

CHAPTER V. DETERMINATION OF NEED FOR NEW ELECTRIC RESOURCES

The purpose of this chapter is to present the August 2003 Least Cost Plan Update's changes in assumptions for the AURORA model and for the determination of need for new electric resources. Changes were made to load and resources for both energy and capacity. First, this chapter reviews the determination of need for new electric resources, followed by the planning standards that were considered in the April 2003 LCP. The third section shows how the changed assumptions impact the determination of need for new electric resources, and also provides a brief discussion of the specific changes.

A. Determination of Need for New Electric Resources

PSE uses the output from the Aurora modeling to identify monthly energy need for new electric resources. PSE starts with its expected load and subtracts its portfolio energy resources. As PSE has numerous resources in its portfolio, some grouping is done for clarity. Resource groups include Hydro, which includes both westside PSE-owned resources and Mid-Columbia contracts; Colstrip, which includes PSE's share of the four plants; Non-Utility Generators, which includes PSE's PURPA contracts from March Point, Sumas, and Tenaska; Encogen, which was a PURPA plant now owned by PSE; and Contracts, which includes large and small contracts from a variety of sources.

Energy resources that are dispatched for economic reasons are not included in the need calculation. For example, the company's simple-cycle combustion turbines are often dispatched in August, September, and October to take advantage of favorable market heat rates. Since the energy produced is not devoted to meeting load, these outputs are not included in the calculation of need for new electric resources.

The need for peak capacity is based on the difference between the planned 16-degree peak-hour load and the sum of all available resources to meet that peak. Resources to meet the peak include all of the simple-cycle combustion turbines that cannot be used to meet daily energy loads. (See Appendix E of the April 2003 Least Cost Plan for greater detail on the problematic operation of peaking CTs to meet baseload requirements.)

B. Planning Standards, April 2003 LCP

Various levels of need for new resources, both for energy and capacity, were considered and evaluated in the April 2003 Least Cost Plan (Chapter XI, pages 1-4). PSE examined the cost and risk impact of four energy levels and four capacity levels. The four energy levels included:

- **Meet Nov-Feb Customer Needs (levels A1 and A2).** This energy-planning level averages the energy deficit on an aMW basis for the months of November through February – generally the highest energy-deficit months.
- **Meet Highest-Deficit Month (levels B1 and B2).** This energy-planning level meets the highest deficit on a monthly basis, with the highest-deficit month generally occurring in the winter.
- **Meet Highest-Deficit Month + 10 percent (level C1).** This energy-planning level first meets the highest deficit on a monthly basis and then adds 10 percent of the highest month's deficit. Again, the highest-deficit month typically occurs in the winter.
- **All Months Meet 110 percent of Load (level C2.)** This energy-planning level ensures that PSE meets all deficits, plus 10 percent of the total customer load on a monthly basis.

In addition to these four planning levels, PSE considered a “Do Nothing” planning level, where PSE allows the current energy and capacity deficit to grow with demand and adds no new resources. PSE also considered a “Status Quo” level that maintains the deficit level for energy and capacity at 2003 levels.

PSE also examined four different capacity-planning levels. These various levels of capacity meet loads based on weather observed at the Seattle-Tacoma International Airport (Sea-Tac). These four levels include:

- 23 Degree F hour at Sea-Tac
- 19 Degree F hour at Sea-Tac
- 16 Degree F hour at Sea-Tac
- 13 Degree F hour at Sea-Tac

PSE's portfolio analysis concluded that the utility should meet a “Level B2” planning standard. **Level B2 meets the need for new electric resources based on the highest-deficit month**

