

A faint, light-colored illustration of a power grid system is visible in the background. It shows a series of high-voltage transmission towers connected by power lines, extending from a large industrial power plant with multiple smokestacks on the right towards a residential neighborhood with several houses on the left. The scene is set against a light blue sky.

**PNW Resource Adequacy
Technical Committee Meeting
March 16, 2007**

**Using the Regional Resource
Adequacy Standard to
Provide Guidance for
Individual Utilities**

Objectives

- Use the regional standard to provide non-binding guidance to individual utilities to aid them in their resource planning processes
- Must not “trample on the jurisdiction of states or prerogatives of individual utilities in planning and acquiring resources to meet load”

Guidelines for Energy Planning

- Primarily for hydro-based utilities
- Must have sufficient resources to meet the average **annual** demand
- Counting **critical** hydro generation
- Including a conservative estimate for **spot market** supply and other **non-firm** resources
- Resulting in no more than a 5% LOLP

Guidelines for Capacity Planning

- Primarily for thermal-based utilities
- Must have sufficient resources to
 - Maintain hourly operating reserves
 - Meet peak hour load deviations for a 1-in-20 year temperature event
- Resources include a conservative estimate for spot market supply and other non-firm supplies
- Resulting in no more than a 5% LOLP

Adapting the Regional Standard for Individual Utilities

- Must take into account a utility's dependence on
 - Hydro generation
 - Spot market supply
 - Other non-firm resources
- Each utility's metrics and targets will likely vary from the regional standard
- Consistency is assured by aggregating all planned resources and forecast loads and comparing to the regional analysis

Option 1 for Energy Planning

- Normal weather regional load is about 22,500 MWa (2010 operating year)
- Non-firm resources counted in the regional standard include
 - About 3,000 MWa of in-region IPP generation
 - 1,500 MWa of spot market supply, hydro flexibility and other non-firm resources
- Non-firm resources = 4,500 MWa or about 20% of the regional load

Option 1 (cont'd)

- For the region, the sum of FIRM resources equals 80% of the regional load
- For a hydro utility, the sum of its FIRM resources should be $\geq 70\%$ of its load
- For a thermal utility, the sum of its FIRM resources should be $\geq 90\%$ of its load
- This recognizes that hydro resources almost always provide more than firm capability

Option 2 for Energy Planning

- Utility annual L/R target = function of
 - Dependence on hydro generation
 - Dependence on the spot market
 - Dependence on other non-firm resources
- Regional target = balance (zero) minus
 - 750 MWa hydro and hydro flex
 - 750 MWa spot market
 - Equates to the 1,500 MWa planning adjustment

Option 2 (for a 100% thermal utility)

- No flexibility, so must plan to meet its peak hourly load plus
- Operating reserves (7%), plus
- Resources to cover a 1-in-20 year temperature event (15%)
- L/R target = 1.22 times the peak load minus the annual average load
- This seems very high but remember that for a thermal utility, energy is not the binding constraint

Option 2 (for a 100% hydro utility)

- Ratio of hydro flex/critical hydro = 6.25%
- Ratio of average imports/critical hydro = 6.25%
- Ratio of average IPP (3000 MWa winter and 1,000 MWa summer)/critical hydro = 17%
- Total dependence on non-firm resources = 30%
- Hydro utility's L/R target = 70% annual load (same as in option 1)

Option 2 (for a mixed utility)

- Dependence on hydro flex/critical hydro
- Dependence on imports/critical hydro
- Dependence on IPP generation/critical hydro
- Sum of ratios = R
- Utility's L/R target = $1 - R$