

PARTIAL SERVICE PRODUCTS FINAL BPA TEAM REPORT

4/15/99

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Executive Summary

WHERE PARTIAL SERVICE PRODUCTS ARE TODAY AND WHY --

The Subscription Process Started with Only Two Requirements Products.

Since April of 1998, BPA and many interested parties have been working together to expand the list of BPA Subscription core products from the two which had been proposed at that time -- Full Service and a multi-year Flat Block. By September 1998, the Partial Products process had advanced in several ways:

- It had proposed a business principle of equitable comparability as between diversified and non-diversified customers.
- The flat Block product was re-designed to reflect the shape of net requirement among months.
- A category of Actual Partial Service was set up with simple and complex variations.
- Resource declaration parameters were set to help clarify purchase rights.
- A staple-on product was designed that could be taken with a Block to better follow load shape.

BPA extended the Partial Service product process through the end of January 1999 for the special purpose of looking for better ways to design an Actual Partial product for a customer with variable dispatchable resources. This was by far the most challenging task for Partial Product design since it involves a mixture of customer needs, some of which relate to load and some of which relate to features of the customer resource portfolio. It is also for this category of service that the uncertainty due to market interactions becomes most significant. BPA and other interested parties recognized that fostering cooperative business relationships could maximize the benefit to ratepayers of both BPA and customer-owned resources.

The Partial Service Product line now includes:

- **Actual Partial Service** (fixed resources declared, a.k.a. "Simple Partial")
- **Actual Partial Service** (declared resources are variable and dispatchable -- entitlement subject to factoring benchmark)
- **Dedicated Resource Product** (customer dedicates all output to serve load)
- **Block** (shaped across months and diurnal periods)
- **Block Plus Factoring** (provides shaping of take-or-pay Block energy to load)
- **Block Plus Shaping Capacity** (provides scheduling flexibility to shape Block take-or-pay energy to load)

New Market Unbundling and Subscription Concepts Involve Some Degree of

Future Shock. BPA Subscription products unbundle requirements load services from resource services, although there was some mixing of the two under the 1981 Power Sales Contracts. Partial Service customers who currently are under the 1981 Power Sales Contract felt that the 1981 contract approach should be extended with a few modifications. BPA felt that the 1981 business relationship was obsolete on too many important points to be retrofitted for post-2001 service. It is important to note that for many of the people involved in this product development process, the 1981 contract

reflects their sole operating experience. Familiarity with the complete wholesale market is often limited for many of these customer staff and customer reps; they hear and read about a variety of market features (the PX, ISO, trading/hedging, etc.) but only a few engage in those features on a daily basis. Also these customers have their internal operations processes and systems designed to reflect the 1981 contract provisions.

The Dedicated Resource Concept Emerged. Several customers took action on BPA's concern over the risk of selling a net-load-following service to a customer who was also an active market trader. These customers have assisted in the design of a Partial Service product for those who dedicate the full output of their resources to their loads without retaining an option to trade in short term markets. For some utilities, their vision of the best future for their stakeholders may not include active market interface.

Expanding the Load-Serving Ability of a Block Product. Another customer suggestion resulted in the identification of an additional staple-on product -- prescheduled Shaping Capacity to be added to a Block to improve its ability to serve customer requirements load.

No "One-Size-Fits-All" Perfect Product. One benefit of the partial products workgroup process was that the wide differences in customer needs, desires and future visions was clear to all. The extended discussions revealed no 'perfect product' which could meet BPA's business test of a cost and risk not greater than for Full Service while combining the qualities desired by many customers such as flexing to their actual resource operation. The Partial Service product line does include a generic Actual Partial Service product for customers who wish to retain the right to be active in trading in opportunity markets. It uses the factoring benchmark approach explained further in this Report to set the shape limits of the requirements entitlement. The factoring benchmark also creates a starting place for bilateral negotiations on resource-following and other services. Generating customers felt that the hindsight test would expose them to market-based over-use charges unfairly -- i.e., they would incur penalty charges even if the errors were due to normal load forecasting error as opposed to market-based economic dispatch. They warned that the result would be that customers would not have incentive to use their resources to help follow their own loads.