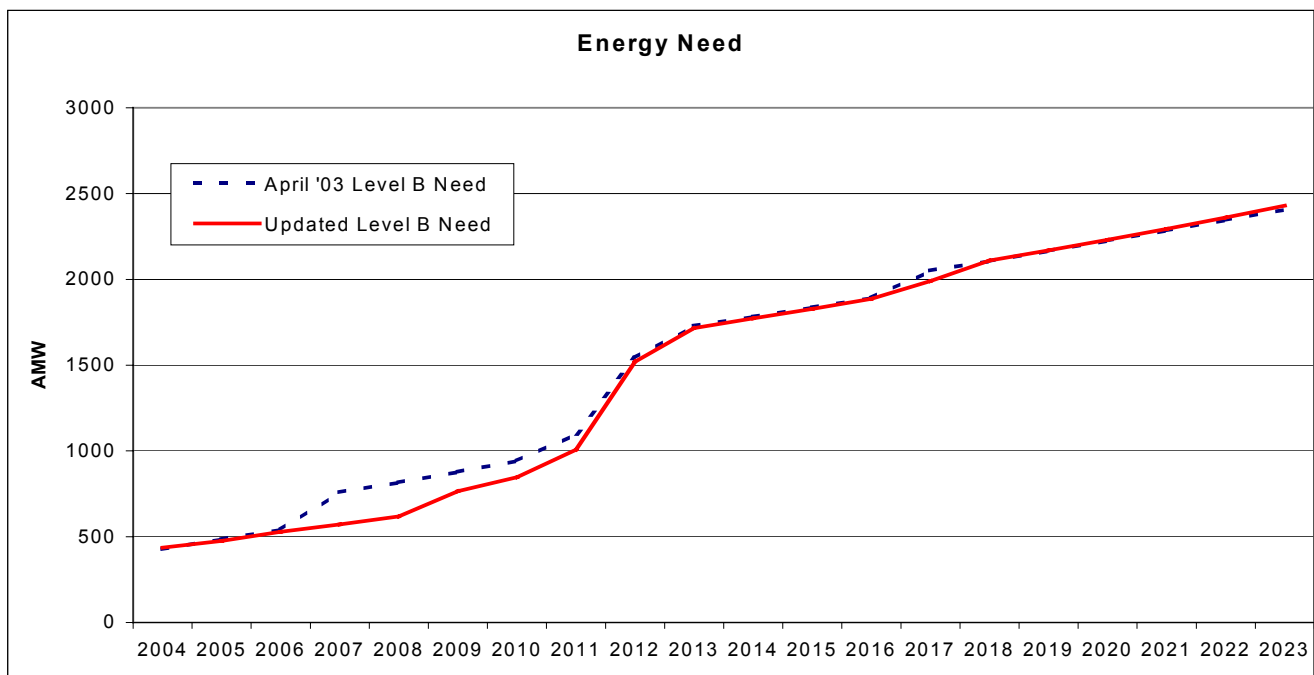
and the need for peak-capacity resources for a 16-degree hour at Sea-Tac. The analysis of the various planning levels is discussed extensively in the April 2003 Least Cost Plan (Chapter XII, pages 10).

