INDEX

TESTIMONY OF

BYRON G. KEEP, ORVILLE J. BLUMHARDT, GERY BOLDEN, MAUREEN R. FLYNN, MARILYN K. HOLLAND, AND TIMOTHY D. McCOY

Witnesses for Bonneville Power Administration

SUBJECT: Demand Charge, Load Variance Charge, Development of Energy Rates, Unauthorized Increase and Excess Factoring Charges, and Rate for Pre-Subscription Contracts

TESTIMONY OF

BYRON G. KEEP, ORVILLE J. BLUMHARDT, GERY BOLDEN, MAUREEN R. FLYNN, MARILYN K. HOLLAND, AND TIMOTHY D. McCOY

Witnesses for Bonneville Power Administration

SUBJECT: DEMAND CHARGE, LOAD VARIANCE CHARGE, DEVELOPMENT OF ENERGY RATES, UNAUTHORIZED INCREASE AND EXCESS FACTORING CHARGES, AND RATE FOR PRE-SUBSCRIPTION CONTRACTS

Section 1: Introduction and Purpose of Testimony

Q. Please state your names and qualifications.

A. My name is Byron G. Keep. My qualifications are contained in WP-02-Q-BPA-34.

A. My name is Orville J. Blumhardt. My qualifications are contained in WP-02-Q-BPA-05.

A. My name is Gery Bolden. My qualifications are contained in WP-02-Q-BPA-06.

A. My name is Maureen R. Flynn. My qualifications are contained in WP-02-Q-BPA-23.

A. My name is Marilyn J. Holland. My qualifications are contained in WP-02-Q-BPA-29.

A. My name is Timothy D. McCoy. My qualifications are contained in WP-02-Q-BPA-46.

Q. Please describe the purpose of your testimony.

A. The purpose of our testimony is to sponsor portions of Bonneville Power Administration's (BPA) Wholesale Power Rate Development Study (WPRDS), WP-02-E-BPA-05. This testimony addresses changes in BPA's rate design.

Q. How is your testimony organized?

A. Our testimony is organized in six sections. Section 1 outlines the purpose of our testimony. Section 2 describes BPA's Demand Charge, including subsections on:

(A) Definition of the Demand Charge;

(B) Method for Computing the Demand Charge; and

(C) Differences From the 1996 Rate Case.

Section 3 describes BPA's load variance charge, with subsections on:

(A) Definition and Purpose of the Load Variance Charge;

(B) Application of the Load Variance Charge;

(C) How the Load Variance Charge is Calculated; and

(D) Description and Purpose of the Stepped-Up Multi-Year (SUMY) Block Charge Applicable to Block Purchases.

Section 4 describes the steps involved in developing BPA's energy rates. Section 5 describes BPA's unauthorized increase and excess factoring charges, with subsections on:

(A) Unauthorized Increases in Demand and Energy;

(B) Excess factoring charges; and

(C) Mitigation and Avoidance of Penalty Charges.

Section 6 describes the applicable rate for Pre-Subscription Contracts. Section 7 covers the issue of stable rates.

Section 2: Demand Charge

A. Definition of the Demand Charge

Q. Please define what is the Demand Charge?

A. The Demand Charge is a $/kilowatt (kW)-month charge that compensates BPA for three components of firm service: (1) the cost of firming bulk energy, including firm energy provided in flat amounts as under the Block product; (2) the service BPA calls "factoring" in which energy is distributed among hours to match a load shape; and (3) readiness to meet actual load under peaking conditions. BPA will apply the same demand dollar rate to appropriate demand billing factors for different products such as Full Service, Partial Service, and Block products.

Q. What are the proposed billing factors for the Demand Charge?

A. The proposed billing factors are specific to each product as shown in the table below:

Demand Billing Factors for Core Subscription Products

Demand	Demand Entitlement	Billing Demand	Unauthorized Increase	Demand Adjuster
Full Service	CSP	Measured Amount on GSP	N/A	no
Partial Service (Complex)	CSP minus declared resource peak capability	Same as entitlement	Any amount by which the largest single hour HLH take exceeds entitlement	yes
Partial Service (Simple)	CSP minus resource declaration on CSP hour	Same as entitlement	Hourly take on the customer's CSP that exceeds entitlement.	yes
Block Flat	Contract Demand = HLH Block aMW	Same as entitlement	Any hourly HLH take greater than entitlement	no
Block w/ Shaping Capacity	Contract Demand = HLH Block aMW plus additional Shaping Capacity amount	Same as entitlement	Any hourly HLH take greater than entitlement	no
Block w/ Factoring Service	Greater of: (1) CSP minus declared resource peak capability if any or (2) Block aMW	Same as entitlement	Any amount by which the largest single hour HLH take exceeds entitlement	yes

GSP: Generation System Peak CSP: Customer System Peak

B. Method for Computing the Demand Charge

Q. Describe the method used for computing the Demand Charge.

A. The method uses hourly values minus annual average values of market forecast prices. The method computes a delta which is the average of all the positive differences between hourly and annual average values.

Q. What is the source of data for the market forecast used to compute the Demand Charge?

A. The hourly market clearing price forecasts from the Marginal Cost Analysis Study, WP-02-E-BPA-04, were used to derive the Demand Charge. The Marginal Cost Analysis Study uses the AURORA Model to estimate a market clearing price forecast. New capacity is built in the AURORA Model and the costs of these new resources are

recovered through energy prices. No explicit demand value is computed. Therefore, a demand value must be derived from hourly energy prices.

