(Draft for Discussion, Dec. 12, 2006)

Tier 1 Pricing Proposal
An alternative customer proposal to the "think piece" submitted November 9, 2006

On November 9, 2006, the PPC sent a draft paper to the BPA rate staff entitled "A Proposal for Pricing Tier 1 Power Products" ("November 9 Draft"). Based on the name given to the electronic file, "T1 as Slice," the purpose of the proposal appears to be to put all Tier 1 power products on a "cost basis" as close to the Slice product as possible.

By selling customers a percentage of the system output in exchange for the payment of an equal percentage of system costs (plus the incremental cost of managing the Slice sales), the Slice product does represent a cost-based product that does not appear inherently to create cross-subsidies. Slice also appears to be equitable as between Slice customers, because equal payments buy equal system benefits. Therefore, comparing how a utility would fare as a Slice customer of BPA with how it would fare as a load-following customer of BPA should be very instructive.

The November 9 Draft should produce aggregate results (*i.e.* for the load-following customers as a whole) that track the sum of the results for individual Slice customers. However, under the November 9 Draft there will be significant losers and winners within the load-following class compared with the result that those same customers would obtain if they were Slice customers that use market purchases and sales to shape their Slice entitlement to their retail loads. The reason that there will be winners and losers is that the November 9 Draft would have BPA charge each load-following customers based exclusively on its annual average load irrespective of when the load occurred. In effect, the November 9 Draft attempts to equalize the unit price of power services to all customers within the load-following class irrespective of the actual net cost of serving the individual customers.

Summary of the November 9 Draft Pricing Proposal.

In simple terms, the November 9 Draft proposes the following rate structure:

1.   Tier 1 Base Charge: This charge is set equal to the customer's Tier 1 energy entitlement (the lesser of the high watts mark (HMW) or net requirements) as a percentage of the total Tier 1 energy entitlements of all customers multiplied by the total Tier 1 revenue requirements before any secondary revenue credit or shaping costs as follows:

$$C_1 / \Sigma C_T \times T_1 RR = C_1 RR$$

Where:

C is customer 1's Tier 1 energy requirement.

ΣC_T is the sum of all customers' Tier 1 energy requirements.

T_1RR is the total Tier 1 revenue requirement.

C_1RR is customer 1's Tier 1 annual "Base Charge."

The November 9 Draft would have C_1RR paid in 12 equal monthly installments, but the dollar value of C_1RR is the same as a flat annual and diurnal energy rate applicable to all customers irrespective of when such energy is taken from the system.

2. Load Shaping Charge: The November 9 Draft identifies a charge for shaping energy into the months of consumption separately only for Block customers. The November 9 Draft plainly anticipates that the "Shaping Charge" for Block customers would recover the annual cost of shaping, with a uniform energy rate applicable to all hours of the year.

    Similar shaping services would be needed for load-following customers so that BPA's total supply of energy in each month would not be less than the energy BPA is obligated to deliver to customers in that month. Because the amount of shaping to meet the requirements of flat Block customers probably differs substantially from the shaping needed to meet the seasonal shape of the aggregate load-following load, the November 9 Draft does not propose that load-following customers pay the Shaping charge. Instead, the proposal commingles the cost of this Shaping service for load-following customer with the costs for the Load Following and Load Variance services discussed in item 3 below.

3. Load Following and Load Variance: The November 9 Draft proposes that BPA charge all load-following customers a separate charge not applicable to Slice or Block customers for the service of shaping energy into the months, into the hour and within the hour of consumption. This charge would be similar in concept to the Load Shaping Charge applicable to Block customers, but in addition, it covers the cost of purchases needed to balance within month loads. Under the November 9 Draft, to the maximum extent possible, Load Shaping, Load Following and Load Variance services would be provided by the inherent flexibility of the system, with only the actual incremental cost of purchases needed from the market to be reflected in the charges over and above the Tier 1 Base Charge. As with the Base Charge, this Shaping, Following, Variance rate would be uniform for all megawatt hours.

4.   Secondary Energy Credit: Finally, the November 9 Draft includes a secondary revenue credit, again determined as a uniform credit based upon each customers total Tier 1 energy purchases. This revenue credit would not be available to Slice customers who receive their share of secondary energy "in-kind," but it would be available to Block customers.

Evaluation of the Proposal.

The November 9 Draft claims to better align Slice with Non-Slice customers and to eliminate much of the arguments over rate design issues (*i.e.* classification between demand and energy, seasonalization of cost, and diurnal differentiation of costs between HLH and LLH). The better alignment between Slice and Non Slice customers appears to refer only to subjecting Slice as well as Non Slice customers to a "Slice True Up". As is explained below, however, the November 9 Draft does not treat Slice and Non Slice customers in an equivalent manner. In fact, the November 9 Draft "eliminates" arguments over rate design issues by simply resolving them all in favor of customers whose load patterns put the highest costs on the system through the use of subsidies from customers whose loads are considerably less costly to serve. The November 9 Draft actually creates large differences between the net costs of serving retail loads between individual Slice customers and individual load-following customers with identical retail loads.

