Action Plan

Summary

This Action Plan a guide for action over the next three to five years that the Council believes will help maintain and improve the adequacy, efficiency and reliability of the Northwest electric power system. It is a road map of what needs to be done and by whom. Council analysis shows that on an aggregate basis, the region is currently in surplus and could remain so into the latter part of decade.[1] This is the result of reduced loads and additional generation built in the region during and immediately after the Western Electricity Crisis. This means that overall, there is not an immediate need for significant resource development, although individual load serving entities may have resource needs to address.

However, this does not mean that this is an "inaction plan." There are low cost resource opportunities that have value in today's environment and other options that will be lost if not developed now. Moreover, the future is uncertain. Loads can grow faster or slower than expected. Natural gas prices may remain high or return to lower levels and will almost certainly exhibit periods of volatility. Additional environmental constraints could come into effect. And, as resource margins tighten, the region could again face volatility in wholesale electricity prices. Given these uncertainties and steps to mitigate this risk would be prudent.

The context for resource planning and development is expected to change. On the one hand, there is a current trend to return to traditional utility resource development with a much-diminished role for merchant power development. On the other, we foresee greater disaggregation of resource planning and development as a result of recommended changes in Bonneville's role in power supply.

Given the context and the results of the Council's analyses, the major thrusts of the Action Plan are:

1. Acquire those low cost resources that provide a hedge against future fuel price, market and/or environmental risks. This means a focus on conservation with particular emphasis on "Lost Opportunity" conservation[2].
2. Identify cost-effective demand response resources[3] and develop the necessary policies and infrastructure that will permit their use to moderate demand during periods of high prices and/or tight supplies.
3. Undertake actions that will ensure the ability to develop additional generation resources when needed. These include:

[1] Most of the surplus was developed by independent power producers (IPPs). The question has been raised as to why, if the region is in surplus, are many utilities issuing Requests for Proposals (RFPs) for generation. There are several possible reasons: the available IPP generation may not fit the portfolio needs of a particular utility; the utility may have found the IPP generation to not be competitive in terms of cost or other factors with other alternatives; and so on. If IPP generation goes unused, the capital costs do not fall on the region's ratepayers but on the IPP investors.

[2] Lost Opportunity conservation is that conservation that can only be cost-effectively developed at the time of construction or manufacture. An example would be measures in the shell of a building or more efficient appliances.

[3] Demand response resources are the ability to voluntarily reduce demand for periods of hours up to months during periods of high prices and/or tight supplies.

- Developing effective indicators of resource adequacy and encouraging the adoption of voluntary adequacy standards on a regional and west-wide basis.
- Encouraging the use by load serving entities of effective resource planning methods that incorporate consideration of risk.
- Encouraging the development of institutions and mechanisms for effective planning, expansion, operation and management of the region's transmission system.
- Resolve barriers to the development of renewable and high-efficiency resources and ensure development of cost-effective lost-opportunity generating resources (e.g. combined heat and power projects).
- Undertake pre-construction activities to permit the more rapid deployment of generating resources when needed, including, if justified, development of transmission that may be needed to access low cost generation. Council analyses indicate that these efforts should be focused on wind and coal technologies.
- Continue efforts to encourage consideration of cost-effectiveness in fish and wildlife planning and to better integrate planning for fish mitigation and power.
- Monitor and evaluate the state of the science and policy of climate change and adjust resource planning accordingly.
- Establish policies to limit the role of the Bonneville Power Administration in resource development to:
    a. providing power beyond the capability of the existing system only to those who request it an agree to bear the costs of the resources acquired through tiered rates or similar mechanism; and
    b. Facilitating cost-effective conservation and renewables development.

Conservation

Conservation is the highest priority resource under the Act. The region has developed more than 2600 average megawatts of conservation since the passage of the Act at an average levelized cost of approximately 2.5 mills/kwh. Despite the conservation that has already been developed, there remains a significant resource to be developed, largely as a result of new efficiency technology. Conservation has several unique characteristics relative to other resources. First, its cost is almost entirely capital while operating costs are minimal. This means that, unlike a conventional generating unit, there are no operating costs to be avoided when demand is low. Conversely, compared to generating power plants it always produces savings of some value and it reduces the risk of increases in fuel prices and increases in the cost of electricity. Second, it has no environmental emissions. This means that conservation reduces the risks associated with future environmental controls. Third, some of the resource is "schedulable", i.e., it can be developed when it is needed. However, some of the resource is not schedulable. It is only feasible and cost effective if it is developed when, for example, the building is constructed or the appliance is purchased. Fourth, much of the conservation comes in small increments and has relatively short lead-times for development, assuming the necessary programs and budgets are in place. This means that at least for schedulable conservation, there is some ability to ramp implementation up or down in response to prevailing conditions. Taking these characteristics into account, the analysis to date indicates that although we are likely to face a period of relatively ample power supplies for the next few years, there is value in pursuing development of conservation. In fact, being developing some additional conservation beyond that indicated by short-run power prices, provides additional value in mitigating fuel, market price and environmental risks.