Q. What component of AURORA hourly energy prices is used to approximate the value of demand?

A. The component used to approximate demand is the delta of the hourly values above the annual average price. AURORA simulates serving peak loads at hourly prices that are higher than the annual average. In the AURORA Model, all load would pay these higher than average hourly prices for every kilowatthour (kWh) taken during the high priced hours. Under this pricing scheme, a flat load with a 100 percent load factor pays a lower effective rate than a shaped load with a less than 100 percent load factor. The Priority Firm (PF) rate design with its single monthly heavy load hour (HLH) energy charge and its separate monthly Demand Charge achieves the same effect and sends a price signal that encourages the most efficient use of the Federal system. *See* Burns, *et al.*, WP-02-E-BPA-08.

Q. Why is it appropriate to use this delta in computing the Demand Charge?

A. Because the delta reflects the cost of serving firm hourly loads. Since BPA is not proposing hourly rates, a Demand Charge is needed to reflect firming costs and hourly price differentials. A Demand Charge plus energy rates will tend to mimic the effect that hourly pricing would have had on the customer's effective mills/kwh rate. Higher prices result in hours with higher loads. Providing the services of firming, factoring and serving peak load may cause BPA to purchase in the market during hours with highest prices. Therefore, this proposal uses hourly prices from AURORA to develop a Demand Charge that is applied to the demand billing factor for the product being purchased to cover the cost of serving hourly loads. This method would recover the cost of serving loads based on an hour of highest demand, rather than develop hourly energy charges for every hour of the rate period.

Q. How was the Demand Charge developed from the hourly delta above average?

A. The annual average delta in mills/kWh is converted to an average Demand Charge in $/kW-month by year. The annual Demand Charges are converted to a five-year average Demand Charge. This five-year average is shaped to AURORA average monthly on-peak prices across the year resulting in 12 monthly Demand Charges.

Q. Why is it appropriate to have a different Demand Charge for each month?

A. Because it reflects the shape of forecasted market prices in each month. For example, more value is attributed to months where BPA faces higher prices that may result in higher costs to serve load. Less value is attributed to months where BPA faces lower prices that may result in lower costs to serve load.

C. Differences From the 1996 Rate Case

Q. Please describe how the Demand Charge computation has changed from the 1996 rate case. How does the 1996 Demand Charge compare to the method that is proposed in this rate case?

A. The Marginal Cost Analysis in the 1996 rate case computed values for capacity based on the cost of new resource additions. Those values were used to derive the Demand Charge. This charge was averaged over all months resulting in a single Demand Charge rate. The Marginal Cost Analysis Study for this rate case uses the AURORA Model which does not compute capacity values. It computes only hourly energy prices, and therefore, since proposed energy rates are derived using AURORA hourly prices, it is appropriate to derive a Demand Charge from AURORA. This Demand Charge is shaped by month to reflect market prices.

Q. You've stated that the Demand Charge compensates BPA for the costs of firming, factoring, and standing ready. How does this differ from the 1996 rate case?

A. The 1996 rate case defined demand as standing ready to serve instantaneous peak load and the cost was derived from the capital costs of new resources. In that rate case, BPA

charged as though it would acquire new generation resources to meet load. It was an appropriate definition and charge in the market that existed at that time. Unbundling as it has developed in the deregulated market, has resulted in a more specific inclusion of expected market purchases for the supplier's portfolio of resources to serve its load. Such purchases are made from markets that use hourly energy prices. Unbundling has also resulted in specific identification of risks such as price risk. Due to the need to make market purchases as necessary, BPA undertakes price risk when it provides firming and stand-ready services to actual customer load as part of firm requirements products. Loads that are not flat will cause peaks to occur in the market that will drive hourly prices higher during these peaks.

Q. *Why is the proposed Demand Charge appropriate?*

A. It's appropriate that those causing the higher prices should pay accordingly. In this rate case, BPA assumes that load will be met through purchases in the market. Since BPA proposes to charge a flat monthly HLH energy rate, this would not recover costs equitably between peaking and flat loads. The Demand Charge coupled with the flat HLH energy rate will more equitably recover costs from customers in relation to their responsibility for such costs. The new Demand Charge definition and pricing for this rate period is more appropriate within the context of an unbundled, deregulated market.

Q. *What is the rate for the Demand Charge?*

A. The five-year annual average demand rate using this methodology is $2.10/kW-month. Because BPA decided to mitigate the rate impact of the Demand Charge relative to the PF-96 rate, adjustments were made to both the monthly and the average annual charge. *See* Burns, *et al.,* WP-02-E-BPA-08. In order to do this the annual average cost of $2.10/kW-month is reduced. This was done by first capping all monthly values at $2.50/kW-month. The only month above the cap was August. Because the average annual Demand Charge after this adjustment was still greater than the target of

$2.00/kW-month, all monthly charges were reduced by an equal percent in order to attain the target. Monthly demand rates are shown in the Wholesale Power Rate Schedules, WP-02-E-BPA-07. The derivation of the rate can be found in the WPRDS Documentation Section IV.B, WP-02-E-BPA-05A.

Section 3: Load Variance

A. Definition and Purpose of Load Variance Charge

Q. Please define what Load Variance is?

A. In the context of Subscription core products, Load Variance is defined as the variability in monthly energy consumption within the BPA customer's system. Variability in monthly energy consumption may be caused by weather, economic business cycles, load growth, or load loss. It does not include the variance in load caused by the customer's actions to annex new load, or variance in load due to retail access, or variance caused by service to New Large Single Loads (NLSLs). Such load will receive Load Variance coverage once it is served by BPA under the applicable firm power rate. BPA offers to stand ready to serve this variability under the Full Service and Actual Partial Service Products. The Load Variance charge under the Full and Actual Partial Service products entitles customers' billing factors to follow actual consumption. This differs from Block products where the amounts to be paid are fixed in advance.

B. Application of the Load Variance Charge

Q. How will the Load Variance charge be applied?

A. The Load Variance charge will be applied to Total Retail Load (as defined in the General Rate Schedule Provisions (GRSPs). This includes variations in load for load acquired through annexations, retail access gain or loss, and NLSLs once such load becomes part of the Total Retail Load.

