Northwest Power and Conservation Council

A Resource Adequacy Standard For the Northwest

April 16, 2008

Council Document 2008-07

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A Resource Adequacy Standard for the Northwest

The Resource Adequacy Standard serves as a gauge to assess whether the Northwest electricity supply is sufficient to meet the region's needs now and in the future. It provides a *minimum threshold* that serves as an early warning should resource development fall dangerously short. It also suggests a *higher threshold* that encourages greater resource development to offset electricity price volatility. It does not mandate compliance or imply any enforcement mechanisms. It does not directly apply to individual utilities – because every utility's circumstances differ.

Currently, the region as a whole has more than sufficient resources to meet the *minimum threshold* for resource adequacy. The minimum threshold, however, should not be mistaken as a resource planning target. The prudent amount of resource acquisition should be derived from an integrated resource planning process. For the region, the Council's power plan serves as a blueprint for the types and amounts of resources the Northwest should acquire. Individual utilities must assess their own needs and risk factors and determine their own planning targets, which are screened by public utility commissions or by their boards of directors.

The Pacific Northwest Utilities Conference Committee (PNUCC) and the Bonneville Power Administration (BPA) amass utility planning information and produce regional assessments of loads and resources. These tabulations have a different purpose than the resource adequacy standard – they address utilities' need to acquire prudent amounts of new resources not the bare minimum necessary to keep the lights on. It would be a misapplication of the adequacy standard to infer that utilities should slow down their resource acquisition activity because the adequacy standard is already being met.

This document includes the language that defines the resource energy standard for the Northwest and a summary of the current assumptions and thresholds (Appendix A). Also included is the previously adopted implementation plan (Appendix B – Council document 2006-22), which describes how this standard will be used. Appendix C offers a background document with additional information on the standard.

The Pacific Northwest Regional Energy Standard

The **energy metric** for the Pacific Northwest [1] is defined to be the *average annual load/resource balance*, which is the *available* [2] *average annual energy* minus the *average annual firm load* in units of energy (average megawatts [3]), where:

- The *available average annual energy* [4] is defined as the sum of:
  - **Non-hydro** resource generation, including renewable resources, accounting for maintenance and forced-outage rates and limited by fuel-supply constraints and/or environmental constraints
  - **Uncommitted Independent Power Producer** (IPP) resource generation, accounting for maintenance and forced-outage rates and limited by fuel-supply constraints and/or environmental constraints, and assuming
    - full capability from October through May and
    - the fraction of IPP capability available to Northwest utilities from June through September
  - **Firm hydroelectric** generation, based on critical water [5] conditions
  - **Planning adjustment energy,** [6] which is derived from the currently used 5 percent LOLP guideline [7]
- The *average annual firm load* is based on normal temperature conditions and is adjusted for firm out-of-region energy sales and purchases and for conservation savings

The **energy threshold** for the Pacific Northwest is zero, that is, on an annual basis resources (as defined above) should at least match the expected annual load. When the energy threshold is achieved, the resulting loss-of-load probability should be 5 percent.

[1] The Pacific Northwest is defined to be the geographical area referenced in the 1980 Northwest Power Act, which includes the states of Oregon, Washington, Idaho, and the western part of Montana.
[2] The term "available" does not mean "expected" in this context.
[3] One average megawatt is equivalent to 8,760 megawatt-hours of energy.
[4] This refers to resources that are committed to serve regional load, whether or not they are physically located in the region.
[5] For the region, under current operating constraints (including actions listed in NOAA Fisheries' biological opinion), the critical water year is defined by the hydrologic conditions from August 1936 through July 1937.
[6] The value used for "planning-adjustment" energy is derived from the Genesys model and should be reassessed at least once a year or whenever new resource information is available. This factor represents an adjustment to be made to the load/resource balance so that when the balance is zero, the associated loss-of-load-probability (LOLP) will be 5 percent. The amount of planning-adjustment energy depends on assessments of the availability of out-of-region resources and non-firm hydro energy that the region believes is prudent to plan on for energy adequacy. See Appendix A for specific assumptions.
[7] The Resource Adequacy Forum is also reviewing the 5 percent LOLP guideline. Any change to this guideline could translate into a different "planning-adjustment" energy value.