Bilateral Arrangements Are Necessary. The core product line sets the base from which bilateral, tailor-made products and services can be designed. BPA believes that the resource-following services needed by many diversified customers must be tailored to fit each utility and that the pricing must be negotiated taking into account market costs. First, each customer's resource base is highly individual and requires a different service pattern. One size fits all was not a realistic possibility. Second, customer resource dispatch decisions are likely to reflect the new world, that is, to be shaped by opportunity market considerations. This exposes the Federal system to an additional source of cost and risk, which is unlike the cost and risk of following the PNW electric power loads themselves. BPA agrees with diversified customers that it is important to work together to integrate BPA and customer resources for the overall benefit of PNW customers, but, given the diversity of customer resource portfolios, bilateral negotiations are the route that should be taken.

1. Extended Partial Product Process and Related Processes

This Final Partial Service Products BPA Team Report (Final Report) completes BPA's Subscription product development process for core products to serve the net requirement of a customer who wishes to be diversified with supplies other than BPA power. As described in BPA's Power Subscription Strategy document and in the Draft Partial Service Products BPA Team Report of February 12, 1999 (Draft Report), posted prices for the core Subscription power products will be the subject of BPA's Wholesale Power Rate Case.

In addition, BPA has begun a public process on the determination of net requirement, which will establish provisions applicable to all Subscription products consistent with sections 5(b) and 9(c) of the Northwest Power Act.

Complete copies of comments are in Appendix A. Comments were received from the following parties:

Name/representing	Abbreviation
Jeff Nelson/Springfield Utility Board	SUB
G. R. Garman/Power Resource Managers, LLP	PRM
Terry Mundorf/Washington Public Agency Group	WPAG
Paul Murphy/Murphy & Buchal, LLP/four Direct Service Industries	DSIs
John Graham/Conservation and Renewable Energy System	CARES
Tom D. Svendsen/Klickitat PUD	KPUD
Eric Hiassen/Eugene Water and Electric Board	EWEB
Joe Nadal/Pacific Northwest Generating Cooperative	PNGC

2. Overarching Issues, Comments and Evaluation

2.1. BPA Objectives and the Business Test

Issues: The Draft Report repeated BPA's commitment to designing products consistent with the following objectives:

- Appropriate effort to offer service to the loads of generating customers as well as non-generating customers.
- Business Test – Cost of Partial Service not greater than that of Full Service.
- Enable a customer to dedicate its resources to follow or help follow its own load.
- Equitable Comparability of Product Offerings

Comments: WPAG commented that BPA proposed an adequate range of Partial Service products to address customer diversity. SUB agreed with BPA's principle of keeping the cost of Partial Service products not greater than Full Service, but also suggested that the BPA Partial Service product should "not create more cost/risk to either BPA or the Partial Service customer. SUB suggested that BPA desired to shield Full Service customers from the load variation of Partial Service. SUB commented that

BPA could incentivize customers to declare dispatchable resources, thereby freeing up FCRPS capability to follow the remaining loads, if BPA designed a user-friendly and fair Partial Service product. SUB commented that BPA's concentration on avoiding putting embedded resource services into the posted price products could result in customers deciding to declare only the flat component of resources and selling the rest into the market. SUB's comments also questioned what was a "preferred purchase shape", a question that had arisen in the work group meetings. On the other hand, DSIs supported the principle of designing the Partial Service products to serve loads, not resource variations.

Decision: The policy and business objectives BPA has used to guide the Partial Service Products process have garnered the general agreement of most parties. There are some disagreements about the applications to specific products and whether the Partial Service products offered met BPA's own criteria.

BPA believes that the menu of Partial Service products, in context with the proposed common table of wholesale power rates, is an appropriate effort to offer Subscription service to the loads of generating and non-generating customers. The Partial Service products are not designed around a concept of "preferred purchase shape", however BPA's Wholesale Power Rates will provide price signals by means of the rate design.

Equitable comparability requires the unbundling of products that support or enhance customer resources from products that serve requirements load. This is a difficult task when customer resources are independently dispatched and especially if the customer participates in power trading. In the deregulated market, BPA and some of its customers are, at least at times, in a state of competition with each other.

However, there are still substantial areas of common ground in our respective missions, as demonstrated by the Dedicated Resource Product described further in this Report. There is no intent for Partial Product design to shield Full Service customers from the load variation of Partial Service customers -- only from the costs of resource integration, support and optimization for non-BPA resources.

