of conservation acquisition.

After the Emphasize High Conservation Alternative, the Emphasize Conservation Alternative has the next lowest environmental impacts overall. This alternative would lead to the same or fewer emissions of sulfur dioxide, nitrous oxides, particulates, carbon monoxide, and carbon dioxide than all other alternatives except High Conservation and Renewables. It would discharge the same or less waste heat and would use the same or less water than all alternatives except High Conservation and Renewables, and would use the same or less land than all alternatives except High Conservation.

The Emphasize Fuel Switching Alternative has lower system costs and lower total costs than the Emphasize Conservation Alternative, but its environmental costs are predicted to be slightly higher than the Emphasize Conservation Alternative.

5. BPA Decision Regarding the Preferred Alternative

The BPA Administrator's preferred alternative is the Emphasize Conservation Alternative. This alternative is cost-effective and environmentally responsible: direct and environmental costs are low, and environmental impacts low. In addition, the supply and availability of the resources included are reliable.

BPA's resource acquisitions (through its Resource Programs) will be guided by the Emphasize Conservation Alternative; that is, all cost-effective conservation and efficiency improvements will be acquired, as well as a mix of renewables and thermal resources such as cogeneration and combustion turbines. In order to

reduce the environmental impacts associated with the acquisition of conservation and generation resources, BPA will review the information about environmental impacts of resource types and combinations of resource types contained in this EIS when it makes future resource acquisition decisions. BPA will consider the environmental impacts associated with generating resources operations that are evaluated in the Resource Programs EIS when considering the acquisition of existing resources.

New coal resources are not likely to be acquired because of their cost and environmental impacts. Unless load growth is unexpectedly high, there is little probability that BPA would acquire the nuclear resources identified in this alternative (WNP-1 or -3) because of the large size of the two plants and their costs, which are higher than some other available resources.

In addition to acquiring the conservation resources that are part of the Emphasize Conservation Alternative, BPA will also strive to confirm the supply and cost of the additional conservation resources that make up the Emphasize High Conservation Alternative and acquire all additional cost-effective conservation. Likewise, BPA will strive to expand the supply of renewable resources.

With the objective of appropriately reflecting the total costs of new resources, BPA will include quantified environmental costs in the costs used to establish resource supply and cost curves in its Resource Programs.

6. Mitigation Action Plan

BPA proposes to adopt several mitigation measures. These measures, in conjunction with the project-specific mitigation measures that will be prepared for generation projects, will assure that all practicable means are taken to avoid or minimize environmental harm.

It should be noted that mitigation for conservation is described in more detail than mitigation for generating resources because generating resources will be the subject of additional project-specific NEPA review, as described below.

6.1 Generating Resources

Project-specific environmental review: In order to reduce the environmental impacts associated with the acquisition of new generating resources, BPA will prepare a project-specific NEPA review tiered from this EIS before it acquires the output of any generating resource.

Protected Areas: BPA will not acquire the output of any hydroelectric resource located within any Council-designated Protected Area inside or outside the Columbia River Basin.

Environmental Review Criteria: BPA will include clear environmental review criteria in all resource acquisition processes in order to reduce the likelihood of acquiring resources with significant unmitigable environmental impacts. These review criteria will apply to all new and existing resources proposed for BPA acquisition.

6.2 Conservation

6.2.1 Residential Sector

BPA's residential sector energy conservation programs currently operate according to the New Energy-Efficient Homes Programs ROD, dated February 23, 1989, and the ROD for the Expanded Residential Weatherization Program (for existing homes), dated October 18, 1984. The requirements from both of these RODs will continue to apply to the respective programs, except for the specific changes noted in this Resource Programs ROD.

The New Energy-Efficient Homes Programs ROD recognized the need not only to maintain indoor air quality (IAQ), but also to enhance it to ensure that new energy-efficient homes cause fewer health risks than those potentially occurring in homes built using 1983 standard building practices. Energy-efficient performance standards known as the Model Conservation Standards (MCS) were adopted in 1983, and BPA chose to maintain the ventilation rates at levels generally found in homes built prior to their adoption. A mitigation package formed an integral part of the new energy-efficient homes programs. The environmental requirements included exhaust fans for kitchen and bathrooms, designated outside air supplies for combustion appliances, occupant information on indoor air quality, HUD product standards for formaldehyde emissions from structural building materials, and the offer of a radon package for radon monitoring and radon source control.

The existing environmental requirements for new homes remain intact, except for changes to the radon package. The Resource Programs EIS explains in section 3.1.2 that it is now known that radon entry into homes is predominantly caused by natural forces such as pressure gradients, wind, and air temperature, rather than by house-tightening techniques. In addition, the Environmental Protection Agency (EPA) plans to implement a campaign to test all homes in the U.S. for radon levels. The EPA has also developed certification standards and procedures for radon mitigators, which will help homeowners to select qualified individuals or firms to mitigate for radon in their homes. Therefore, BPA has determined that it is no longer necessary to require builders to provide specific foundation treatments or offer radon monitoring and mitigation to homeowners.

The ROD for the Expanded Residential Weatherization Program required the adoption of mitigation strategies to lessen the risk of adverse human health effects that might result from the installation of "house tightening" measures (storm windows, other window treatments for conserving energy, wall insulation, weatherstripping, caulking, and door treatments such as thermal pane replacements). The mitigation strategies included:

1. giving program participants information on indoor air pollutant sources and practical steps for reducing concentrations,
2. giving program participants options for having their homes monitored for radon concentrations, and
3. partially subsidizing the installation of a proven mitigation device if radon concentrations exceeded 5 picocuries per liter.

