

Review of Regional Load and Resource Information

A Report to Resource Adequacy Steering Committee

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Introduction

In the past few years, under the auspices of the Resource Adequacy Forum, the Northwest Power and Conservation Council adopted a Resource Adequacy Standard for the Northwest. Their April 2008 Standard describes the details of the standard as well as an Implementation Plan that provides an opportunity to review basic load and resource data used in the annual *Resource Adequacy Assessment*. While this annual look at the comprehensive data can provide a quality control check of the information, it may also lead to further exploration of the data and the approach.

This report summarizes the results of our review of the load and resource information embodied in the 2010 Resource Adequacy Assessment. This review is timely, because utilities have recently reviewed and are now updating their load and resource information that will be reflected in PNUCC's *Northwest Regional Forecast* to be published in March.

Purpose of Review

The purpose of this review is to confirm that the basic load forecasts and generating resource information are aligned with other regional estimates of the same information. The load data that is compared are single point estimates for annual energy and the monthly 1 hour peak loads for a specific year. These comparisons do not address the range of possible loads that result from the loss-of-load-probability calculations. While this comparison does not provide a complete picture of the loads modeled, it does provide some insight on the reasonableness of the forecasts feeding the *Resource Adequacy Assessment*.

As for the generating resources comparison, the data for each power project was reviewed to ensure the completeness of the information and to confirm that the region's newest power projects are included in the analysis. In addition, a look at the annual energy and winter peaking capability of those projects provides indicators of each project's key operating characteristics, including planned maintenance and forced outages. These key characteristics are reflected in the computer models used to estimate the loss-of-load-probability.

Forecasts of Energy Loads are Very Similar

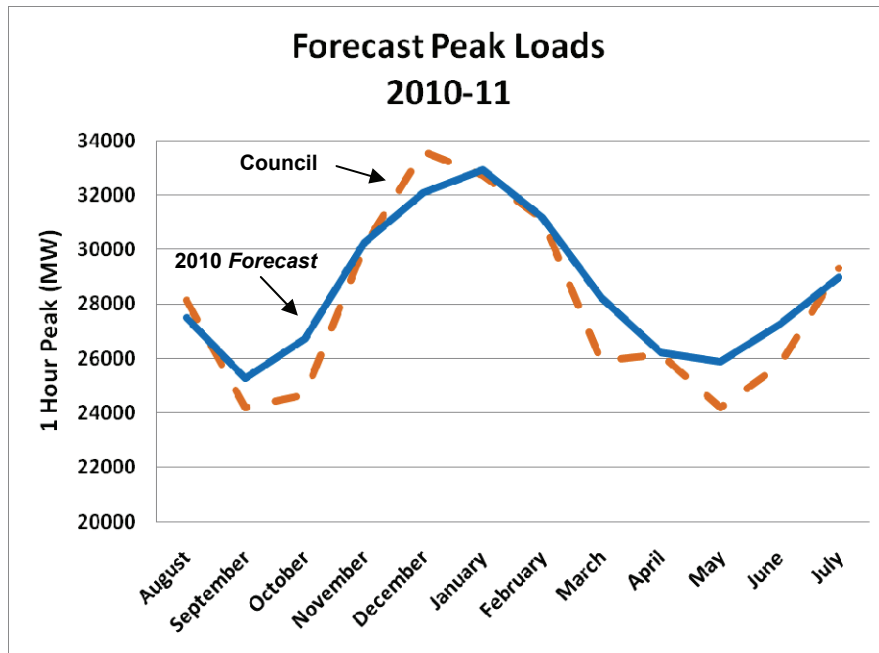
Both the *Assessment* and the *Forecast* use expected value, normal-weather annual energy loads for the same geographic area. The *Assessment's* load forecast is developed using a forecasting methodology developed and updated by the Council staff. The *Forecast* reflects projections of future loads developed by twenty-six individual utilities and Bonneville Power Administration. The individual forecasts are summed to provide a regional view.

Two conceptual differences exist between the forecasts: 1) the treatment of non-utility industrial load, and 2) accounting for conservation savings. The non-utility industrial is the load formerly served directly by BPA.

After adjusting for the industrial load, the difference between the two annual energy load forecasts for the year 2012 is about 400 MWa. Most of this difference is due to the “accounting” for future energy conservation savings.

