3.0 LOADS AND RESOURCES

3.1 Introduction

The Loads and Resources Study represents the compilation of the load and resource data necessary for developing BPA's wholesale power rates. The Loads and Resources Study has three major interrelated components: (1) BPA's Federal system load forecast; (2) BPA's Federal system resource forecast; and (3) the Federal system load and resource balances.

3.2 Federal System Load Forecast

The Federal system load forecast is composed of sales forecasts by customer group for public utilities and Federal agencies, DSIs, IOUs, and other BPA contractual obligations. The public utility and Federal agency sales forecast for this rate case is based on the annual load forecast produced by the Northwest Power Planning Council (NWPPC) in its 1998 Power Plan. BPA split the NWPPC forecast into Full and Partial Service customers, shaped the load to reflect seasonal variation, and estimated peak energy use from load factor data. Loads and Resources Study, WP-02-E-BPA-01, at 3-4. Slice product sales are not separately forecasted; the sale of the Slice product would not increase or decrease the public utility or Federal agency sales forecast. Loads and Resources Study, WP-02-E-BPA-01, at 3-4; Tr. 886, 887, 897. Slice issues are addressed in detail in ROD chapter 16.

The Federal system load forecast includes conservation as part of BPA's system augmentation of resources, as presented in BPA's rebuttal testimony. Oliver *et al.*, WP-02-E-BPA-45, at 8-9. Conservation augmentation is shown as a decrease in system load. *Id.* Loads and Resources Study, WP-02-E-BPA-01.

The IOU sales forecast of 1,000 aMW in actual power deliveries and the DSI sales forecast of 990 aMW for the cost-based portion were based on policy testimony presented in BPA's initial rate case proposal. *See* Loads and Resources Study, WP-02-E-BPA-01, at 5-6. For the final rate proposal, the proportion of heavy load hours (HLH) and light load hours (LLH) for these sales forecasts has been modified from the initial proposal to be consistent with the definition in the Wholesale Power Rate Schedules. This change does not alter the total IOU and DSI sales forecast amounts. Tr. 877. *See* Loads and Resources Study, WP-02-FS-BPA-01.

No party raised issues regarding the Federal system load forecast.

3.3 Federal System Resource Forecast

The Federal system resource forecast includes power generated by both Federal and non-Federal hydro projects, return energy associated with BPA's existing capacity-for-energy exchanges, contracted resources, and other BPA hydro-related contracts. The Federal system hydro resource estimates are derived from a hydroregulation study that estimates generation under 50 water conditions using the operating provisions of the Pacific Northwest Coordination Agreement (PNCA). The seasonal shape and magnitude of the Federal system hydro generation depends on

availability of all regional resources and coordination of those resources to meet regional loads. Loads and Resources Study, WP-02-E-BPA-01, at 7.

The Federal system resource forecast has been revised from the initial proposal to reflect an updated hydroregulation study. Tr. 838. Updates to the plant data at four projects and spill levels at two lower Snake River projects have reduced the 50-year average Federal hydro generation by 87 aMW. These updates also reduced Federal hydro generation in critical water conditions (1937 water year) by 145 aMW.

Plant data updates resulted from COE and Reclamation changes to project data made in the Operating Year 2000 PNCA data submittal. These project data changes were made for Grand Coulee, Chief Joseph, McNary, and Bonneville. On average, these project data changes reduce the hydro modeling factors that convert flow to generation and account for about two-thirds of the above stated reductions.

Ice Harbor spill levels in the updated study have been increased due to installation of spill deflectors at the base of the spillway for improved fish passage. These new deflectors allow for higher levels of spill within the Total Dissolved Gas (TDG) limits. The updated study also provides increased spill levels at Lower Granite, because there is operational evidence that spill at higher flows is possible while remaining within TDG limits. These additional spill levels account for the balance of generation reductions.

BPA reviewed the transmission losses presented in the initial proposal. After careful consideration, BPA modified the transmission losses by adding transmission losses for augmentation, imports, and intraregional purchases and removing transmission losses that were inadvertently applied to Federal reserves and maintenance. BPA's treatment of transmission losses in the initial proposal is explained in testimony. Misley *et al*., WP-02-E-BPA-12, at 6. Transmission losses are shown on line 42 of the tables in Appendix B of the Loads and Resources Study, WP-02-E-BPA-01, and on pages 40 through 51 in the Loads and Resources Study Documentation, WP-02-E-BPA-01A. These transmission losses were calculated from the resource amounts in lines 20 (regulated hydro), 21 (independent hydro), 27 (small thermal and misc.), 28 (combustion turbines), 29 (renewables), 33 (large thermal), 34 (nonutility generation), and 35 (resource acquisitions). For the final study, the transmission loss factors are applied to line 37 (total resources) less lines 38 (hydro, small thermal and misc. reserves), 39 (large thermal reserves), 40 (spinning reserves), and 41 (Federal hydro maintenance). Loads and Resources Study, WP-02-FS-BPA-01.

DSI-specific augmentation purchases are required to provide 450 aMW for the DSIs in the Compromise Approach. *See* Berwager *et al*., WP-02-E-BPA-09, and Wholesale Power Rate Development Study, WP-02-E-BPA-05. Transmission losses for the DSI-specific augmentation were not accounted for in the initial proposal. Accounting for these transmission losses results in additional DSI augmentation of 13 aMW for transmission losses associated with the 450 aMW DSI augmentation. Loads and Resources Study, WP-02-FS-BPA-01. An allocation is made in the COSA section of the final Wholesale Power Rate Development Study to account for the 13 aMW transmission losses of DSI-specific augmentation. Wholesale Power Rate Development Study, WP-02-FS-BPA-05.

These updates are incorporated into the final studies and reflect the most accurate estimate available of Federal hydrosystem resources. Loads and Resources Study, WP-02-FS-BPA-01; Loads and Resources Study Documentation, WP-02-FS-BPA-01A.

No party raised issues regarding the Federal system resource forecast.

3.4 Federal System Load and Resource Balances

The projections of Federal system resources are compared with projected Federal system firm loads for each month of Operating Years 2002-2007 (August 2001-July 2007) under 1937 water conditions. The resulting load and resource balances yield the firm energy surplus or deficit of the Federal system resources. Similarly, firm capacity surpluses and deficits are determined for the same period. Load and resource balances were revised to reflect the changes described in the previous sections of this chapter. Loads and Resources Study, WP-02-FS-BPA-01; Loads and Resources Study Documentation, WP-02-FS-BPA-01A.

No party raised issues regarding load and resource balances.