

# DRAFT – Rev 2

## NW Resource Adequacy Metrics and Targets

### Pacific Northwest Resource Adequacy Forum

#### Technical Committee

November 18, 2005

#### Introduction

This is a discussion paper for the Technical Committee meeting on November 18, 2005. It describes a draft proposal for the Steering Committee to consider at its next meeting, scheduled for November 30, 2005. This draft includes a proposed regional metric and target for both the energy and capacity adequacy measures.

#### Characteristics of the Proposed Metrics and Targets based on decisions Made by the Steering Committee

##### *Energy*

1. Using a deterministic metric for the regional energy resource adequacy standard is appropriate, as long as it can be analytically correlated to a well-vetted and acceptable probabilistic metric (such as an LOLP).

*Action: Provide written support for this decision. Include support for the probabilistic model used.*

2. The energy metric should be an annual energy load/resource balance.

*Action: Provide written support for this decision as opposed to using a seasonal or monthly load/resource balance metric.*

3. An energy target based on average annual regional demand is appropriate. The effects of adverse weather conditions on demand and resources are explicitly modeled in the probabilistic assessment, which is then linked to the load/resource balance.

*Action: None*

4. The energy target should be based on some level of assumed spot market (out-of-region) energy availability. For simplicity, the assumed magnitude of the spot market supply in the load/resource calculation should be consistent with assumptions made in the probabilistic analysis. Historically, the load/resource balance has been calculated assuming no available spot market supplies. If the region chooses to continue to calculate load/resource balance in this manner, the target would be adjusted accordingly.

*Action: Create a process that periodically evaluates the availability of out-of-region supplies both for winter and summer months.*

5. The energy target will be based on some level of adverse hydro, not necessarily the critical water year. Historically, the load/resource balance has been calculated

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using hydro generation based on the critical water year. If the region chooses to continue to calculate the load/resource balance in this way, the target would be adjusted accordingly.

**Action:** *Develop a method to assess what hydro condition is appropriate.*

6. The energy target should be zero (or some positive value).

**Action:** *None*

## Capacity

7. The capacity metric should utilize the sustained peaking capability of the system.

**Action:** *Select capacity metric. Assess the appropriate duration of sustained peaking to use (i.e. single hour, four hour, ten hour, etc.).*

8. The **capacity target** could be in terms of a percentage amount over the sustained peaking demand (depending on the duration of the sustained peak as described above). California has proposed using a 15 to 17 percent planning reserve based on a single hour sustained peak. Alternatively, generation capacity could be de-rated and the target be a monthly balance of de-rated capacity and peak load.

**Action:** *Assess the appropriate sustained peaking reserve margin for the northwest or capacity de-rating methodology.*

9. For the **capacity** assessment, the sustained peaking capability of the system must be assessed every month.

**Action:** *None*

## Options

Table 1 on the next page lists a set of options to be considered for the energy metric and target.

A number of options for the capacity metric and type of target will be presented at the November 18, 2005 Technical Committee meeting (See PowerPoint Presentation). This committee must select an option and determine the appropriate duration for the sustained peak, ranging from a single hour to 50-hours per week to full energy support over the entire month. The committee must also decide what type of weather condition to use for the capacity metric. If adverse weather is used, then what percentile condition is appropriate? The capacity target will likely be constant across the months of the year but the peaking capability of the system, of course, will vary month to month. The capacity target should be set to appropriately trigger development of new resources. In other words, how small should the sustained peaking reserve margin be, or how large should the capacity de-rate be, before the region must take action to acquire new resources?

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**Table 1  
Options for Energy Metrics and Targets**

Annual L/R Balance	Used to Define L/R Balance & Linkage to LOLP Model				Target (aMW)
	Load	Hydro Condition defining Target	Availability and Use of Out-of-Region Spot Market in GENESYS		
			(aMW/month)	(MW)	
Option 1	Normal	Critical	0	0	0
Option 2	Normal	85% Percentile	1500	3,000	0
Option 3	Normal	Other Percentile	Other	Other	0

In all options, the annual load/resource balance is defined (and calculated) with an explicit assumption about the “reliable” size of the out-of-region spot market. The definition of the hydro water condition to which to plan depends on the out-of-region spot market assumption.

In option 1, no out-of-region spot market is assumed to be available, so the Region must plan to critical hydro.

In option 2, the annual load/resource balance is calculated similarly to the historical value with the exception of using the 85<sup>th</sup> percentile water condition as opposed to the critical year. The 85<sup>th</sup> percentile water condition produces approximately 1,500 average megawatts more than the critical year -- the equivalent of what we might expect to “reliably” acquire from the spot market. Using the 85<sup>th</sup> percentile water condition is a surrogate for explicitly assuming a contribution from the spot market.

Option 3 recognizes that a different assumption regarding the out-of-region spot market might be desirable by the committee participants.

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