2.2. Special Challenges of Defining Load Following Products for Customers with Dispatchable Resources

Issues: The Draft Report explained that Partial Service product design must address a number of challenges, which are not present in designing a full service product.

- **Customer resource base individuality.** Diversified customers have widely different resource profiles and therefore their net requirement profiles are widely different – very nearly unique to each customer. The 1981 Power Sales Contract attempted a one-size-fits-all product with its Computed Requirements approach but BPA feels that this results in most customers having more apparent flexibility than they need, therefore increasing BPA's cost and risk to serve these customers.
- **1981 Power Sales Contract termination concerns.** The 1981 Power Sales Contract has many features, which are desired by customers who have operated under it. For example, it provides for the BPA service to shape around some of the fluctuations and uncertainties related to operation of coordinated hydro resources.

In addition, this contract is familiar and engrained in the current operations of customers.

- **Customer resource realities--actual generation unpredictable.** Net requirement customers who operate actual generation are accustomed to allowances being made in the BPA power sale for the operational uncertainty of their resources.
- **Staying away from behind the meter -- When is “load uncertainty” different from “resource uncertainty”?** Some customers recommended that BPA design products and prices such that BPA is indifferent to the reason for customer flexibility. BPA’s view is that flexibilities that are used in response to market pricing are more expensive for BPA to serve than those that relate merely to end-user consumption patterns. If the product stays away from behind the meter, it’s pricing would have to take into account the more expensive uses of flexibility as well as the load-related uses.
- **When do grace margins and other flexibilities become opportunity options?** Throughout the work group process participants reminded BPA that customers would treat any product features or posted rates as “price signals” and respond in ways that brought maximum value to their communities/stockholders. However, some commenters recommended that the BPA products contain grace margins to defer the application of penalty charges on grounds that certain error margins are inherent in the process of attempting to match resource amounts to actual load. BPA concurred but felt that such grace margins were not appropriate for products under which the customer reserved the right to interface with the open market to make economic choices. Grace margins have in the past been seen to be used as virtual options to make economic dispatch choices of the BPA product in light of economic opportunity.

Because of these challenges, the Draft Report recommended a menu of Partial Service products rather than a one-size-fits-all approach as was represented in the 1981 power sales contract. The Draft Report also reiterated BPA’s Subscription unbundling policy to separate requirements load serving products from products which support or shape customer resources or provide other services such as marketing of secondary, and a variety of resource or financial services which resemble puts or calls.

Comments: PNGC commented that the 1981 contracts are no longer relevant to the new environment of competition and open wholesale markets in which BPA must now operate. DSIs recommended against the adoption of generous grace margins in product design if there is a possibility that load-following error could be mixed with economic optimization behavior. PNGC commented that utility load variations could and should be distinguished from utility resource uncertainties. BPA’s customers should obtain needed resource support services from the competitive market, including BPA at negotiated prices under bilateral arrangements. PRM commented that they have not seen demonstration of real and quantifiable costs of allowing customers to have resource flexibility. WPAG commented that a BPA product that allowed for operational flexibility for resource operators has value to the customer who receives it and cost to other BPA customers, therefore operational flexibility should be provided at a “fair, cost-based price”. Also it was recommended that customer exposure to unauthorized increase and excess factoring charges was important to controlling BPA’s risk. PNGC commented that the reduced flexibility of the Federal system and BPA’s exposure to market prices and

volatility make it important that BPA minimize the extent to which the costs of resource operation can be shifted from one group of customers to another. It is important that utilities be held fully responsible for the uncertainties and risks that may be inherent in their own resources.

Decision: BPA responded to many of the comments by offering a different product and dropping another. See the specific decisions on products.

2.3 Treatment of Renewable Resources

Issues: Two sections of the posted Actual Partial product description are relevant to renewable resources. The first is in the section entitled “Customer Resource Portfolio – Declaration Parameters” paragraph d. It states that new renewables for which *the customer wishes to declare a firm capability* [emphasis added] may be added to its portfolio within the term of commitment with as much advance notice to BPA as is practicable. It also allows that the declared capability of such a renewable resource will be distributed amongst months of a year in a manner reasonably reflecting its operating characteristics. Paragraph (i) of the same section also is germane to renewables, although it doesn’t specifically name them. It provides that a customer may declare certain small and nondispatchable resources as “nonfirm output resources”. Such resources would not have a declared firm capability and therefore would not trigger the billing implications for failure to deliver or for delivery of varying amounts of power. Unauthorized increase and excess factoring service charges are applicable to resources that the customer has elected to declare as having a firm capability.