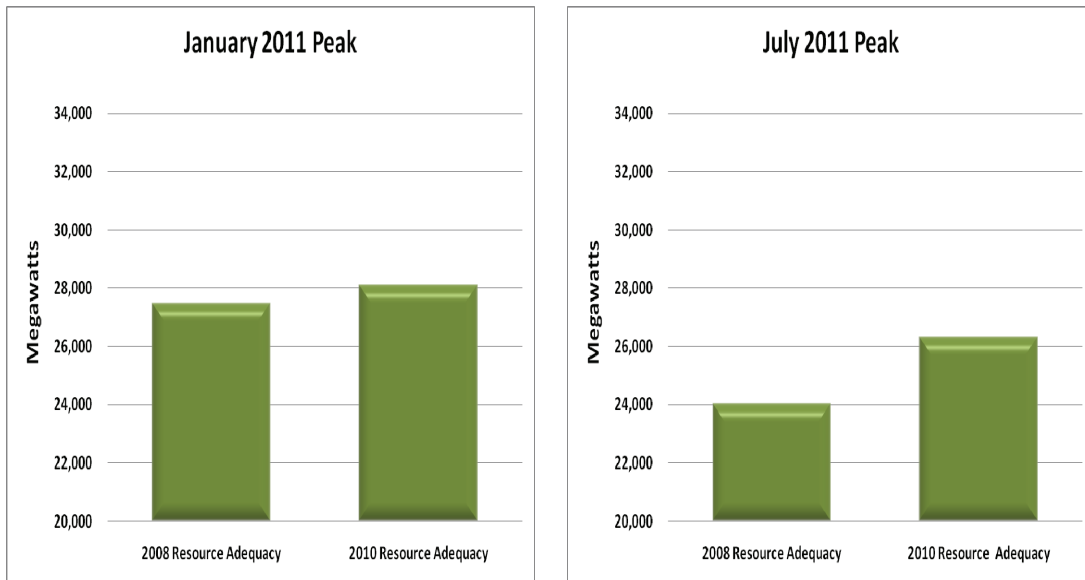
Forecast of Winter/Summer Peak Load Raises Questions

Utilities provide forecasts of their 1-hour monthly peak loads for the *Northwest Regional Forecast*. Although the *Assessment* uses an 18-hour load, the Council staff provided a forecast of the 1-hour load that corresponds to the forecast used in the *Assessment*. A comparison of the 1-hour peak load forecasts for the 12 months of 2011 are shown below. While the winter and summer peaks appear similar, forecast of peak loads in other months have noticeable differences.



We also compared the 18-hour load forecasts – comparing this year’s values with the forecasts used in the 2008 *Assessment*.

The following charts provide a comparison for both winter and summer forecasts. The summer peak load forecast has increased by about 2,600 MW, while the winter peak forecast has stayed about the same – raising questions.



Significant Data Differences Need Reconciling

Each individual contract and generating resource used in the *Assessment* was compared with the data provided by utilities for use in the 2010 *Northwest Regional Forecast*. All differences were flagged. Based on this comparison the following observations are provided:

- Approximately 2,500-3,000 MWa of differences exist for generating resources and firm contract data. This amount is significant and further reconciliation is suggested. Attachment A provides some detail of the differences.
- Data for winter capacity were also compared and are very similar. Some reconciliation is also suggested. See the attachment for details.

Resource Adequacy Assessment Data Review

Attachment A
1 of 2

2012 Annual Energy (MWa)	2009 Res		Diff	Flagged
	2010 NRF	Adq		
	1/13/10	11/5/09		
Requirements				
Load	21,451	21,891	441	
Exports	816	943	127	127
Resources				
Total Hydro	11,558	11,949	391	391
Small Thermal & Misc.	21	40	20	20
Combustion Turbines	2,499	3,760	1,261	443
Renewables	246	239	(7)	102
Wind	827	765	(62)	235
Cogeneration	856	1,050	193	153
Imports	974	1,374	400	400
Nuclear	1,030	996	(34)	34
Coal	3,581	3,806	225	225
Other	-	405	405	405
				2,408
Total Flagged				2,673

Resource Adequacy Assessment Data Review

Attachment A
2 of 2

January 2012 Capacity (MW)	2009 Res		Diff	Flagged
	2010 NRF	Adq		
	1/13/10	11/5/09		
Requirements				
Exports	1,621	1,739	118	118
Resources				
Total Hydro	22,131	24,879	2,748	2,748
Small Thermal & Misc.	27	27	-	1
Combustion Turbines	4,879	4,520	(359)	291
Renewables	251	226	(25)	49
Wind	154	24	(130)	121
Cogeneration	863	1,232	369	468
Imports	1,459	1,452	(7)	7
Nuclear	1,150	1,150	-	-
Coal	4,159	4,326	168	167
Other	-	389	389	
				3,852
Total Flagged				3,970