The Pacific Northwest Regional Capacity Standard

The capacity metric for the Pacific Northwest is defined to be the *planning reserve margin* (PRM), which is the surplus *generating capability* over the *expected-peak load* averaged over the *sustained-peak period*, for summer and winter periods, in units of percent, where:

- The *sustained-peak period* is defined to be the highest 6 hours per day over 3 consecutive days (18 hours in total)
- The *generating capability* is defined as the sum of the sustained-peaking capability from:
    - **Non-hydro** resources, including renewable resources, accounting for maintenance and limited by fuel-supply constraints and/or environmental constraints
    - **Uncommitted Independent Power Producer** (IPP) resources, accounting for maintenance and limited by fuel-supply constraints and/or environmental constraints, and assuming
        - full capability from October through May and
        - the fraction of IPP capability available to Northwest utilities from June through September
    - **Firm hydroelectric** sustained-peaking capability, based on critical water [8] conditions and assuming that no extraordinary actions are taken to increase peaking capability
    - **Out-of-region** capacity for both winter and summer, which is reviewed annually
    - **Incremental hydroelectric** sustained-peaking capability, which is an additional amount available in water conditions better than critical[9]
- The *expected-peak load* is defined as the average load over the *sustained-peak period*, based on normal temperature conditions and is adjusted for firm out-of-region sales and purchases and for conservation savings

The PRM thresholds are derived from the currently used 5 percent LOLP guideline.[10] The PRM is the excess of defined resources over expected loads that yields a 5 percent LOLP. The PRM thresholds can be thought of as providing components to cover:[11]

- Operating reserve requirements
- Long-term loss of a resource
- Load increases arising from adverse temperature

[8] For the region, under current operating constraints (including actions listed in NOAA Fisheries' biological opinion), the critical water year is defined by the hydrologic conditions from August 1936 through July 1937.
[9] This amount will be defined by an analysis of hydroelectric sustained-peaking capability.
[10] The PRM thresholds are derived from the Genesys model and should be reassessed at least once a year or whenever new resource information is available.
[11] These components are not strictly additive, and attempting to define a PRM threshold using this method may not lead to a result consistent with the loss-of-load probability analysis.

Appendix A
Current Adequacy Thresholds and Assumptions

Current Adequacy Thresholds

- **Energy:**
  - Average annual load/resource balance is zero
- **Capacity:**
  - Winter planning reserve margin is 23 percent
  - Summer planning reserve margin is 24 percent

Resource Assumptions

- **Non-hydro resources:**
  - Capacity will reflect seasonal adjustments.
- **Wind:**
  - To be updated when the wind subcommittee completes its analysis of historic wind data
  - Energy standard: expected average annual generation (currently 30 percent of nameplate)
  - Capacity standard: 15 percent of nameplate
- **Uncommitted Independent Power Producer** (IPP) resources:
  - To be updated annually or when new information is available
  - full capability from October through May and
  - 1,000 megawatts from June through September
- **Out-of-region market**
  - To be updated annually or when new information is available
  - 3,000 megawatts per hour from October through May
  - None available from June through September
- **Incremental hydroelectric sustained-peaking capability:**
  - To be updated annually or when new information is available
  - 2,000 megawatts from October through May
  - 1,000 megawatts from June through September
- **Energy Planning Adjustment:**
  - 1,300 average megawatts derived from the LOLP analysis

Loss-of-load Probability Assumptions

- **Significant Curtailment for Energy**: 28,800 megawatt-hours of total curtailment over the December through March period or the energy equivalent of the loss of 1,200 megawatt-hours over a 24-hour period.
- **Significant Curtailment for Capacity**: 3,000 megawatts in any hour of the winter or summer period

Appendix B – Document 2006-22
Pacific Northwest Resource Adequacy Warning Implementation Plan

INTRODUCTION

This paper describes the role the Council will take and the Council's expectations of the roles others will take in the Pacific Northwest Resource Adequacy Implementation Plan. It includes current expectations about the outcome of Bonneville's Regional Dialogue process, recognizing that those discussions are not yet complete.

