Northwest Power and Conservation Council

May 29, 2008

MEMORANDUM

TO: Power Committee Members

FROM: John Fazio, senior system analyst

SUBJECT: Resource Adequacy Assessment for 2011 and 2013

Summary: The Northwest is unlikely to face a blackout over the next five years, according to the latest assessment from the Council. The region has access to sufficient generating capability to provide for both annual and hourly needs. By 2013, however, summertime surplus capacity is very low, just slightly above the Resource Adequacy Forum's minimum threshold.

Details: The recently adopted adequacy standard[1] provides minimum resource thresholds for both annual and hourly needs of the region. For annual needs, the standard calls for the average annual generating capability to be at least equal to the average annual load. The current estimated resource surplus is about 2,600 average megawatts (MWa) for 2011 and 1,900 MWa for 2013. (Keep in mind that the surplus includes nearly 3,500 MWa of non-firm resources.)

For hourly needs, the standard calls for a minimum 23% reserve margin (surplus generating capability over the sustained-peak hourly load) for winter months and a 24% reserve margin for summer months. Current estimates for winter reserve margins are 38% and 31% for 2011 and 2013, respectively. Summer estimates show 31% and 26% reserve margins for 2011 and 2013, respectively. The summer reserve margin for 2013 is just a couple of percentage points above the minimum threshold.

Sixth Power Plan: Having sufficient generating capability to "keep the lights on" is only a small part of a good resource planning strategy. The Council is currently developing its Sixth Power Plan, which will identify the proper types and amounts of resources and conservation the region should acquire. The optimal amount of resource development, which addresses issues such as price stability and environmental impacts, will likely be much greater than the minimum thresholds dictated by the adequacy standard. Like a fire alarm, the adequacy standard is an early warning system should regional resource development fall dangerously short.

[1] More information about the adequacy standard can be found at http://www.nwcouncil.org/library/2008/2008-07.htm.

Utility Perspective: The Northwest Regional Forecast (NRF), published by the Pacific Northwest Utilities Conference Committee (PNUCC), tallies resources and loads from a utility perspective. The latest publication shows the region's utilities to be deficit three and five years out--seemingly at odds with the Forum's latest assessment. However, the NRF serves a different purpose than the standard--it provides more of a resource planning ***guideline*** (similar to what the Sixth Power Plan will provide for the region). The Forum's standard provides a minimum ***threshold*** and includes resources that the NRF does not--nearly 3,500 MWa of uncommitted or non-firm resources. In addition, the standard counts full resource ***availability,*** whereas the NRF often reports ***expected*** resource generation.

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Pacific Northwest Resource Adequacy Assessment for 2011 and 2013