Q. *Why is the Load Variance Charge applied to Total Retail Load?*

A. The Load Variance charge is applied to Total Retail Load because under the Subscription core products, BPA's service applies to the entire Total Retail Load even if the customer dedicates some resource amounts to service it's load. If the Load Variance charge were applied only to net load customers would pay unequally for the same service. For example, consider Utility A and Utility B who have exactly equivalent loads. Utility A has no resources and purchases the Full Service product. Utility B has declared a 50-megawatt flat resource and is an Actual Partial Service customer. Both utilities have an expected load for some month of 100 average megawatts (aMW). Cold weather results in both A and B having an actual load which is 10 aMWs larger. By not applying the Load Variance charge to the respective Total Retail Loads of Utility A and B, Utility A would pay more Load Variance than B although both receive the same service from BPA of 10 aMWs of additional energy to match the increase in load.

Q. *If payment of the Load Variance charge does not give a customer a right to purchase more power to meet annexed loads, for example, how could a customer add such loads to its system for service under the BPA contract?*

A. A customer may request BPA to serve new load under their subscription contract. Increases in the customer's load due to annexations and retail access load gain that occur after the Subscription window closes, however, will be subject to a Targeted Adjustment Charge (TAC) to their applicable firm power rate. NLSLs will be served at the New Resources (NR-02) rate. Once these types of loads are added to the customer's Total Retail Load they will receive Load Variance coverage.

Q. *Is the Load Variance charge applicable to or available for Subscription core products other than Full Service and Actual Partial Service?*

A. No. Those are the only Subscription core products that flex to meet actual consumption. Block product entitlement and billing amounts are fixed in advance and are not altered to

reflect after the fact measured power consumption. The Block Plus Shaping Capacity and Block Plus Factoring product combinations allow for some shaped distribution of Block energy among hours but do not change the monthly HLH and Light Load Hours (LLH) contracted Block energy amounts in relation to any actual measured load of the customer.

C. How the Load Variance Charge Is Calculated

Q. How was the Load Variance Charge determined?

A. Load growth amounts are computed from the five-year monthly forecast of Total Retail Load as reflected in the Northwest Power Planning Council's forecast of public and Federal agencies total retail load. *See* Loads and Resources Study and Documentation, WP-02-E-BPA-01 and WP-02-E-BPA-01A. The cost to serve load growth was calculated using call option pricing. Load variation was estimated to have a 3.8 percent average upside variation and a 0.7 percent average downside variation. These variations were determined by comparing regional load forecasts for generating and nongenerating public utilities from BPA's 1991 Final Rate Proposal (WP-91-A-03) to subsequent actual loads for the period October 1990 through September 1995. The cost to serve load variation was calculated using call option pricing for upside variation and put option pricing for downside variation. A detailed explanation of the derivation of the rate can be found in the WPRDS Documentation, WP-02-E-BPA-05A, Section IV.A.

Q. What is the Load Variance rate using this method?

A. This method results in a Load Variance rate of 1.19 mills/kWh on forecasted Total Retail Load.

Q. What is the Load Variance rate used for the 2002-2006 rate period?

A. The Load Variance rate is .80 mills/kWh. To mitigate the rate impact relative to the PF-96 rate, the cost of 1.19 mills/kWh was capped at the .80 mills/kWh rate. The reasons for capping the rate are described in the testimony of Burns, *et al.*, WP-02-E-BPA-08.

D. Description and Purpose of Stepped Up Multi-Year (SUMY) Block Charge Applicable to Block Purchases

Q. Please describe the SUMY Block charge.

A. The SUMY Block charge will apply to Block purchases if the annual amounts which are specified at the outset of contractual commitment increase (i.e., step up) over multiple years of a purchase commitment term due to projected increases in customer net requirements which are not subject to a TAC. BPA's Subscription core product description for the Block product defines the maximum annual purchase amount as an amount equal to the customer's annual net requirement for each year of the term of commitment as established at the time of commitment. The SUMY Block charge provides BPA with cost coverage to meet changes in net requirements under the block product for subsequent purchase years. The Block product description provides that the maximum Block purchase amounts would be the differences between the customer's reasonably estimated Total Retail Load and the reasonably estimated capabilities of the customer's firm peaking and energy resources, except where otherwise indicated. Resource capabilities will be determined consistent with the Resource Declaration Parameters listed for the Actual Partial Service Product, including the provisions of BPA's policy on determining net requirements. *See* BPA's Final Policy on Subscription Power Sales to Customers and Customers' Sales of Firm Resources (Fed. Reg. at 24382 (May 6, 1999)). The resource capabilities for the years of the term of the Block purchase commitment will also reflect, to the extent appropriate, permanent loss of resource consistent with BPA's final policy on Subscription Power Sales to Customers and Customers' Sales of Firm Resources.

Q. Why is the SUMY Block charge estimated differently than the load growth component of the Load Variance charge?

A. The SUMY Block amounts are known in advance and are take-or-pay. The load growth component of the Load Variance charge is estimated based on forecast loads and is not take-or-pay on a predetermined amount, but instead on actual net requirements. BPA can purchase SUMY Block amounts in advance any time before they are needed. Because actual load growth amounts and time of occurrence are unknown, there is more uncertainty associated with load growth than with a SUMY Block. All load growth power will not be purchased ahead of time and may be purchased as it occurs. If there is negative load growth, there won't be a take-or-pay charge. The option pricing method for load growth accounts for purchasing and selling in an uncertain market. The forecast market pricing method for SUMY Blocks accounts for purchasing ahead for known quantities.

Q. How will the SUMY Block charge be applied to Block purchases?

A. The SUMY Block charge is applied to the total multi-year block purchase energy including the stepped-up amounts.

Q. Will the Low Density Discount (LDD) apply to SUMY Block purchases?

A. No. The LDD may apply to the energy and Demand Charges for the Block purchase but will not apply to the SUMY Block charge.