BACKGROUND

Regional Awareness of Resource Adequacy Framework: There are a number of national, west-wide, regional and state efforts currently underway, which have thrust resource adequacy into the limelight. The Energy Policy Act of 2005 mandates the Electric Reliability Organization (ERO), established by the act to implement mandatory reliability standards for the bulk-power system under the purview of the Federal Energy Regulatory Commission (FERC), "to conduct periodic assessments of the reliability and adequacy of the bulk-power system in North America." The North American Electric Reliability Council (NERC), which was certified as the ERO on July 20, 2006, is in the process of developing a standard for resource adequacy assessments. FERC said in its final rule on implementation of the ERO provisions of the legislation that it intends to require the ERO to make recommendations where entities are found to have inadequate resources following the assessments.

In the West, the Western Electricity Coordinating Council (WECC) is developing guidelines to recommend appropriate methodologies for assessing resource adequacy. Although the NERC and WECC efforts act as drivers, momentum is also building within the region for a regional resource adequacy standard through the Forum and the resurgence of Integrated Resource Plans (IRPs). In fact, the state of Washington recently passed legislation requiring all large electric utilities, both public and private, to prepare IRPs. Utilities, state regulators and the elected boards of public utilities are all explicitly examining strategies for planning resources to meet load. The efforts described above, the active participation by the utility and state regulatory communities in the Forum and the adoption of the adequacy metrics and thresholds for the region by the Council all serve to elevate the electricity industry's awareness of the regional standard, which is the first step to achieving resource adequacy.

APPROACH

Utility Reporting: Utilities, other than those that have chosen in advance to put their entire load on Bonneville, would report their load and resource forecasts annually to some regional entity. Bonneville would report for all the utilities that have chosen it as their ongoing resource supplier for load growth. Currently the utilities with responsibility for procuring resources to meet their load obligation report their forecasted loads and resources to PNUCC. This approach proposes to continue using PNUCC and its Northwest Regional Forecast (NRF) as the vehicles for reporting. Aside from possible refinements in data definitions and development of protocols for any new data, this reporting process would involve little change from current practice, except for those utilities that are newly assuming independent resource procurement responsibility. The NRF currently uses a five-year planning horizon, which would be maintained for this purpose.

Reporting is central to the proposed implementation process and relies on full participation by the utilities, their regulators and local boards, and Bonneville. Bonneville contracts would not require that its customer utilities develop resources to meet adequacy standards, but they would require that utilities who do not rely on Bonneville to meet their load growth to report their load and resource data for this assessment.

PNUCC and Council Assessments: The results of this reporting would be used in an assessment, in which the regional totals would be checked against the regional energy and capacity metrics and thresholds. This assessment would be done in the first instance by PNUCC. The assessments for the planning years, five and three years out, would be of most consequence for the region. The results of these "bottoms-up" assessments could then be compared with the Council's "top-down" regional assessments in order to validate the assessments, or, in the case of discrepancies, either inform quality control checks of the data to further refine the assessments in the future or highlight differences in assumptions. Some differences in assumptions e.g., about capacity factors of wind generation, might provoke additional research, while others could be the result of policy or regulatory decisions.

At this stage, the results of the assessment(s) would be depicted on an aggregated basis, as is currently done in the NRF. Utilities would be able to compare their resource strategies for meeting load obligations to the regional resource adequacy situation and adjust their plans accordingly. The regional assessment(s) would include the "planning adjustment" (winter out-of-region spot market purchases plus hydro flexibility) and the regional uncontracted IPP generation in the regional totals, as described in the energy metric and threshold adopted by the Council.

Highlighting how much the region is relying on the external spot market or on uncommitted regional IPP generation, compared to the amounts included in the currently proposed standard would provide a kind of warning signal to the region about potential upcoming adequacy problems.

Indicators of Resource Adequacy Levels: The section below describes in more detail a "green light, yellow light, red light" approach to regional adequacy assessment and describes actions to be taken with each outcome.

The description refers both to a physical standard, the minimum threshold adopted by the Council, and to an economic standard, a higher threshold that provides more resources than simply enough to avoid loss of load. The Council's implied economic threshold[12] developed in the Fifth Power Plan is an example of a possible economic standard. Developed by analyzing the exposure of the Northwest power system to a large variety of risks, including the risk of high market prices, such as were experienced in 2000-01, this threshold would give the region approximately an additional 3,000 MW of resources, above the level that would be developed pursuant to the minimum threshold adopted in the adequacy standard. The forum recommended that the Council's power plan be used to set the threshold for the economic standard.