BPA will continue to provide information on indoor air pollutant sources for the benefit of Residential Weatherization Program participants when appropriate. As stated above, studies have revealed that there is no direct correlation between house tightening and radon levels. Moreover, the EPA plans to initiate radon

testing for all homes in the U.S. and has developed certification standards and procedures for radon mitigators. For these reasons, BPA has determined that it is no longer necessary to offer radon monitoring and mitigation as part of its residential weatherization programs.

BPA recently decided to include manufactured homes in its residential weatherization programs. Retrofitting insulation into existing manufactured homes provides greater house tightening than the same measures retrofitted into site-built homes. This is because many existing mobile homes have enclosed ceiling and floor cavities containing air spaces that allow air movement and ventilated walls that were designed to let air flow through the wall cavities. Insulating the ceiling, floor, or wall cavities in mobile homes has a greater effect on air leakage because doing so can virtually block any ventilation. Therefore, BPA will require that existing manufactured homes receiving insulation treatment also receive ventilation treatment equivalent to that required in the New Energy Efficient Homes programs.

6.2.2 Commercial Sector

Two Environmental Assessments (EA), titled *Energy Conservation Opportunities in Commercial-Sector Facilities in the Pacific Northwest* (August 1982), and *BPA's Alternative Approaches for Acquiring Energy Savings in Commercial Sector Buildings* (September 1991), have been prepared by BPA to analyze the effects of energy conservation measures (ECMs) in commercial sector buildings. The 1991 EA incorporated the analysis from the 1982 EA with subsequent environmental review documents that were prepared for commercial sector conservation activities. BPA developed specific environmental requirements for proven ECMs in a document entitled *Commercial Environmental Requirements (CERs)*, which is referenced in the 1991 EA.

All of BPA's commercial conservation programs must comply with the CERs prevailing at the time of installation. The CERs are periodically updated to incorporate new information relevant to the potential environmental impacts of ECMs and to allow for modifications or additions to the list of proven ECMs.

The requirements developed for the September 1991 EA remain intact, except for the following:

1. When ECMs reducing the amount of ventilation air during occupied periods are installed in commercial buildings, the *latest* American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Standard 62 or equivalent, rather than ASHRAE Standard 62-89, will be the required ventilation standard. This will allow for updating of the standard for IAQ, just as ASHRAE 62-81 was updated to 62-89.

2. Naturally ventilated buildings must comply with state and local building codes and, at a minimum, must meet the Uniform Building Code (UBC) ventilation requirements.

3. As stated in section 3.1.1 of the Resource Programs Final EIS, studies indicate that there is no direct correlation between the tightening of a building envelope and radon levels. Therefore, BPA may choose to discontinue the offer of radon monitoring when ECMs that reduce air infiltration are installed in apartment buildings. This will be consistent with the modified radon monitoring requirements of the Residential Weatherization Program.

4. Programs involving HVAC and refrigeration measures will require the recovery and recycle of chlorofluorocarbons (CFCs) in accordance with the Clean Air Act Amendments of 1990. This requirement will apply, when appropriate, to programs in all conservation sectors.

5. BPA routinely provides building owners with information developed by EPA regarding disposal of pre-1978 light ballasts potentially containing PCBs. Program participants are required to follow all Federal, state, and local regulations governing disposal and are encouraged to comply with the disposal guidelines and policies developed by EPA Region 10. However, the small PCB capacitors contained in light ballasts, along with spent fluorescent light tubes, continue to be disposed of in municipal landfills, risking ground and water contamination. Therefore, BPA will work closely with Federal and state agencies and BPA customers to develop an acceptable PCB light ballast and lamp disposal plan for its service territory. The disposal plan will apply to conservation programs in all sectors.

6.2.3 Industrial Sector

BPA has developed a list of proven ECMs for the industrial sector that were categorically excluded from NEPA review and are described in section 3.1.3 of the Resource Programs Final EIS. The ECMs were previously evaluated and were determined not to affect environmentally sensitive areas when they are applied to current mechanical processes or are placed within existing commercial or industrial facilities. As stated in section 3.1.3 of the Resource Programs Final EIS, the highly regulated nature of the industrial sector is a safeguard against potential significant adverse environmental impacts. In order to ensure this safeguard, ECMs that are not listed or those that involve new mechanical processes or the development of facilities will receive environmental review by BPA prior to their inclusion in any sponsored programs.

6.2.4. Agricultural Sector

BPA's existing irrigated agriculture energy conservation program was categorically excluded from NEPA review on January 8, 1985. Specific mitigation strategies were developed to minimize potential erosion caused by increased runoff that could result from increased droplet size. The mitigation strategies are:

1. A signed statement is required from the equipment installer stating runoff control was considered in the system design.

2. A brochure explaining runoff problems and detailing methods of control is to be delivered to each of the program participants.

3. Proper training of BPA-certified irrigation system inspectors to evaluate potential runoff problems is required.

4. A technical assessment must be prepared in cooperation with the local Soil Conservation Service office to identify potential runoff problems and develop specific mitigation strategies.

5. A follow-up analysis of representative farms is to be conducted to determine if irrigators are, in fact, adopting runoff control strategies. If not, the mitigation plan will be revised appropriately.

These mitigation strategies will continue to apply to all irrigated agriculture energy conservation programs and pilot programs to ensure that increased water droplet size does not cause a significant increase in runoff and erosion.

6.2.5 Customer System Efficiency Improvements (CSEI)

BPA utility customer distribution and transmission system efficiency improvements include transformer replacements, conductor replacement, and insulator additions and replacements and other activities. Many of these CSEI projects occur within previously developed facility areas and are categorically excluded from NEPA review. Transformers containing PCBs and removed from service will be disposed of in accordance with the requirements of the Resource Conservation and Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA).

Issued in Portland, Oregon, on APR 2 2 1993