Q. Does the SUMY Block charge permit the customer to make within-term changes to the amount purchased under the Block product for increases in load resulting from annexed loads?

A. No. The SUMY Block charge only compensates BPA for the estimated cost of serving a multi-year Block which steps up over years, declared prior to the subscription contract signing. A customer may request BPA to serve new load under their subscription contract. Increases in the customer's load due to annexations and retail access load gain

that occur after the Subscription window closes, however, will be subject to a TAC to their applicable firm power rate. *See* Arrington, *et al.*, WP-02-E-BPA-24. NLSLs will be served at the NR-02 rate.

Q. Is the SUMY Block charge applicable or available for Subscription core products other than Block, Block Plus Shaping Capacity, and Block Plus Factoring?

A. The SUMY Block charge is associated with a Block purchase which steps up over its multi-year term. As such it may be applicable to the basic Block purchase energy even if the purchaser also selects a Subscription staple-on product such as Factoring or Shaping Capacity. Note that both of these two staple-on products provide for some non-flat delivery of the Block energy across hours, but they do not change the fixed amount of Block energy per year, month, or monthly HLH and LLH periods.

Q. How is the SUMY Block charge determined?

A. Block increase amounts will be determined during the subscription window and fixed by BPA and the customer prior to signing of the contract. To the extent that the purchase amount for any year, month, or monthly HLH and LLH periods of a multi-year declared Block purchase is greater than the first year's amount, the SUMY Block charge will be applied. The difference between a multi-year flat Block--assuming that year one purchase amount is continued for all years and the requested stepped up Block is assumed to be purchased by BPA at market forecast prices. The market prices used are from the AURORA monthly on- and off-peak market price forecast in the Final proposal. *See* Marginal Cost Analysis Study, WP-02-E-BPA-04. The cost for the SUMY Block purchase amounts will be the difference between PF rates and AURORA market forecast prices. This rate is in addition to the PF energy and demand rates that the customer will pay for these power purchases. This charge will be computed for each customer based on their increasing block profile. *See* Stepped Up Multi-Year (Block) Charge Formula in the

Adjustment Charges and Special Rate Provisions of the PF-02 and NR-02 rate schedules, WP-02-E-BPA-07.

Q. What is the resulting cost of the SUMY Block charge pricing method?

A. The resulting cost of the SUMY Block charge is the cost of purchasing the increased block amounts at the AURORA market forecast price as published in the Final Rate proposal.

Section 4: Development of Energy Rates

Q. What changes are proposed in PF-02 Rate Design for HLH and LLH energy rates?

A. BPA is using the same basic approach to establish energy rates for 2002-2006 that was used in the 1996 rate case--rates are shaped to a forecast of market-based marginal costs for the rate period and then adjusted so that the revenue requirement is neither overcollected nor undercollected. As in BPA's current rates, rates for 2002-2006 are diurnally differentiated. The primary change is that BPA is proposing to set monthly energy rates for the 2002-2006 rate period. This is a change from PF-96, which had six seasons for HLH and LLH energy rates.

Q. Why has BPA proposed monthly energy rates?

A. There are three reasons: (1) Spot market electricity prices in the Northwest are showing significant month-to-month variation. For example, over the last 2 years the average month-to-month variation in electricity prices for firm on-peak power at Mid-C has exceeded 20 percent. (2) BPA's Marginal Cost Analysis, WP-02-E-BPA-04 shows substantial monthly differentiation in predicted energy rates for the 2002-2006 rate period. (3) Because of reduced flexibility in operating the hydro system, BPA is more frequently forced to purchase in the market to meet requirements load. Therefore, to reduce BPA’s exposure to market risks in meeting it’s contractual commitments to meet requirements load, it is appropriate for BPA to set monthly energy rates for the 2002-2006 rate period.

Q. Please explain the steps BPA went through to establish the PF-02 HLH and LLH energy rates.

A. First, BPA estimated its marginal costs for the 2002-2006 rate period. *See* Marginal Cost Analysis Study, WP-02-E-BPA-04. BPA uses monthly energy rates from the Marginal Cost Analysis Study as inputs in the calculation of demand and load variance charges, and to shape the energy rates. Next, 2002-2006 demand and load variance revenues were calculated by multiplying the demand and load variance charges described in Sections 2 and 3 by estimated loads *See* Loads and Resources Study, WP-02-E-BPA-01. These revenues were subtracted from BPA's 2002-2006 revenue requirement. Finally, HLH and LLH energy rates were derived by adjusting the monthly and diurnal energy prices from the Marginal Cost Analysis Study to assure that only the revenue requirement is collected. This is done because forecasted market energy prices would overcollect BPA's revenue requirement. Monthly HLH and LLH energy rates from the Marginal Cost Analysis Study were reduced proportionately until estimated revenues from energy charges equaled the balance of BPA's revenue requirement.

Section 5: Unauthorized Increase and Excess Factoring Charges

A. Unauthorized Increases in Demand and Energy

Q. Please describe the changes in the Unauthorized Increase Charges for demand and energy.

A. Instead of charging the flat 100 mills/kW for Unauthorized Increase, BPA is changing the Unauthorized Increase Charge for energy to a set minimum charge of 100 mills/kWh, with the potential for a higher charge if prices for firm energy at the Mid-Columbia (Mid-C) Bus (the switchyards associated with five non-Federal hydroelectric projects in the Mid-C region) or for California Independent System Operator (ISO) Supplemental Energy exceed 100 mills/kWh at any time during the billing month. BPA is also changing the Unauthorized Increase Charge for demand to a multiple of the effective

standard Demand Charge for the month, while allowing for some higher charge to be derived based on hourly prices for Spinning Reserve Capacity at the California ISO.