C. Updates, August 2003 LCP Update

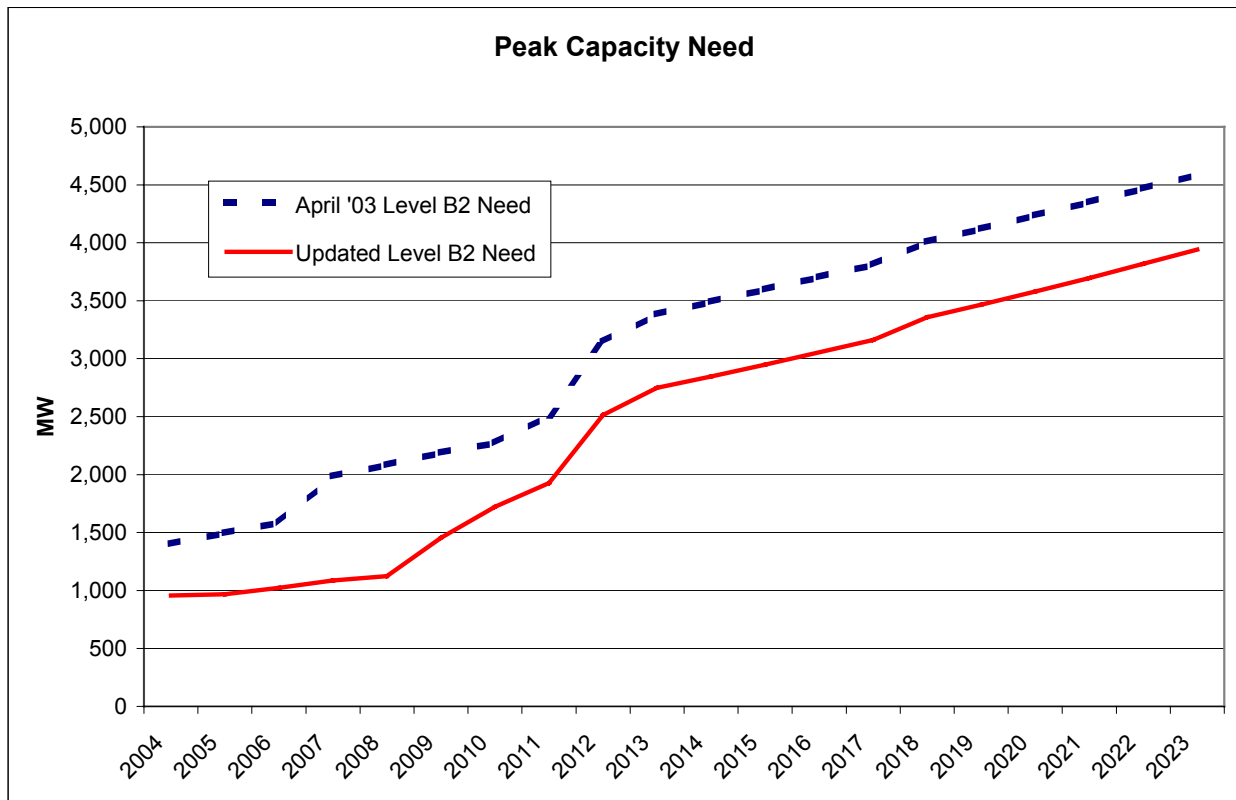
The August 2003 Least Cost Plan Update determines the need for new energy and capacity resources based on new information and analytical techniques. The August 2003 Update does not reconsider the analysis that established the Level B2 planning standard; rather it uses new information regarding energy and peak load, resource contracts, hydro availability and other factors to update the need based on the B2 standard.

As Exhibit V-1 illustrates, the short-run and long-run energy need for new electric resources are little changed, while there is decreased need for new electric resources from 2007 to 2011. The largest contributor to this change is the assumption that the PG&E Exchange would be terminated two years later than previously assumed. Exhibit V-2 shows that the need for peak-capacity resources is lower for every year under all of the changes. The reduction in need for new peak capacity is due in part to the PG&E Exchange assumption and an overall change in forecasting. Following the graphs is a brief discussion of the factors that have changed.

**Exhibit V-1
Comparison of Level B Need for New Electric Resources**



**Exhibit V-2
Comparison of Level B2 Need for Peak Capacity**



- **Load Forecast:** The changes to the load forecast are discussed fully in Chapter III. Both peak capacity and energy needs are lower in the August 2003 Update.
- **Hydro Availability: Information** from the Northwest Power Pool’s “2002-2003 Final Regulations” has been applied to PSE’s hydro resources. Hydropower availability has shifted among months but is consistent with the data PSE uses for short-term risk management. Another significant factor is the assumed loss of PSE’s White River Project energy as of January 15, 2003. The project has provided about 30 aMW annually and this change has contributed to an overall increased need for new electric resources.
- **PG&E Exchange:** PSE’s exchange agreement with Pacific Gas & Electric provides for up to 300 MW of capacity and 437,000 MWH of energy, going to PG&E in the summer and back to PSE in the winter. The agreement was assumed to terminate as of

- December 31, 2006; however, it now appears that the contract may continue through 2008, which results in lower energy and peak need for new electric resources for the extra two years.
- **Contracted Resources: PSE** has many contracts for energy, several of which have been updated since the April 2003 LCP. The overall impact is slight: an annual reduction in resources of about 3 aMW.
- **Colstrip:** The available energy from Colstrip has been reduced because of higher forced-outage rates during recent years. The net result is an increased need for new electric resources for resources of about 15 aMW per year over the next 20 years.