Actions

WHO?	WHAT?
BPA, utilities and System Benefit Charge (SBC) administrators	Pursue lost-opportunity conservation at levels consistent with regional target and budget for annual lost-opportunity conservation.
BPA, utilities and SBC administrators	Pursue dispatchable conservation at levels that are consistent with regional target and budget for annual discretionary conservation
BPA with proportional contribution from regional load serving entities.	Establish a budget for conservation RD&D to support development of technologies and practices with promising application in the PNW.
Council, Regulators	Establish Integrated Resource Planning (IRP) criteria for evaluating conservation premium for risk avoidance
BPA, utilities and SBC administrators	Increase budgets for regional conservation activities that support conservation development including market transformation (MT) and regional coordination The track record for MT is excellent. There is more to do, but current budget levels are inadequate. In addition to MT the budget for regional conservation activities should be adequate to fund efforts in local conservation that would benefit from regional coordination including program development, cross service territory marketing, and evaluation. Regional coordination activities could be conducted by BPA as guided by the RTF or by the Alliance as guided by board.
BPA, utilities and SBC administrators	Establish funding to support pursuit of national and international standards on key appliances and equipment including but not limited to: vending machines, commercial refrigerators, freezers and ice-makers and AC/DC power converters, dry-type transformers and …
Council, Regulators	Develop strategies to mitigate conservation impacts on rates and utility finances.
Utilities, state and local code authorities	Enact or implement Residential and Commercial MCS recommendations
States and local code authorities	Continue updating energy building codes with cost-effective measures and applications
RTF and Regulators	Establish guidelines for evaluation of conservation actions
BPA, utilities and SBC administrators	Monitor and evaluate efforts. Pool resources where appropriate
Council	Continue resource assessment work and assist BPA, utilities, SBC administrators and the NW Alliance identify conservation opportunities.
Council	Review and change as necessary RTF governance and organization..
BPA, utilities and SBC administrators	Adequately fund RTF

Demand Response

Demand response is a change in demand for electricity corresponding to a change in the power system's cost of electricity either in response to direct pricing or, more likely, through programmatic actions. The problem is that while the region's electricity supply is generally responsive to conditions in wholesale power markets, its electricity demand is not. This situation has a number of adverse effects. It's widely recognized as one of the factors contributing to the high and volatile electricity prices experienced on the West Coast in 2000-2001. On the other hand, the eventual ability to take a large amount of load off the system was one of the major factors in bring Western electricity prices back to normal ranges in the latter months of 2001. There are a number of different approaches to achieving demand response, each with their own strengths and weaknesses. Review of the experience with demand response experience here in the Northwest and elsewhere has it has significant potantial to moderate possible future periods of resource insufficiency and/or price volatility. The following actions should be taken to secure this value:

Actions

WHO?	**WHAT?**
Bonneville, Utilities w/ regulators' encouragement	Confirm the cost, availability and efficacy of the Demand Response resource – In order for utilities to be comfortable relying on DR in place of utility generators, they need more information and experience with the resource. Pilot programs to confirm that DR is real and more accurately assess the potential and refinement and expansion of existing programs, will provide that information and experience.
Bonneville, Utilities, regulators, Council	Develop Agreement on Cost-Effectiveness Methodology – The situation is somewhat similar to that of conservation in the early 1980's. We have a "new" resource that is being considered as an alternative to conventional generators, and we haven't agreed on the appropriate way to compare it to the conventional resources. The general principle is that the value of DR is the cost avoided by it. However, the costs avoided by DR differ depending on the power system's generating assets and the trading possibilities available to utilities. The application of the principle of avoided cost to a range of specific situations needs consideration by all parties to arrive at a methodology that can be generally agreed to be valid.
Utilities, regulators, Council	Fully Incorporate DR in Integrated Resource Plans – Utilities have made some efforts to treat DR in their IRPs but results have been spotty. DR should be evaluated from a long-term perspective, including the avoided cost of alternatives such as the construction of peaking resources and the value of DR in reducing risk.
Utilities, regulators, Council	Explore Ways to Make Price Mechanisms More Effective and Acceptable – Price mechanisms offer significant potential advantages over buybacks as an approach to accomplishing DR, but concerns with fairness and stability have been significant obstacles to the adoption of price mechanisms. It's worth an earnest discussion among regional parties to see if forms of price mechanisms can be devised that meet the concerns of those who oppose the use of price mechanisms