Q. *Why is BPA modifying the Unauthorized Increase Charges for demand and energy from the charges in the 1996 rates?*

A. BPA is modifying these charges because as currently established they do not accurately reflect the costs to BPA caused by customer's exceeding their contractual entitlement to take power. The Unauthorized Increase Charge for energy in the 1996 rates was 100 mills/kWh. The Unauthorized Increase Charge for demand in the 1996 rates was simply the effective standard Demand Charge, or $0.87/kW-month. Since 1996, a robust wholesale power market has developed in which the 1996 Unauthorized Increase Charges simply do not perform as intended. Therefore, BPA will change these charges to give it the flexibility to assess charges that reflect the volatility of the market in periods in which the market price for power exceeds the minimum Unauthorized Increase Charges for energy and for demand.

Q. *Has BPA conducted any analysis of the recent wholesale power market in developing its Unauthorized Increase Charge methodology?*

A. Yes. The Unauthorized Increase Charge methodology, described in detail later in this testimony, was applied to the historical price indices to develop some examples of monthly Unauthorized Increase Charges for demand and energy. This analysis is presented in the WPRDS Documentation (*see* WP-02-E-BPA-05B, Vol. 2, Section 4). Documentation, Table 4.6.1.1 of WP-02-E-BPA-05A, Part 1, presents the resulting Unauthorized Increase Charges for demand based on hourly ISO Spinning Reserve Capacity prices for the period August 1998 through February 1999. The methodology for deriving Unauthorized Increase Charges for energy based on the Dow Jones Mid-C (Dow Jones Mid-C Bus Index (as defined in the GRSPs) of the Wholesale Power Rate Schedule in WP-02-E-BPA-07) prices and the ISO Supplemental Energy prices is illustrated for the

period April 1998 through March 1999, in Section 4.6.2. of WP-02-E-BPA-05B, Vol. 2, and the results appear in WPRDS Documentation, Table 4.6.2.1.

Q. Please summarize the results of BPA's review of the historical market price indices.

A. For most of the months in the historical data sets, the price indices yield Unauthorized Increase demand and energy charges above the proposed minimum Unauthorized Increase Charges. However, there are some months during which the historical price indices would have yielded charges below the proposed minimums.

Q. Why is BPA incorporating market indices into its Unauthorized Increase Charge methodology for the 2002 Power rates?

A. BPA's costs are affected by market prices. At certain times during the year, the minimum Unauthorized Increase Charges would leave BPA exposed to higher costs as defined by the market. During those periods, the market indices provide a reasonable measure of the cost exposure associated with an Unauthorized Increase for either energy or demand, either as a representation of BPA's opportunity cost or its purchase cost.

Q. Why are the minimum Unauthorized Increase Charges necessary, then, if BPA is relying on market indices?

A. The historical data suggest that, during certain periods, Unauthorized Increase Charges yielded by the indices would be not be a sufficient deterrent for customers to avoid Unauthorized Increases. For instance, under the proposed Unauthorized Increase Charge methodology for the 2002-2006 rates, the index-based Unauthorized Increase Charge for energy in January 1999 would have been about 53 mills/kWh (*see* WP-02-E-BPA-05B, Vol. 2, WPRDS Documentation, Table 4.6.1.1). Also, the index-based Unauthorized Increase Charge for February 1999 demand would have been $1.52/kW-mo. (*see* WP-02-E-BPA-05B, Vol. 2, WPRDS Documentation, Table 4.6.1.1), which is less than the proposed February standard Demand Charge in the 2002 rates. The minimum Unauthorized Increase Charges are necessary to ensure that there is always an incentive

for customers to avoid placing demand or energy unauthorized increases on BPA's system. BPA's ability to plan its service obligations for the core subscription products, as specified in the power sales contracts, and to control its costs depends on customers accurately specifying the obligations that BPA must serve, both demand and energy. Any occurrences of Unauthorized Increases undermine BPA's ability to plan these service obligations and control its costs. The minimum charges, in conjunction with the potential for higher charges tied to market indices, should encourage customers to select those products and services they need, and deter customers from using unauthorized increases as an economic alternate source for those services.

There is an additional reason to set minimum Unauthorized Increase Charges for energy and demand: the minimum charges ensure that some penalty for unauthorized increases will be in place in the unlikely circumstance that the indices identified in the proposed GRSPs cease to exist sometime during the rate period and no suitable replacement index is available.

Q. Describe the derivation of the Unauthorized Increase Charge for demand.

A. The minimum charge for a given billing month will be set at three times the applicable standard Demand Charge for that month. This minimum charge will be tested against the sum of the hourly ISO Spinning Reserve Capacity prices during all HLHs during the month. The effective Unauthorized Increase Charge for demand will be the greater of the minimum charge and the ISO-based charge.

Q. Describe the derivation of the Unauthorized Increase Charge for energy.

A. The minimum charge will be 100 mills/kWh. This minimum will be compared to the highest peak or off-peak firm energy price at Mid-C Bus during the billing month, and the highest hourly ISO Supplemental Energy price at paths NW1 California-Oregon border (COB) and NW3 Nevada-Oregon border (NOB) during the billing month (NW1 and NW3 refer to the California Power Exchange (PX) and California ISO

designation for delivery at COB and NOB, respectively). The effective Unauthorized Increase Charge for energy will be the greatest of either the minimum charge, or the highest Mid-C Bus price during the month, or the highest hourly ISO Supplemental Energy price during the month.

Q. Why is BPA using the Mid-C Bus firm energy prices and the ISO Supplemental Energy prices in its methodology for setting the Unauthorized Increase Charges for energy?