[12] See Volume 2, Chapter 7, "Portfolio Analysis and Recommended Plan" in Northwest Power and Conservation Council. *Fifth Northwest Electric Power and Conservation Plan.* Portland, Oregon, 2005.

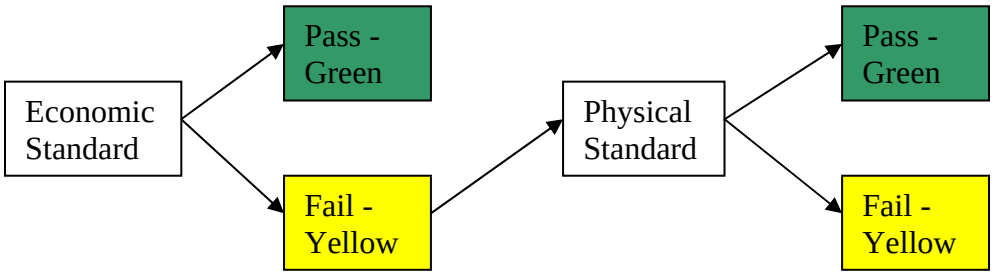
The approach is summarized in the following table:

When \ How	Economic Standard		Physical Standard	
	Pass	Fail	Pass	Fail
5th Year Out	Green	Yellow	Green	Yellow
3rd Year Out	Green	Yellow	Green	***RED***

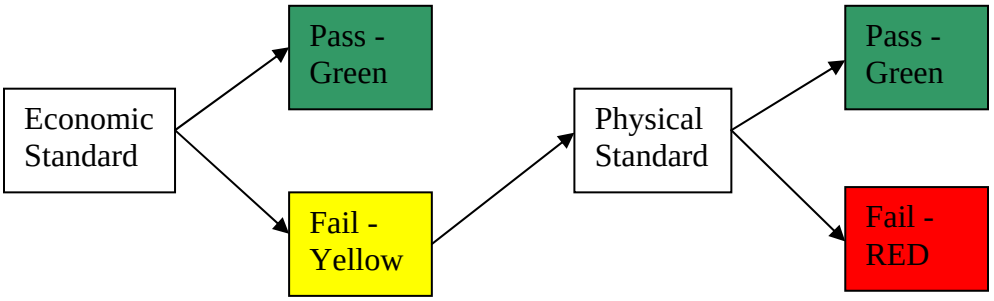
A green light would trigger an acknowledgement that the region is on track. The yellow and red lights would be used to trigger different regional actions.

The process can also be described by the following flow charts:

Fifth Year-Out Assessment:



Third Year-Out Assessment:



Council Actions, Yellow Light: Since the yellow light would indicate a kind of early warning, a regional report could be issued by the Council. It would be presented at a Council meeting and public comment would be taken. This report would emphasize that the region is potentially entering a more serious situation and encourage utilities with load service responsibilities to take action. This report would not single out individual utilities. The Council could also convene a regional meeting to discuss the results of the assessment.

Council Actions, Red Light: For the red light, additional actions would be taken. A regional discussion would be started to understand the reasons for being in the situation triggering a red light, to determine whether sufficient actions are being taken to remedy the forecast inadequacy, and to identify additional measures needed, if any. A regional conference would be held to begin

that discussion. The goal of these discussions would be to ensure that sufficient actions will be taken to avoid an actual inadequacy. If the discussions are successful, then the Council would publicly announce its conclusion that sufficient actions are being taken to address the "red light" and would monitor progress on these actions.

In the event that the Council concludes that these discussions did not succeed in providing sufficient assurance of avoiding inadequacy, further steps could be taken. One of those steps, for example, would be for the Council to report that the initial problem is not being adequately addressed. A second possible response would be for the Council to communicate directly with individual utilities, local boards or state commissions for those utilities that appeared to be disproportionately relying on uncommitted purchases. This action would ensure both that these key decision makers were aware of the potential problems and that the Council fully understood the reasons for the utilities' being in such a circumstance. The Council could also consider publicly announcing which utilities are relying disproportionately on uncommitted purchases. With these options the Council would have sufficient recourse to follow up on regional inadequacy if it were to persist.