Power Committee Meeting
Spokane, Washington
June 10, 2008

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Power Planning

Renewable Standards

Electricity Prices

Carbon Emissions

Climate Change

Economic Risk

Total Cost

Fuel Costs

Reliability

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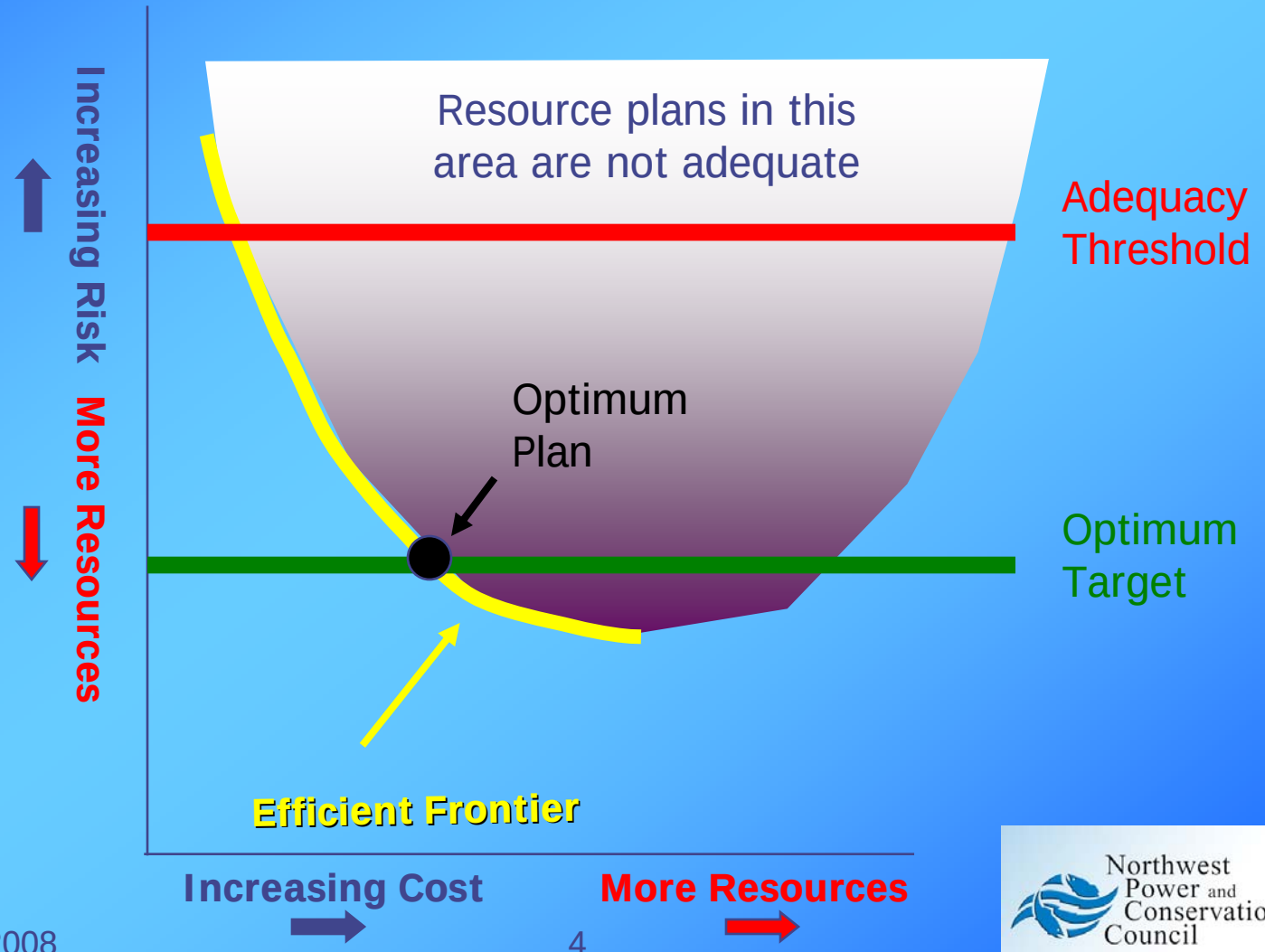
Economic Risk and Cost



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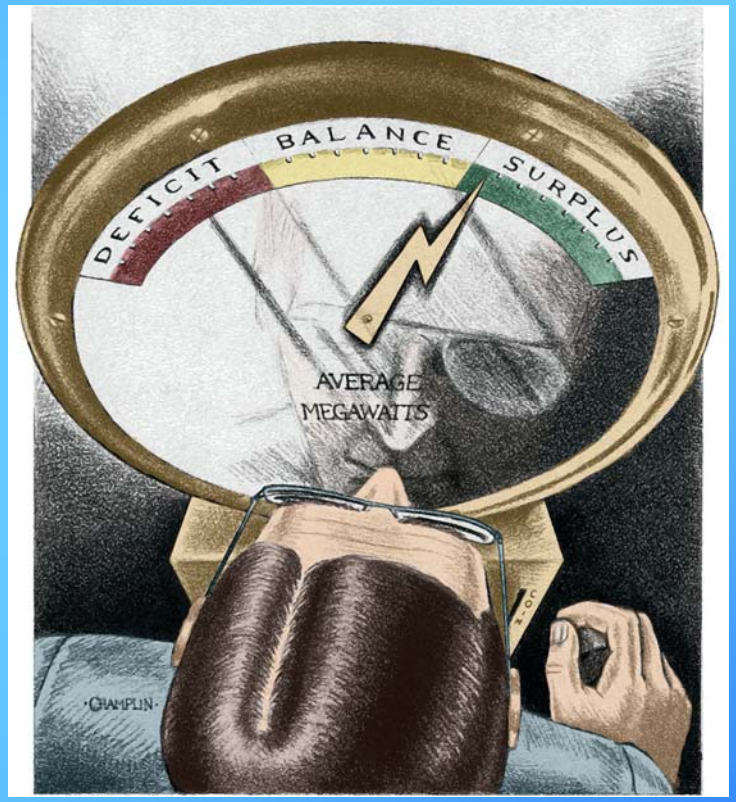
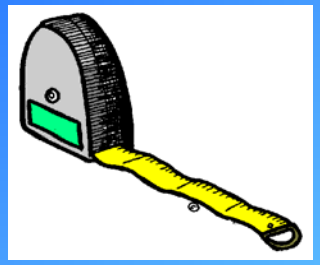
Pacific Northwest Resource Adequacy Standard



Components of a Standard



Metric

The assessment of available resources compared to expected load

Threshold*

The minimum acceptable amount of resources relative to expected load

*The thresholds are derived from a 5 percent loss-of-load probability analysis.