A. BPA is using both of these indices because they reflect the market price for energy within and without the Pacific Northwest (PNW) during periods in which an unauthorized increase occurs. The Mid-C Bus firm energy indices are well known, and are a reliable and reasonable source for valuing energy within the PNW. The inclusion of such a PNW index is important, particularly during winter months when prices at the ISO may not adequately capture the costs of energy in the PNW.

The hourly ISO Supplemental Energy price indices have been included in BPA's methodology for two reasons. First, among all available indices, the ISO Supplemental Energy price index is most representative of the real-time circumstance and the associated potential costs facing BPA when it must provide an unauthorized increase service. ISO Supplemental Energy transactions are, in general terms, made on an hour-ahead basis. Second, there is more certainty of its continued availability than the California PX price indices.

Q. Could a single unauthorized increase occurrence trigger simultaneous demand and energy Unauthorized Increase Charges?

A. Yes.

Q. How would such an occurrence trigger?

A. A customer's failure to deliver their HLH resource commitment would cause an energy Unauthorized Increase Charge. If that same failure caused a take from BPA in excess of

the customer's demand entitlement, a demand Unauthorized Increase Charge would be assessed.

Q. There is the possibility that a customer could place an unauthorized increase for demand more than once during a billing month. Under such a scenario, is BPA proposing that the customer be billed for each separate occurrence at the Unauthorized Increase Charge for demand?

A. No, only the single highest demand overrun would be billed at that months effective Unauthorized Increase Charge for demand.

B. Excess Factoring Charges

Q. Please give a general description of factoring service and excess factoring.

A. For purposes of BPA's core Subscription products, the term factoring refers to the service of shaping a given quantity of energy among either HLH's or LLH's of a period (i.e., day or month) to follow load. In this context, factoring is therefore an 'energy-neutral' service. Factoring Service is distinct from that feature of the Full and Actual Partial Services which meets the plus or minus variance in cumulative energy load, such as the variance due to temperature-related power consumption, or changing electric load within a customer's system (for reasons other than retail access choices). Factoring service is a bundled component of Subscription core products for Full Service and Actual Partial Service. For purposes of administering the Actual Partial Service--Complex product which involves serving customers with variable resources, a factoring benchmark test is proposed to be done in the billing process. Factoring, subject to the benchmarking process, may be purchased as a staple-on to a Firm Block core product.

By definition, a customer without resources or a customer whose resources are delivered flat will take exactly the amount of factoring service that they are entitled to. If the flat resource is interrupted in an hour, the service provided is back-up service or an "unauthorized increase." Only when customer resources have hour-to-hour variability is

there a possibility of receiving factoring service amounts which are less or greater than the entitlement amount. Factoring service which is within the benchmark is proposed to have no customer-specific billing implications. It is proposed that the posted power Demand Charge be applied to the customer's power billing demand. Subject to approval in the rates process, this would be considered sufficient payment for factoring service within the benchmark (as well as payment for energy firming service).

Excess factoring, therefore, can be defined generically as that amount of factoring service (energy distributed among hours to match a load shape), measured in kWhs, which is outside the factoring benchmarks.

Q. *What are the tests that BPA will employ to determine whether a customer's load placed on BPA includes an Excess Factoring component.*

A. There are two tests: the Within-Day Excess Factoring test and the Within-Month Excess Factoring test.

Q. *Describe the Within-Day Excess Factoring test.*

A. The Within-Day Excess Factoring test is applied diurnally each day. It compares a customer's hour-by-hour load to the average energy in the same period. The sum of all hourly load amounts in excess of the average energy is the benchmark for that day's factoring. The BPA energy deliveries undergo a similar calculation. The customer's hour-by-hour energy take from BPA is compared to the average energy take in the same period. The sum of all hourly take amounts in excess of the average take is the factoring service that BPA provided in the period. The amount, if any, of Within-Day factoring service from BPA that exceeds the benchmark amount that the customer's underlying load would have used is Within-Day Excess Factoring energy. This test is applied separately to each diurnal period, i.e., the test will be applied separately to HLH periods and LLH periods during the month. Because of this separate treatment, it is possible for a

customer's energy take from BPA to result in Within-Day Excess Factoring amounts for HLH's only, for LLH's only, or for both diurnal periods.

Q. *Describe the Within-Month Excess Factoring test.*

A. The Within-Month-Excess Factoring test compares a customer's day-by-day load shape to the Customer's day-to-day energy take from BPA during the billing month. This test is also specific to each diurnal period, i.e., the test is applied separately to HLH and LLH periods. The Within-Month factoring test establishes an upper boundary and a lower boundary for each diurnal period of the day. Those boundaries represent a take from BPA that falls between flat and meeting all of the customer's load variation for the period. The Within-Month Excess Factoring energy amount, if any, is the amount by which the within-month factoring service from BPA falls outside of the boundaries described by the total retail load. Specifically, the Within-Month Excess Factoring is determined by the cumulative energy amounts above or below the range defined by the upper and lower boundaries.

Q. *If a customer's Within-Month Excess Factoring amounts include amounts below and above the defined range, would both amounts be billed at the applicable Within-Month Excess Factoring Charges?*

A. No. BPA will apply the Within-Month Excess Factoring Charges to only the greater of the two cumulative amounts for the month.

Q. *Why is there a need for the Excess Factoring Charges?*

A. The reasons are very similar to those reasons for the changes in the Unauthorized Increase Charges for demand and energy. When BPA is forced to provide factoring service beyond that specified by the products that the customer has purchased, that extra service can necessitate real time adjustments that burden BPA's system and can have cost consequences to BPA. This is especially true if a customer's excess factoring represents a shift from lower cost periods of the day or month to higher cost periods. The Excess

Factoring Charges are intended to be an incentive to get customers to use factoring services within their specified limits and, secondarily, to protect BPA from cost exposure in those instances where Excess Factoring does occur.