Resource Adequacy

The issue of resource adequacy was raised to prominence by the Western Electricity Crisis, which many attribute to a failure to appropriately assess risk and to maintain adequate resources. In response, the FERC proposed an adequacy standard as part of its Standard Market Design that was inappropriate for a hydro dominated system like the Northwest. FERC has subsequently deferred to the states however, in the absence of state or regional action, it might attempt to reassert authority in this area. In addition, the North American Electrical Reliability Council (NERC) has begun the process of developing a power supply adequacy standard. This would not have legal force unless the reliability title if the pending Energy Bill passes. The reliability title has usually contained provision for deference to the interconnections (e.g. the Western Electricity Coordinating Council). I). In response to potential NERC action and to review of the problem by a work group from the Committee on Regional Electric Power Cooperation (CREPC, of which the Council is a member), WECC is evaluating proposing a power supply adequacy standard, although the details have not been fleshed out. There still could be a problem of inappropriateness for the Northwest.

The Council has been working with others in the region to address the question of adequacy for the Northwest. The Council convened the Adequacy Forum and has been working with CREPC and its Western Resource Assessment Team (WRAT). The hierarchy of options for increasing the assurance of resource adequacy are:

- Improving the transparency of relevant information;
- Enhancing the assessment of adequacy through consistent metrics;
- Establishing voluntary adequacy targets; and
- Establish enforceable standards.

In the current absence of a standard, a focus has been placed on improving information about the status of resource adequacy. The Northwest Power Pool is working to improve to consistency of information reported by regional control areas so that meaningful assessments can be performed. Supported by the WRAT, in which the Council participates, WECC is currently enhancing the scope and utility of its twice-yearly resource assessments. Improvements include probabilistic peak load representation and probabilistic energy supply representation. The aim is to provide better description of Western energy market as context for decisions by LSEs, commissions and developers.

If NERC eventually follows the recommendations of its Resource and Transmission Adequacy Task Force, its standard will provide for a compliance review process of the standards of its regional reliability councils, such as WECC, and for accountability to WECC for compliance by subregional entities (below the level of WECC). As noted above, this compliance process would not ultimately be legally enforceable absent passage of provisions of or similar to those in the current energy bill. These provisions would thus be at least like the third level of the hierarchy of options, with some characteristics of the fourth.

While these things are going on at the NERC and WECC levels, the outcome is uncertain. The Council believes that other regional actions can be taken. There are no institutions in the Northwest that could enforce an adequacy standard. And even if there were, it is not clear that a voluntary standard supported by voluntary reporting of the underlying data by regional load

serving entities would not be at least as successful. Council analysis indicates that an adequacy standard of …….

Actions

WHO?	WHAT?
Council, BPA, State Commissions, Northwest Power Pool, Load Serving Entities	Continue to work to improve the accuracy and consistency of the information needed to accurately assess resource adequacy.
Council	Monitor regional loads and resources and report to the region on a regular periodic basis.
Council	Develop improved demand forecasting data and models for both long-term forecasts and to assess near-term demands to support adequacy monitoring and reporting. Enhance ability to forecast and assess the Administrator's load.
Council	Monitor and report on economic growth and key energy price trends that can affect the actions to be taken under the Council's power plan.
Council	Monitor and report on status of regional generation projects. Assess their conformity with the Council's power plan and report on developing risk or cost concerns.
Council, BPA, State Commissions, Northwest Power Pool, Load Serving Entities	Work to establish a voluntary adequacy standard appropriate to the Northwest that addresses both energy and capacity requirements.
Load Serving Entities	Balance risk and cost in choosing strategy for meeting future demands. Explicitly examine risk mitigation mechanisms in choosing strategy.
State and local utility commissions	Require explicit attention to risk mitigation in integrated resource plans submitted to Commissions. Minimize mixed or ambiguous signals to regulated utilities regarding cost recovery when evaluating integrated resource plans.
Council	Continue to develop and enhance planning tools to improve assessment of adequacy and reliability and risks of the regional generation and transmission system. Work with LSEs and Commissions to incorporate risk assessment into utility planning.
Council	Continue to work with other organizations in the region to improve the structure of the regional electricity system. This includes working toward a system that inherently promotes efficient use of resources for the generation, transmission and conservation of electrical energy in the region.