Comments: Two comments addressed renewable resources specifically, CARES and KPUD. Both recommended that the Partial Service products be designed to exempt a renewable resource from excess factoring service charges and unauthorized increase charges. Both also recommended separate policy, services and attendant rates for application to renewables.

Decision: BPA will retain the product provisions that allow a renewable resource owner to choose to declare a renewable resource as nonfirm output or as a resource with a firm declared capability. We will add further language addressing the criteria to be applied to resources whose size exceeds the 3/6 MW presumptive threshold such that larger renewable resources could receive this designation. If the customer elects to declare a firm capability for a renewable resource, the customer will have the same obligation to support that firm capability as for any other declared resource.

The Subscription power product processes don’t address policy or pricing for ancillary services that are provided by BPA’s Transmission Business Line per the posted tariffs. For resource support services other than ancillary services, BPA Power Business Line would negotiate bilateral arrangements and fair market-based prices under our Firm Power Products and Services (FPS) rate schedule for renewable resources as well as other resources. BPA will provide targeted support for conservation and renewables via the Conservation and Renewables discount.

3. Partial Products Decisions – Products Adopted

3.1. Recap of Factoring Benchmark Methods

Issues: The Draft Report recommended three Actual Partial product variations to provide actual load-following service to a customer who declared resources that had variable, dispatchable capability. Under all three variations, the customer would make resource declaration per the parameters specified in the posted product descriptions. These three variations differed from each other with respect to how much factoring benchmarking was done in the billing process to track the customer's actual resource dispatch against the shape of its actual system load.

Within Day Factoring Check. For the within day factoring check, the customer's actual after-the-fact hourly measured amount taken from BPA during each day's diurnal period would be compared against the actual load shape for the same period. If the hourly energy amounts supplied by BPA were in a "peakier" hourly shape than the customer's load, the customer would be subject to an excess factoring service charge pursuant to the Wholesale Power Rate Schedules.

Within Month Factoring Check. The within month factoring check compares the day by day distribution of load versus the distribution of the power taken from BPA among days within a month. Allowable within month factoring service is a range with two boundaries. The boundaries are flattened load placement on BPA and a load placement that follows the shape of the customer's total load. The check identifies whether the day by day shape of the customer's take from BPA used more within month factoring service than the underlying load would have used.

The within day factoring test described above is not equipped to 'see' a factoring service issue if, for example, the customer resource deliveries were zero for the day. The within month factoring test is equipped to address that type of instance.

The default billing treatment if either factoring check is exceeded would be to apply the excess factoring service charges as set forth in the rate schedule. However, BPA is willing to negotiate with the customer alternative services to avoid the default excess factoring billing, such as a market-indexed approach to financially settling excess factoring quantities.

Comments: PRM commented that the use of upper and lower boundaries for within-month factoring would double-charge the customer in some circumstances. Also, the upper and lower boundaries result in no margin for error on a day for which the day's average load happens to be equal to the day average for the month (Day Average Load). The customer has no knowledge what the eventual Day Average Load will be which will force the customer to declare a flat resource. PRM had proposed in the work group meetings an alternative within month factoring approach that included only an upper boundary. Also, the other product parameters such as resource monthly declarations in HLH and LLH quantities adequately protect BPA from potential gaming. BPA should allow reasonable grace margins rather than strict application of the factoring benchmarks and excess factoring service charges. EWEB asked for clarification as to

whether the Factoring Benchmark would be applied to LLH periods. EWEB thought that the term “Daily Average Load” was ambiguous. SUB commented that there was a lack of attention to approaches other than factoring. Also, factoring does not follow load variations due to weather conditions or retail load outages. SUB also asked how factoring would handle retail access schedules, independent generating facilities within a utility’s service area, and renewable resource output.