Utility Economic Incentives for Meeting Adequacy Standards: Because of the variation in water conditions the Northwest experiences, prospective (planning) inadequacy will not necessarily turn into inadequacy in actual operations. However, should the region be inadequate on a near-term planning basis (too short a timeline for construction of new resources), utilities that are short, for whatever reason, would face the market price and any environmental mitigation consequences of their actions. This will provide a strong natural incentive to develop adequate resources.

Expected Bonneville Actions: Though Bonneville contracts will not require its customers to meet adequacy standards, they will reinforce this economic incentive. The Regional Dialogue discussions are not complete and Bonneville has not yet issued a final decision. Assuming, however, that discussions continue along the path they are currently on, the following is one set of probable outcomes. Bonneville expects to negotiate contracts with its public agency customers that will provide that customers either make an election to (1) purchase load-following power products from BPA or (2) take fixed amounts of power that do not follow load. Once a customer's load is forecasted to exceed their entitlement to power at the Tier 1 rate on a three year out basis, the customer needs to decide whether to procure their own resources to meet its load growth, or to contract for power from Bonneville at the Tier 2 rate. Contracting for Tier 2 power from Bonneville would potentially include a three-year notice requirement. This requirement would make it clear that Bonneville will not provide an assured "backstop" for utilities which fail to develop their own resources. The contracts would also include affirmation by the customers that they understand the resource adequacy standards and that Bonneville would not provide short-term backup service.

The details of this relationship (amounts of power to be provided by Bonneville, etc.) will have to be worked out in the contract discussions between Bonneville and its power customers.

It is also important to remember that, just as conditions could turn out in an operating year to be better than expected, they could also turn out to be worse. The planning metrics and minimum thresholds are established based on a five percent LOLP, which means that they are not intended to protect against all possible outcomes. There will be some circumstances in which, even if the

region meets the planning criteria , it could face high market prices or even potential load curtailments.

Appendix C
Background on the Northwest Resource Adequacy Standard

Summary

The Resource Adequacy Standard serves as a gauge to assess whether the Northwest electricity supply is sufficient to meet the region's needs now and in the future. Developed over the last two and a half years by the Pacific Northwest Resource Adequacy Forum, it provides a *minimum threshold* that serves as an early warning should resource development fall dangerously short. It also suggests a *higher threshold* that encourages greater resource development to offset electricity price volatility.

The standard was developed for a number of reasons. First, the operation of the power supply is becoming increasingly complex with the addition of wind resources and greater operating constraints on the hydroelectric system. Second, utility planners want to avoid a repeat of the electricity crisis of 2000-01, which brought the region to the brink of a blackout and caused electricity prices to soar. Finally, the North American Electric Reliability Corporation (NERC) plans to initiate the development of a resource adequacy assessment standard in 2009, which will require the Western Electricity Coordinating Council (WECC) to develop an adequacy assessment framework. The WECC, in turn, has asked for help in assessing the adequacy of the Northwest's power supply.

The standard does not mandate compliance or imply any enforcement mechanisms. It does not directly apply to individual utilities – because every utility's circumstances differ. The forum has provided some guidance for applying the standard to utility resource planning, but ultimately, each utility must assess its own needs and risk factors, such as its reliance on market supplies.

Currently, the region as a whole has more than sufficient resources to meet the *minimum threshold* for resource adequacy. The minimum threshold, however, should not be mistaken as a resource planning target. The prudent amount of resource acquisition should be derived from an integrated resource planning process. For the region, the Council's power plan serves as a blueprint for the types and amounts of resources the Northwest should acquire. Individual utilities determine their own planning targets, which are screened by public utility commissions or by their boards of directors.

The Pacific Northwest Utilities Conference Committee (PNUCC) and the Bonneville Power Administration (BPA) amass utility planning information and produce regional assessments of loads and resources. These tabulations have a different purpose than the resource adequacy standard – they address utilities' need to acquire prudent amounts of new resources not the bare minimum necessary to keep the lights on. It would be a misapplication of the adequacy standard to infer that utilities should slow down their resource acquisition activity because the adequacy standard is already being met.