Transmission Planning, Expansion, Operation and Management

Ever since the passage of the 1992 energy Policy Act, the FERC has been attempting to move the nation toward the formation of regional transmission organizations that would take over the planning, expansion , operation and management of the regions' transmission systems. This

effort has met with a great deal of resistance to a "one size fits all" solution in many parts of the country including the Northwest. However, while resistance has been justified, there has also been more recognition that there are growing problems associated with how we plan, expand, operate and manage transmission and that these problems threaten the economy and reliability of the power system. This recognition has stimulated efforts to develop "home grown" solutions to these problems.

Actions

WHO?	WHAT?
Council	Participate in and support regional efforts to develop a Pacific Northwest proposal for transmission planning, expansion, operation and management through the Regional Representatives Group (RRG).
Council	Support and participate in Northwest Transmission Assessment Committee (NTAC) as regional transmission planning forum until replaced by the Independent Entity being developed by the RRG.
Council	Support and participate in Bonneville non-wires transmission alternatives evaluation process and encourage other transmission owners to consider non-wires alternatives.

Reduce Barriers to the Development of Resources When Needed Including Renewable and High-Efficiency Resources

Although individual load serving entities situation may differ, the Northwest as a whole is experiencing a surplus of generating capacity due to loss of load and substantial addition of capacity following the energy crisis of 2000 - 2001. Unlike the past periods of surplus, most of the underutilized capacity is owned by independent power producers.

Some LSEs are taking actions now to address their resource positions. On a regional scale, it is likely that within the next 5 to 10 years new generating resources will have to be secured to meet load growth and to replace aging thermal capacity. Because of the lead time requirements to develop new generating resources and supporting infrastructure, including transmission, choices regarding the types and location of generating resources needing to be developed and preparations for the development of these resources must be made during the five-year horizon of this action plan. This is particularly the case if significant transmission construction is required to access low cost resources.

For the region as a whole, the most promising generating resources for bulk electricity production through the mid-term (~2015) are natural gas combined-cycle plant, wind power and new coal generating capacity (we should be able to be more definitive on completion of the portfolio risk studies). Though relatively limited in supply, cost-effective (in the broad economic and environmental sense) industrial and commercial cogeneration, "niche" biomass, small hydropower and solar photovoltaic projects are also attractive alternatives. Some of the latter resources may be potential lost opportunities because of the economies associated with development in concert with related applications (e.g., industrial cogeneration with scheduled plant refurbishments or expansions).

Gas price uncertainty and volatility and uncertainty regarding future greenhouse gas control are important factors affecting the choice of bulk generating resources. The cost of power from natural gas fired capacity is sensitive to gas prices, though the additional efficiency imparted by cogeneration can help

mitigate this. Wind power is immune to both fuel price uncertainty and greenhouse gas control costs, however, in absence of federal incentives remains generally more expensive than gas or coal alternatives. Coal prices are expected to remain low; however coal is the most carbon-intensive of the fossil resources and is very sensitive to greenhouse gas control efforts unless inexpensive methods of carbon dioxide sequestration are developed. Also, large-scale development of wind or new coal projects will require reestablishment of the ability to plan, finance and construct long-distance transmission.

Past power planning in the Northwest has focused on energy. The focus is broadening to include capacity as irrigation and air conditioning loads increase and as market interactions with other, capacity-limited regions grow tighter. Peaking capacity requirements are met with a somewhat different set of resources -- additional hydro peaking capacity, peaking power augmentation of combined-cycle plant and finally, simple-cycle combustion turbines.

