Biennial Review of the Fifth Power Plan

Interim Report on Resource Adequacy Standards

During the 1990s, the entire West coast saw little development of new electricity generating resources. This may have been prompted, in part, by the promise of deregulation and concerns regarding getting returns on new capital investments. The Northwest's resources and loads were about in balance in 1990 but declined steadily though the decade. By 1999, the load/resource balance was nearly 4,000 average megawatts deficit. There was concern about the adequacy of the region's power supply. In 2000, the Council assessed that three years out (by 2003) the region would face about a one-in-four chance of service curtailment. No significant actions were taken to alleviate the problem.

Then, in 2001, with a dysfunctional California electricity market in place, the Northwest experienced its second driest year on record. Electricity prices soared and actions were taken to avoid uncontrolled curtailment in the region. While a crisis was averted, it came with a cost. The Bonneville Power Administration paid its direct service industries to halt operations. It also curtailed almost all bypass fish spill (used to improve migration survival). Many Northwest utilities purchased or leased expensive operating generators to augment the lack of hydroelectric generation. Overall, the region got by without a major electricity curtailment but the effects of that crisis continue to haunt us today, in the form of higher electricity prices.

Since 2001, the region has lost approximately 10 percent of its load and it has acquired about 15 percent new generating resources. The current load/resource balance is about 2,400 average megawatts surplus -- a 6,400 average megawatt swing from 1999.

Understanding that resource adequacy was a key concern for the region, the Council incorporated two action items into its Fifth Power Plan to specifically address this issue. Action items ADQ-1 and ADQ-2 (provided below) call for the establishment of reporting standards and the creation of an advisory committee to aid the Council in developing adequacy standards for the Northwest.

ACTION ADQ-1
Establish regional and West-wide reporting standards for the assessment of adequacy.

It is essential to have accurate, consistent, and transparent information in order to judge the adequacy of the power supply. The Council will continue to work with the Northwest Power Pool, the Western Electricity Coordinating Council (WECC), and the Committee on Regional Electric Power Cooperation to establish the necessary measures of resource adequacy and reporting standards.

ACTION ADQ-2
Carry out a process to establish adequacy standards.

The Council will establish a Northwest Resource Adequacy Forum. This forum will examine alternative adequacy metrics and standards for the Northwest and their compatibility with West-

wide standards being developed by the WECC and others. The forum should consist of utility policy-makers, regulatory commission representatives, and other relevant parties who will help to develop standards and support their implementation. A technical subgroup of this forum will have the function of providing policy-makers viable options for both metrics and standards for the Northwest. The objective would be to reach agreement on appropriate adequacy metrics and standards by the end of 2005. In addition, the Council will continue to work through the WECC and other forums toward West-wide adequacy metrics and standards.

In response to these two action items the Council, in conjunction with BPA, established the Resource Adequacy Forum. The Forum's two committees, a policy steering committee and a technical committee, have met approximately every month since early in 2005. The Forum recognized early on that an adequacy standard would be comprised of two components -- one to deal with energy (or fuel) related issues and one to deal with capacity (or machine) related issues.

In May of 2005, the Council adopted the Forum's proposed standard for the energy component. That standard uses the balance between resources and load as a metric to assess whether the power supply is adequate. The energy target is set to zero, which means that for the power supply to be adequate, on an energy basis, the average energy capability of the system over the course of a year must be at least as much as the average load. This almost seems too obvious but the Forum's proposal included adding a 1,500 average megawatts planning adjustment to the sum of resources. In other words, the region could plan to a 1,500 average megawatt deficit and still have an adequate supply. The planning adjustment was derived from a probabilistic analysis that estimates the loss of load probability. The planning adjustment, in simple terms, is a measure of how much the region is willing to depend on non-firm resources, such as out-of-region generation and hydroelectric system flexibility (the ability of the hydro system to draft below rule curves for a short time during emergency conditions).

On October 3, 2006 the Forum reached consensus on a proposal for the capacity component of the adequacy standard. That proposal will come before the Council for adoption in December of this year, after a period of public comment. That standard uses a reserve margin as its metric for adequacy. The reserve margin is simply the amount of surplus generating capability that the system has over the peak daily loads, in terms of percent. The capacity target is made up of components that cover various types of contingencies. Operating reserve requirements make up 6 percent of the target. The reserve to cover adverse temperature (enough for a 1-in-20 year event) is 15 percent in winter and 6 percent in summer. And in a similar fashion to the energy standard, a planning adjustment reserve is derived from a loss of load analysis. That component is 4 percent for winter and 7 percent for summer. Thus the winter capacity target is 25 percent and the summer target is 19 percent. Currently the Northwest's power supply has a winter reserve margin of 41 percent and a summer margin of 28 percent, both well above the proposed targets. The capacity standard is interim in nature, meaning that over the course of this next year, more analysis and research are planned to refine the targets.

Council staff has been and continues to be active in the WECC Load and Resources Subcommittee (LRS), which is the WECC entity charged with overseeing the various WECC adequacy assessments and with developing adequacy metrics and targets. The current target for

developing metrics and targets for WECC to use in its assessments involves working through the WECC approval process leading to a Board decision in the summer of 2007. The LRS continues to work to improve the various adequacy assessments done by WECC. Having Council and other Northwest staff on the LRS is important to ensure that inconsistencies between WECC and Northwest approaches to resource adequacy are minimized and all discrepancies are understandable by anyone using the various reports.