Background

Electricity does more than keep the lights on in the Pacific Northwest. It literally powers our economy. The absence or presence of an adequate electricity supply can either curtail or facilitate economic growth. That's why the region's electricity experts have been working on a resource adequacy standard – to help ensure we continue to have an adequate electricity supply well into the future.

In the worst extreme, an inadequate electricity supply can affect public health and safety, as in a blackout. Fortunately, such events are rare and when they do happen are most often caused by a disruption in the delivery of electricity (transmission lines), not the supply. However, there have been times – during extreme cold spells or heat waves – when the supply has been tenuous. The fact that most of the region's electricity comes from hydropower presents unique challenges to the energy supply, too, since periods of drought that limit hydropower production are unpredictable.

While most disruptions in supply have been short term, the Western United States did experience an extended energy crisis in 2000-01. At its root, the crisis was precipitated by an imbalance of electricity supply and demand centered in California and the Pacific Northwest, where for years, development of new energy resources had lagged behind energy demand. The ripple effects were felt throughout the West as the crisis drove electricity prices and consumer rates to historic highs.

Electricity planners in the Pacific Northwest are taking the lessons learned from that crisis to heart. They have been working to ensure that such a crisis does not happen again in this region.

The Adequacy Forum

In the summer of 2005, BPA and the Council jointly initiated the Pacific Northwest Resource Adequacy Forum. The forum includes representatives from the region's electric utilities and utility organizations, public utility commissions and public interest groups, as well as from BPA and the Council. It is made up of a steering committee and a technical committee.

The forum's overarching goal is to *"establish a resource adequacy framework for the Pacific Northwest to provide a clear, consistent, and unambiguous means of answering the question of whether the region has adequate deliverable resources to meet its loads reliably and to develop an effective implementation framework."*

To that end, the forum has been working to forge a consensus-based standard for the region to address both energy (annual needs) and capacity (hourly needs). This standard has been designed to assess whether the region has sufficient resources to meet growing demand for electricity well into the future. This is important, because it takes time – usually years – to acquire or construct the infrastructure necessary to provide an adequate electricity supply.

As part of this effort, the Council accepted the recommendations of the forum and has adopted the proposed resource adequacy standard for the Northwest. The Council also adopted a voluntary implementation plan that was developed and recommended by the forum.

Two Perspectives: Utility and Regional

When the region's utilities add up their loads and resources through the PNUCC Northwest Regional Forecast, they currently show a substantial need to acquire resources, and they identify the type and quantity of resources they plan to acquire. In contrast, the regional resource adequacy assessment currently indicates that the region is above the minimum threshold for resource adequacy. While these perspectives appear inconsistent with one another, each is valid. The regional adequacy standard defines a floor or minimum amount of resource development, whereas the utility assessment and the Council's power plan suggest targets for more optimal amounts of new resource capability.

There are four main reasons for the difference:

- First, the regional adequacy standard includes a large amount of generation that is physically available to the region but is not owned or contracted for any utility. Most utilities only count resources they have firm rights to, through ownership or contract.
- Second, most utilities use critical water (driest year on record) to measure hydroelectric generating capacity. The regional adequacy standard uses a somewhat less stringent measure to define the minimum threshold for adequacy.
- Third, many utilities do not count the full availability of particular resources because of high operating costs, lack of firm fuel contracts or other reasons. The regional standard is based on the assumption that during emergencies, many of these resources would be available.
- Fourth, many utilities are concerned about the risk of high costs during periods when the power supply is tight and, therefore take a more conservative approach in defining their need to acquire new resources.

The current adequacy assessment indicates that there are sufficient resources (both firm and non-firm) physically available to regional utilities to make the likelihood of a blackout very low – within the limits of what the region will tolerate. However, the minimum threshold does not address the optimal amount of resources, nor the types of resources that the region should acquire. Being at the minimum level may keep the likelihood of blackouts low, but it does not guarantee that prices will remain stable. The desired or prudent amount of resource development for the region is determined by the Council's Power Plan, not by this standard. This higher threshold for resource development for the region has been referred to as the *economic threshold*. The optimal amount of resource development for individual utilities must be derived from their own integrated resource planning processes.