Q. What is BPA's method for deriving Within-Day Excess Factoring Charges?

A. First, BPA is setting a minimum charge of five mills/kWh for both HLH and LLH Within-Day Excess Factoring energy. This amount sets a floor to ensure that there is some minimum penalty for Within-Day Excess Factoring. Secondly, for both HLH periods and LLH periods, this minimum charge will be compared to the maximum Within-Day difference during the month between the highest and lowest hourly ISO Supplemental Energy prices. The maximum Within-Day differences, if greater than five mills/kWh, will define the effective Within-Day Excess Factoring Charges.

Q. Why is this an appropriate methodology for deriving the Within-Day charges?

A. This methodology is appropriate because, when Within-Day Excess Factoring has occurred, BPA has in effect provided a shaping service associated with the customer's resources rather than it's load. The rates applicable to BPA's core Subscription products assume that BPA undertakes the cost of factoring energy to meet the shape of customer loads, but not the various potential shapes of customer resource generation. The factors which affect load shape are often different than the factors which affect customer decisions to dispatch its resource generation. For example, excess factoring could occur as a result of an underlying shift in the shape of the customer's energy take from BPA in hours during a diurnal period when energy is less valuable toward hours when energy is more valuable. The use of an hourly index to determine the highest Within-Day differences is a measure of the potential cost exposure to BPA associated with providing this excess factoring service. Additionally, the five mills/kWh floor is appropriate to ensure that there is some minimum penalty for Within-Day Excess Factoring in the event

that the hourly index does not yield a higher charge or, although less likely, that at some point during the rate period there is no suitable hourly index available.

Q. How will BPA derive the Within-Month Excess Factoring Charges?

A. The minimum charge will be set at five mills/kWh. This will be the minimum charge for both HLH and LLH Within-Month Excess Factoring energy. This minimum would be tested against charges derived from the Mid-C Bus firm energy price index and the ISO Supplemental Energy prices. For each index, the difference between the maximum daily price during the month and lowest daily price will be computed (with separate treatment for HLH and LLH periods.) The effective HLH Within-Month Excess Factoring Charge will be the greatest of (1) 5 mills/kWh; (2) the difference computed for the Mid-C Bus index for HLH periods; or (3) the difference computed for ISO Supplemental Energy for HLH periods. An identical comparison will be made for the LLH periods to derive the effective LLH Within-Month Excess Factoring charge.

Q. Why is BPA using this method to develop the Within-Month Factoring Charges?

A. The reasons for using this method is the same as described for Within-Day Excess Factoring above. To summarize, the maximum and minimum daily prices at the Mid-C Bus and ISO Supplemental Energy indices comprises a reasonable representation of BPA's cost exposure associated with providing Excess Factoring throughout the month. The five mills/kWh floor is appropriate to assure that there will always be some penalty to deter customers from placing this Excess Factoring burden on BPA's system.

Q. Has BPA considered the historical market indices in the development of its Excess Factoring Charge methodology?

A. Yes. Numerical examples based upon the historical price indices for the period April 1998 through March 1999, are presented in the WPRDS Documentation (*see* WP-02-E-BPA-05B, Vol. 1, Section 4). WPRDS Documentation, Table 4.6.3.1 of WP-02-E-BPA-05B, Vol. 2 presents the monthly HLH and LLH Within-Day Excess

Factoring Charges for this 12-month historical period. The Within-Month Excess Factoring Charges yielded by the proposed methodology appear in WPRDS Documentation, Table 4.6.4.1 of WP-02-E-BPA-05B, Vol. 2.

Q. Please summarize the results illustrating the incorporation of price indices into the Excess Factoring Charge methodology.

A. For this historical period, the minimum five mills is overridden in all cases by higher charges derived from the price index data. The HLH Within-Day Excess Factoring Charges derived from this historical data set range from 28.92 mills/kWh in January 1999 to 243.21 mills/kWh in July 1998; the corresponding range for the LLH Within-Day Excess Factoring Charges was 21.84 mills/kWh in February 1999 to 240.01 mills/kWh in March 1999. The HLH Within-Month charges range from 12.97 mills/kWh in February 1999 to 152.35 mills/kWh in September 1998; the corresponding LLH range was 10.75 mills/kWh in May 1998 to 55.08 mills/kWh in July 1998. Again, the charges developed for the documentation are examples provided to illustrate the Excess Factoring Charge methodology. The effective charges for any billing month during the rate period would be developed using price indices corresponding specifically to that billing month.

C. Mitigation and Avoidance of Penalty Charges

Q. Please describe how BPA will mitigate or allow for avoidance of Penalty Charges.

A. Because there is a possibility that some combination of factors on a customer's system could trigger Unauthorized Increase Charges and Excess Factoring Charges simultaneously, BPA will allow mitigation or avoidance of such charges. Although this would seem to be an unusual circumstance, it is possible that a customer's unauthorized demand increase will have characteristics that could constitute either Within-Day Excess Factoring, Within-Month Excess Factoring, or both. In deriving applicable charges, BPA would calculate costs associated with each. Absent some mitigation provisions, this

single hourly occurrence would expose the customer to the Unauthorized Increase Charges for demand and energy, as well as to the Excess Factoring charges.

Q. Will BPA impose all Unauthorized Increase and Excess Factoring charges under such a scenario?

A. No. The proposed GRSPs include an adjustment to the amount of energy subject to Excess Factoring charges when a customer incurs both an Unauthorized Increase Charge for energy and a Within-Month Excess Factoring Charge. Specifically, the amount of energy subject to the Within-Month Excess Factoring Charges will be reduced by the amount of energy which is levied the Unauthorized Increase Charge for energy in the same diurnal period.

Q. Why is BPA making this adjustment?

A. The intent of the proposed penalty charges is to provide customers with a sufficient incentive to avoid placing unauthorized increases and Excess Factoring on BPA. Without this mitigation to the Excess Factoring charges, the collective penalty amounts would go beyond BPA's intent.