Decision: Both factoring benchmark checks are adopted with one substantive modification. A specifically market copy of the factoring benchmark methodology is in Appendix B. For the within month check a change is reflected in response to PRMs comment regarding the potential for double-charging. The billing factor for excess factoring service charges will be the greater of (1) the month’s sum of above the band or (2) the below the band excess factoring MWhs. Both factoring checks are performed for HLH and LLH periods. The definition of Daily Average Load will be clarified to remove the ambiguity mentioned by EWEB.

The factoring benchmark checks are not intended to ‘force’ a flat resource operation or to assume that customers must perform the impossible, as suggested by the PRM comment. Rather, the factoring benchmark checks set the outer limits of the load-serving product versus the resource services some customers obviously need. The diversification of many customers consists of resources that are essentially freestanding. They do not have the capability, flexibility or responsiveness by themselves to meet, match or follow real-time end user load. Attempting to match a freestanding resource to variable actual load by means of autonomous customer dispatch and scheduling actions is of course tantamount to a gamble. SUB commented that factoring does not ‘follow’ load variations that change the basis on which the customer dispatched their own resources. This is true and consistent with BPA’s concept for factoring. The factoring benchmark is intended to set the limits of the PF product to following the customer’s load shape. It does not provide the service of changing the BPA delivery to make an adjustment that the customer’s resource was not capable of making. This would be equally applicable in the event of an incoming retail access supplier schedule.

Regarding the effect of factoring in relation to independent generating facilities or renewables, BPA’s product description provides principles for determining if a non-utility owned resource was grandfathered or a new merchant resource. The product description also provides for declaration of renewables as nonfirm output resources. The factoring benchmark treats nonfirm output amounts as if they were variations in measured load rather than resource deliveries.

BPA’s view for Subscription products has been and still is that the services needed to raise that gamble to a certainty should be bilaterally negotiated and priced under our FPS rate schedule. It is inconsistent with Subscription policy to add the costs of such services to the PF revenue requirement or to recover such costs by rolling them into the PF rates.

3.2. Variation No. 1

Issues: Variation No. 1 included the use of one billing process factoring benchmark check – the within day factoring check -- to see if the customer’s resource dispatch had left BPA at least neutral with respect to the underlying system load shape. The within-month factoring check would not be performed. Instead of using the within month check, BPA proposed posting a demand adder to be determined in the Wholesale Power Rate Case to compensate BPA for the possibility that the customer’s resource dispatch throughout the month would not follow it’s system load shape. Consistent with the not-behind-the-meter concept favored by customers, this adder would be set so as to make BPA indifferent to the cause for the shaping. It could be due to load-matching error, resource performance deviations, or to other dispatch criteria.

Comments: EWEB commented that the proposed billing factor for the demand adder was incorrectly attached to an amount of demand variability that BPA does not stand ready to serve. PRM commented that Actual Partial customers benefit BPA and its other customers by relieving BPA from meeting a portion of their load, in both energy and capacity terms. In exchange, customers ask BPA for operating flexibilities to put their declared resources against their load. PRM believed that the demand adder proposed by BPA will discourage customers from bringing in resources that have higher capacity value.

Decision: After considering comment, BPA has decided not to offer product Variation No. 1. EWEB’s comment on the proposed billing factor was valid. A more appropriate billing factor would have been the lesser of the customer’s resource peak that exceeded its average resource energy or it’s peak entitlement that exceeded its average energy entitlement. This would be necessary to address the fact that some partial service customers present entitlement profiles which are virtually the reverse of other customers. This reality is clearly a substantial, and in BPA’s view, insurmountable product design challenge if one aims at a one-size-fits-all model. Attempted ratemaking for this service would be likely to lead to a result that would at best be unsatisfactory to the majority of Partial Service customers. The mutual benefit referred to by the PRM comment requires cooperative provisions defining what each party’s load-serving obligation will be. It cannot be gained by hoping that BPA’s fixed rates will always present the perfect price signal to incentivize the customer to operate resources in a given pattern.

3.3. Variation No. 2 – Both Factoring Checks

Issues: Variation No. 2 included the use of both factoring benchmark checks – within day and within-month.

Comments: SUB said that the Partial Service product policy to distinguish between load and resource uncertainties was inconsistent with the Subscription Strategy document statement that “core products have constraints on the ability to shape BPA purchases other than following variations in customer load. [Emphasis added.]” Also, see the section above on Recap of Factoring Benchmark Methods.