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Metrics

- **Annual Needs** – Annual average generating capability minus annual average load (in average megawatts)

- **Hourly Needs** – Reserve Margin or the surplus hourly capability over expected hourly load (in percent)

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Thresholds

- **Annual Needs (Energy)**

  Annual load/resource balance = 0

- **Hourly Needs (Capacity)**

  Winter reserve margin = 23%
  Summer reserve margin = 24%

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Current Assumptions*

- Out-of-region market
  - 3,000 MW maximum in winter
  - None available in summer
- Uncommitted IPPs
  - Full availability in winter
  - 1,000 MW maximum in summer
- Wind
  - 30 percent of nameplate annually
  - 5 percent over the sustained peak period
- Annual contribution from out-of-region markets and non-firm hydro is 1,300 MWa

*Work on refining these assumptions is ongoing.

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Assessment for 2011 and 2013

Energy and Capacity Assessments*

Energy	2011	2013	Threshold
Load/Res Bal	2,600	1,900	0

Capacity	2011	2013	Threshold
Winter RM	38%	31%	23%
Summer RM	31%	26%	24%

*Details are provided at www.nwcouncil.org/energy/resource/Default.asp.

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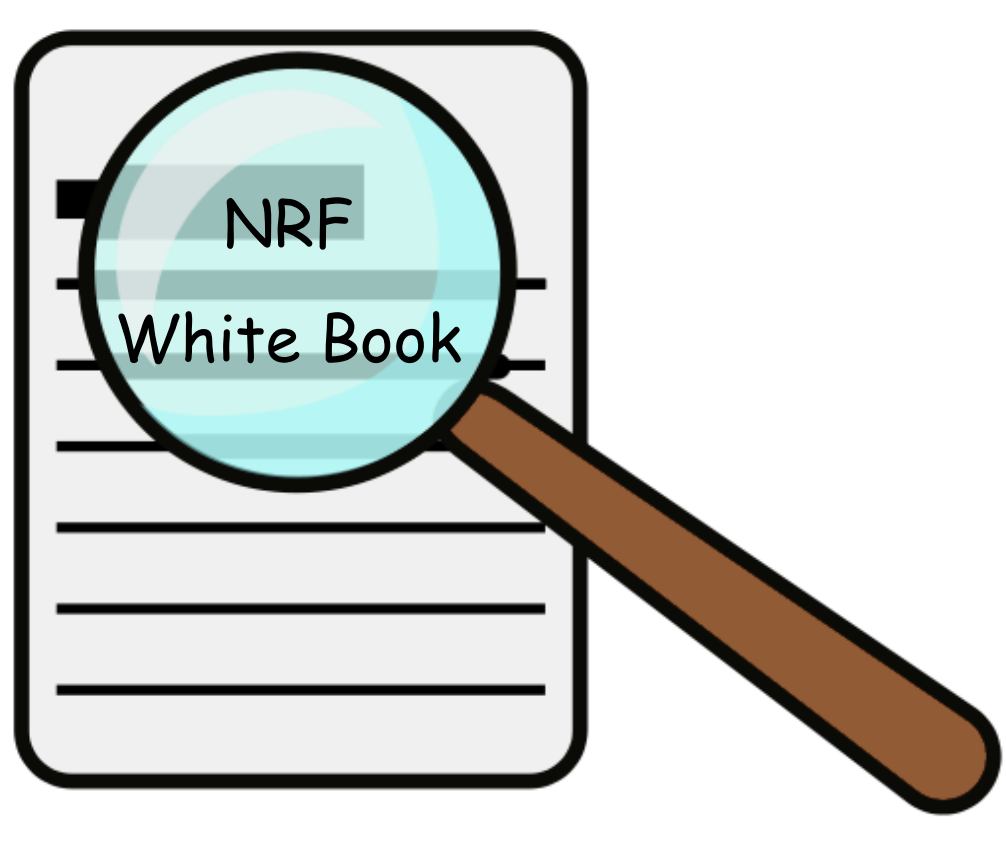
Comparison to Other NW Reports



Load/Resource Balance (2011)

	Forum	NRF	BPA
Load*	22,882	22,609	22,594
Resources	25,466	20,062	24,372
L/R Bal	2,584	-2,547	1,778
Minus IPP	2,171		
Minus Non-firm	1,300		
Avail - Exp (approx)	1,600		
L/R Bal	-2,487		

*Load includes firm exports minus firm imports.

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Observations

- Northwest power supply is adequate but summers are getting tighter
- All of the surplus is non-firm or uncommitted
- Utility perspective (NRF) indicates that more resources/conservation should be acquired
- Council's 6th power plan will likely also indicate that more resources/conservation are needed
- Firming up some of the non-firm or uncommitted resources will help
- Resource planning is more than just "keeping the lights on" – other factors must be considered, such as renewable resource requirements and exposure to high market prices
- Utilities must assess their own needs based on their own particular loads and access to resources

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