Numerical Illustration of the Problem.

It is impossible to accurately forecast at this time the level of BPA's revenue requirement, the shape of the load it will be called upon to serve or the market prices of energy that will affect the cost of following load and the secondary energy credit in the post 2011 period. We do know however, that the hour-to-hour, day-to-day and month-to-month pattern of the net requirements will differ among load-following utilities and that the market price of energy will differ within and between years. Exhibit I is a simple numerical example that illustrates the dramatic difference between how two hypothetical customers would fare as Slice customers and as load-following customers under the November 9 Draft proposal.

For simplicity, the illustration on Exhibit I assumes that BPA has only two customers, each of which has an annual average load of 100 aMW. It is also assumed there are only four pricing periods in the market and that loads of the two utilities within the individual pricing periods are not identical. Both utilities consume energy during all four market price periods, but one utility (Utility A) consumes more than half of its annual energy during the two higher market price periods whereas the other utility (Utility B) consumes more than half of its annual energy in the two lower market price periods. Finally, it is assumed that BPA's total resource, firm and secondary combined, is 250 aMW.

The illustration then computes the total "net cost" each utility would incur to serve its retail load i) as if it were a Slice customer receiving its 50% share of BPA's resources and paying 50% of BPA's revenue requirement; and for comparison, ii) the cost it would incur if it were a load-following customer under the November 9 Draft. The "net cost" in both the Slice and November 9 Draft case is each utility's share of BPA's revenue requirement plus any market purchases needed to meet the utilities' retail loads and less the revenues obtained from the sale of excess secondary energy. The only difference is that, for the Slice case, each utility receives its Slice share of the BPA system and conducts all balancing transactions and secondary sales on the market on its own behalf. In the November 9 Draft case, it is assumed that BPA engages in all such market transaction and charges each utility for the market purchases and credits them for secondary revenues in proportion only to their respective annual average energy load.

In both cases, the average of the net costs per utility are the same, but in the Slice case, Utility A's net cost is higher than Utility B's net cost. This occurs because Utility A's loads exceed its Slice resource in the two higher market price periods, and it must purchase energy at the market price to meet those loads. Utility B has a surplus in the two higher price periods and can use the revenue from the sale of that surplus to reduce its net cost during those periods. Both utilities have surpluses in the two lower price periods, with Utility A having significantly more surplus than Utility B. Thus, Utility A's net cost during the two lower price periods is less than Utility B's. But the fact that, on average, Utility B obtained a higher price for its surplus than did Utility A and was not required to purchase higher market-priced energy results in a lower annual net cost for Utility B. In effect, Utility A took a greater portion of its share of the value of the system "in-kind" by consuming more high value energy, whereas Utility B took a greater portion of its share of the value of system in the form of surplus energy revenues.

Under the November 9 Draft methodology, in which both utilities pay a uniform net cost based on their average annual energy use, Utility A's higher energy consumption during the high market price periods depletes the net surplus energy revenues available to Utility B, plus Utility B pays one half of the cost of BPA's purchases to meet Utility A's load in one high-price period. As a result, costs borne by Utility A in the Slice case are shifted to Utility B, and Utility B's net cost of energy is 11% higher than it would be if both Utility A and Utility B received system benefits proportional to the amount of BPA's costs that they bear.

This example demonstrates that the timing of loads has real effects on the costs of serving such loads and that charging customers based only on their annual average loads can create significant cost shifts. It also shows that the "annual average load" approach in the November 9 Draft will incent customers with load shapes that are relatively less costly to serve (when shaping costs and surplus revenue effects are fully considered) will be much better off as Slice customers than they would be as load-following customers under the November 9 Draft methodology. If BPA retains its proposal to limit the amount of Slice it will sell, it must also determine a methodology to allocate such Slice among the customers that will demand access to Slice to avoid paying the cross-subsidies inherent in the November 9 Draft proposal.

Alternative Proposal

It is generally agreed that Slice is cost based, in that customers pay the actual cost of their proportional use of the system. It is also accepted that Slice is equitable, in that utilities that pay equal amounts under Slice receive equal benefits. Therefore, it seems appropriate to develop a rate methodology for load-following customers that would provide them net cost results that are as close as possible to they would pay under Slice combined with the market shaping and surplus transactions needed to balance their loads and resources. Rather than adopting a "simple" methodology that will create large cost shifts, BPA should work with customers to develop algorithms that will robustly produce Slice-like results for load-following customers over a wide range of load and market price scenarios.