Actions

WHO?	WHAT?
Council, Utilities, Oregon Energy Trust	Monitor the availability of potential lost opportunity cogeneration, biomass, hydropower and other renewable generating resources. Develop these as they become cost-effective , including risk mitigation benefits.
Council	Monitor the inventory of partly-completed gas-fired capacity on which construction is suspended
Council	Monitor the inventory of permitted generating projects. Evaluate against levels suggested by Council's portfolio analysis and encourage actions when necessary.
State and local siting agencies	Encourage the preservation of permitted and power plant sites, and partly-completed projects on which construction has been suspended to reduce lead time required to bring new generation on line when needed..
Generating utilities and transmission providers	Develop & market shaping and interconnection products supporting the integration of wind and solar resources.
Bonneville	Continue to support the collection and compilation of renewable resource assessment data, including long-term wind and solar monitoring data, to support expeditious development of these resources when needed and cost-effective. While the Council believes that it is important that fundamental resource data be publicly available, Bonneville should explore the fesibility of implementing subscriptions or fees for selected data to help offset costs of collecting and maintaining data.
Transmission providers, managers	Develop means of better utilizing physically (as opposed to contractually) available transmission capacity to support cost-effective resource development.
Council, Northwest Transmission Assessment Committee or successor, Transmision providers	Assess the cost-effectiveness of transmission investment to access low-cost resources and, if justified, develop means of financing and construction. Preliminary Council analysis indicates that…..

Fish and Power

As the years of 2000 and 2001 unfolded, analyses by the Council and others indicated that fully implementing the NOAA Fisheries' 2000 Biological Opinion (BiOp) mainstem hydroelectric operations in 2001 was very likely to compromise power system reliability. This was due to

very dry conditions in that year and the basic state of power supply in the Northwest and the rest of the Western Interconnection. Allowances in the BiOp, however, permit the curtailment of fish and wildlife operations during emergencies. The Bonneville Power Administration (Bonneville) did declare a power emergency in that year based on the water supply and the lack of available generation on the market. Decisions were made to severely reduce fish bypass spill during the spring and summer months in order to ensure adequate supplies of power and to manage the economic impact of the high market prices. This action initiated a regional debate regarding the additional risk placed on endangered or threatened fish and what measures could be taken to avoid or reduce the likelihood of such events occurring in the future. Conversely power system operators are concerned that some fish and wildlife measures impose high costs on the power system that are not justified in light of their biological effectiveness. These debates underscore the importance of bringing better information to bear both fish recovery planning and the planning of the power system to achieve power system reliability with equitable treatment of fish.

Actions

WHO?	WHAT?
Council, Bonneville, other Hydro Operators	Actively provide fish and wildlife agencies analysis regarding physical impacts (river flows and reservoir elevations) and economic impacts (changes in energy production and cost) of alternative mainstem operations. This is to aid those agencies in allocating research money and to help them develop both biologically and economically effective programs.
Council	Work with fish and wildlife managers to develop a methodology to assess whether protective mainstem measures are being treated equitably in relation to the power system. . Incorporate the methodology described above into the power planning process.
Fish managers	Work with power planners and agencies to develop a minimum impact curtailment plan for fish and wildlife operations in the event of a power emergency.
Fish managers	Work with power planners to assure the region that the most cost-effective measures are taken to achieve biological objectives.
Council	Work with the IEAB to continue to develop and demonstrate methods to improve the cost effectiveness of the Fish and Wildlife Program

Climate Change

One of the long-term risks facing the region's power system is climate change and the potential policies that might be implemented to mitigate climate change. If climate change occurs as indicated by climate modeling efforts, temperatures, precipitation and hydrology would be affected, shifting the patterns and levels of electricity demand and production. If measures such as carbon taxes or cap and trade systems were to be implemented, it could significantly alter the economics of carbon-intensive resources.

Actions

Council	Monitor and assess developments in climate change science and policy and assess risks.
Council	Incorporate climate change uncertainty in integrated resource planning, both in terms if its potential impacts to fossil fuel burning resources and the operation of the hydroelectric system.

Future Role of Bonneville in Power Supply

Over the past several years the Bonneville Power Administration has faced periods of instability that have threatened its financial well-being and that of its customers; hampered its ability to meet its obligations, including those to the U.S. Treasury; impeded the development of needed resources; and damaged the economy of the Northwest. This had led to proposals for changes in Bonneville's role in power supply. The region's governors have asked the Council to work with Bonneville and interests in the region to resolve this issue. The Council has consulted with a number of interests in the region and has convened a broadly representative steering committee to help address the key questions.

Addressing the problems that have afflicted Bonneville and the region requires a fundamental change in Bonneville's role in power supply. This change would market the existing federal system to eligible customers at its embedded cost and serve load growth that exceeds the capability of the existing federal system in such a way that the customers requesting such service bear the costs and risks of providing that service. This change would clarify responsibility for resource development; result in an equitable distribution of the costs of growth; and prevent the value of the existing federal system from being diluted by the higher costs of new resources. This change in role should ultimately be implemented through long-term (20-year) contracts.

Actions

Council	
Customers	
Bonneville	

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