Q. Are the Unauthorized Increase Charges and Excess Factoring Charges intended to "punish" customers for events on their system over which they have no control?

A. No. The purpose is to encourage customers to plan and operate their systems in a fashion that minimizes the likelihood of unauthorized increases and Excess Factoring, both of which place undue burden on BPA's system and compromise BPA's ability to control costs.

Q. What steps can customers take to minimize their exposure to these penalty charges?

A. There are a number of protections available to customers. First, customers can purchase a variety of products from BPA's Power Business Line or Transmission Business Line or other suppliers which would insure against or replace power in event of a resource underdelivery. Second, customer exposure to these charges can be changed depending

on customer choices regarding its resource declarations, the amount of risk for which the customer is willing to be responsible, and selections from among the menu of BPA products.

Section 6: Applicable Rate for Pre-Subscription Contracts That Have Collared Price Provisions

Q. What is meant by "collared" price provisions?

A. Some Pre-Subscription contracts include price provisions that base the contract price on the lowest cost-based rate that goes into effect on October 1, 2001, or the successor of the PF-96 rate, as established in this current power rate proceeding. These price provisions include collars, such that if the price for the contract, or a specified test price, as based on the final PF-02 rate, exceeds the collar, the contract price is then equal to or based on the upper collar. If that same calculation is below the lower collar, then the price for power sold under such contracts is equal to, or based on, the lower collar.

Q. *What price forms the basis of the prices for Pre-Subscription contracts with public customers that have collars?*

A. The prices in collared Pre-Subscription contracts are to be calculated based on the lowest cost-based rate that goes into effect on October 1, 2001, or the successor to the PF-96 rate.

Q. *Will BPA have more than one PF-02 rate, or lowest cost-based rate, applicable on October 1, 2001?*

A. No. Although BPA is developing stepped rates for the 2002 rate period (*see* Burns, *et al*., WP-02-E-BPA-08), it too is based on a cost-based five-year average rate. For the purposes of determining the appropriate charge for the Pre-Subscription contracts, BPA will use the five-year average rate.

Q. *Is this rate cost-based?*

A. Yes. The five-year average is the base rate that demonstrates cost recovery. The stepped rates are developed to recover these same costs (*see* Doubleday, *et. al.*, WP-02-E-BPA-18).

Q. Will BPA apply two prices to calculate the collar price, one based on the three-year lower stepped rate and one based on the higher two-year stepped rate?

A. No. The Pre-Subscription contracts provide that the contract price be established once and only once after the final PF-02 rates are published. Establishment of the five-year average rate applicable to Pre-Subscription contracts is consistent with BPA's Power Subscription Policy ROD at 120.

Section 7: Definition of Stable Rates

Q. Is BPA maintaining stable PF rates?

A. Yes. The table below illustrates that the average PF rate in this initial power rate proposal meets the goal of no increase in average PF rates over 1996 levels. In this comparison, the proposed PF-02 preference monthly energy rates, monthly demand charges, and load variance charge were applied to the PF-96 loads and load shape from the 1996 Final Rate Proposal WPRDS Documentation, WP-96-FS-BPS-05A, to yield an average rate. That average rate is then compared to the average PF-96 rate in the 1996 WPRDS, WP-96-FS-BPS-05A. As seen in the table below, adjustments to the average delivered PF-96 rate are made to account for the absence of Transmission charges, Load Regulation charges, and Load Shaping charges in this rate case. The PF-02 rate at PF-96 billing determinants was adjusted to account for the inclusion of a Conservation and Renewables Credit and a Load Variance product charge in this rate case. As the table indicates, on average, for shaped PF loads, PF rates show virtually no change between 1996 rates and those being proposed for the period 2002-2006. For flat

PF loads, the PF rates being proposed result in a reduction of approximately 0.8 mills/kWh from those currently in place.

'96 Rate Case PF Rate w/ '96 Loads		**'02 Rate Case PF Rate w/'96 Loads**	
Average PF Rate	24.39 Mills/kWh	'02 Average PF Rates w/'96 load	20.35
Minus 1996 PF Transmission	-3.19 Mills/kWh		
Minus Load Shaping costs	-0.38 Mills/kWh	C&R costs in rates	-0.50 mills/kWh
Minus Load Regulation Costs	-0.33 Mills/kWh	Shaped PF Target after C&R	19.85 mills/kWh
	20.49 Mills/kWh		
Load Shaping Contribution to PF96	0.38	Load Variance	1.01 mills/kWh
Shaped PF Rate Target	***20.87 Mills/kWh***	***Shaped PF Rate***	***20.86 mills/kWh***
Flat Load PF Rate Target	***19.95 Mills/kWh***	***Flat Load PF Rate***	***19.15 mills/kWh***

Notes:

Load Shaping rate	0.32	Load Variance Rate	0.80
Load Shaping contribution	0.38	Load Variance contribution	X
		X = (0.38/0.32) * 0.8 =	1.01

Q. In the above table, why do the rates for 2002 look different than those contained in the rate schedules?

A. These 2002 rates look different than the rates contained in the rate schedules because they use the rates in the proposed rate schedules as applied to 1996 loads to develop the numbers in the table above. The 1996 rate case loads are contained in WPRDS, WP-96-FS-BPA-05A, Table RDS-50.

Q. Why is there a decrease in the average PF rate for flat loads while the average PF rate for shaped loads remains constant at current levels during the 2002-2006 rate period?

A. PF-02 rates and charges reflect BPA's forecasts that HLH energy and capacity products will have greater value in this rate case test period than in the 1996 rate case. Consequently, relative to PF-96, a flat load at PF-02 will be less expensive to serve than a shaped load.

Q. *Does this conclude your testimony?*

A. Yes.