The Regional Standard

As the standard was developed, the forum considered a number of recent changes in the regional power picture. These changes include the growing role of independent power producers, enhanced wholesale power trading, reduced flexibility in the hydroelectric system, the increased importance of natural gas-fired generation, the growth in wind generation, and higher summer air-conditioning loads.

The new standard is based on a sophisticated hourly assessment of loads and resources and how they might be affected by temperature (load deviations), precipitation (water supply), forced outages to generating resources, and other factors. At the heart of the forum's effort is a computer program that estimates the future likelihood of a significant power curtailment under many possible future load and resource conditions.

Historically, the region's tolerance for a significant power supply shortage has been assumed to be 5 percent – that is, the region would tolerate a significant power shortage no more than once in 20 years. This assessment, usually referred to as a loss-of-load probability (LOLP) analysis, is converted into an equivalent, but simpler and more familiar load/resource balance measurement that regional planners use in their calculations. The boxed text summarizes the current standard. To view the actual standard, go to: http://www.nwcouncil.org/energy/resource/Default.asp.

Energy Standard

Energy in this context refers to the annual electricity needs of the region. The measure for this standard is the annual average load/resource balance in units of average megawatts. The threshold for this measure is set so that the resulting loss-of-load probability assessment yields a 5 percent value. In determining resource generating capability, the forum includes hydroelectric generation available under critical water, available annual output of regionally committed thermal generators and renewable resources, and a portion of the uncommitted independent power producer generation. The forum also includes a small amount of non-firm resources such as out-of-region market supplies and non-firm hydroelectric generation. The amount of non-firm resources the region should rely on is determined by the 5 percent loss-of-load probability analysis. In determining load, the standard uses the region's average annual firm load based on normal temperatures and adjusted for firm out-of-region energy contract sales and purchases and savings from conservation programs.

Capacity Standard

Capacity in this context refers to the peak electricity needs of the region. The measure for this standard is the planning reserve margin, or the surplus sustained-peaking capacity, in units of percent. It represents the surplus generating capability above the sustained-peaking demand. In determining resource peak capability, the forum includes the same firm and non-firm resources used to assess the energy standard for the region. The planning reserve margin is assessed over the six highest load hours of the day for three consecutive days (sustained-peak period). This is intended to simulate a cold snap or heat wave – periods of the year when the Northwest requires the most capacity. The planning reserve margin is computed relative to normal weather sustained-peak loads. The threshold for this measure is determined by the 5 percent loss-of-load probability analysis and should be sufficient to cover load deviations due to extreme temperatures and the loss of some generating capability.

Implementing the Standard

The forum also wanted to ensure it did not overstep the jurisdiction of states or the prerogatives of individual utilities in planning and acquiring resources to meet load. Because each utility's circumstances differ, it is difficult to translate a regional standard into a utility-specific standard. The forum has provided some guidance for utilities but, ultimately, they and their regulators are the decision makers for resource acquisition. The implementation plan depends on regional sharing of information, transparency of assessment methodologies, and regional coordination. The forum believes that a voluntary

approach will work because utilities and their governing bodies have a strong incentive to develop adequate resources to meet retail loads.

BPA will also play a significant role. As it signs new wholesale power contracts with its utility customers, BPA will require that customers provide forecast loads and resource data annually, on a confidential basis, to the PNUCC, or its successor organization. This information will be used to facilitate regional resource adequacy assessments. BPA expects its customer contracts to include terms that define which parties will have responsibility to serve load growth.

For the reasons addressed above, it is to be expected that utilities will be acquiring resources even when the resource adequacy standard is already being met. The adequacy standard is intended to be the bare minimum, not the target, for regional resource development.

The Future

The Northwest is not alone in focusing on ensuring an adequate power supply. NERC plans to initiate the development of a resource adequacy assessment standard in 2009, which will require the WECC to develop an adequacy assessment framework. WECC has spent the past several years developing a framework for the West's power supply, which is currently in place. WECC's framework is explicitly not intended to override any state or regional assessments, including regional adequacy measures or their thresholds. In fact, WECC has solicited help from regional entities to aid in its assessment of west-wide resource adequacy.