Decision: BPA adopts Variation No. 2 despite the expressed dissatisfaction with the factoring benchmark approach. The factoring benchmark has the disadvantage of being

applied after the fact in the billing process and treating error to load or resource fluctuations the same as error due to market price shaping. But it also has the advantage of providing a clear linkage between the customer's actual system load shape and the outer limits of the BPA posted-price product, therefore keeping in touch with the equitable comparability policy.

There was a clear demand by many customers for BPA to post a product that established basic service principles for a customer who wanted a service which followed their load net of their resource dispatch decisions without BPA getting "behind the meter." It did not seem acceptable to post no product at all in this category. Variation No. 2 therefore is the basic posted price product for Partial Service for a customer with variable resources which it desires to dispatch autonomously in light of its own determinations as to load, resource operation and economic factors such as market prices. BPA's Subscription product policy has always identified resource services and economic choice options and flexibilities as product types which BPA would offer under its FPS rate schedule under bilateral agreements. The all-parties team discussed several FPS-priceable alternative products using market indexes that would replace the default exposure under the posted product to excess factoring service charges. BPA believes that such agreements tailored to the customer in light of its resource portfolio could be combined with the basic Variation No. 2 product to meet customer needs.

As comment indicated, not all customers desire to ask BPA to stand ready to provide a net load-following service which leaves the customer with full operational flexibility to dispatch their resource amounts hour by hour either to system load or to and from the open market. For customers who are willing to decrease BPA's uncertainty regarding their operational flexibility, BPA offers Variation No. 3 and the Dedicated Resource product, both described below. BPA does not agree with the SUB comment that it was inconsistent with Subscription policy to distinguish between load and resource uncertainty. The policy text at II.B Product Categories explains that customers needing flexible services will be able to purchase what they need via bilateral negotiations using the FPS rate schedule.

3.4. Variation No. 3

Issues: Under Variation No. 3, BPA and the customer would agree in advance on fixed hourly quantities for the resource declaration. For purposes of Actual Partial Service, this puts the customer in the same status as if their diversification resource had been a flat strip of power without hour to hour variability.

Comments: PRM commented that this product variation was similar to demanding that the customers predetermine the amount of hourly loads that will be served five years in advance. SUB said that this variation places load risk on the customer that is taken by BPA in the case of a Full Service customer.

Decision: BPA adopts product Variation No. 3 as described in the Draft Team Report. This product includes a feature under which BPA and the customer would share the problem of customer resource energy that exceeded its load due to uncontrollable events. BPA will not take on this full impact, as suggested by the SUB comment,

because part of the risk is due to the decision to operate a diversified portfolio and should be assumed by the customer. However, BPA will share it in return for the customer's agreement to dispatch its resource in a predictable shape that both parties believe is most likely to help follow system load.

Some customers have or could purchase variable contractual resources delivered by third parties that are amenable to the establishment of a fixed hourly profile. For a customer with a generating resource which is unlikely to be able to be perfectly controlled to a stated MW number, the hourly profile can be used as a baseline with an FPS-priced service agreement under which BPA provides resource support services to the customer including replacement, firming, shaping. (Of course, other suppliers could provide this service as well.) This is different than the implication of the PRM comment. Establishment of a resource obligation baseline for purposes of allocating the responsibilities of the parties and for purposes of pricing does not require predicting loads in advance.

3.5. Dedicated Resource Product

Issues/Comments/Decision: The Draft Report considered this product without recommending it due to the apparent lack of customer interest in collaborating to design it. Subsequent comments from interested customers have resulted in BPA's decision to adopt this product. BPA believes it may achieve the dual objectives of maximizing the use of customer resources to serve their load along with optimal use of FCRPS resources to serve requirements. The Dedicated Resource product includes an FPS pricing mechanism to do what the previous posted availability charge was intended to do. However this FPS mechanism would use market indexes so that market price risk is not unfairly borne by either party. This product also bears some resemblance in its intent to the Service and Exchange Agreements under which BPA performed management services for customer resource shares so that they did not fall under the contractual obligations of a Computed Requirements customer. (Similar products are still available as bilateral arrangements.) In this case, unlike the Service and Exchange approach, the customer would retain the right to dispatch the resource. This presents the advantage of having resource dispatch managed by the party with the best knowledge of the load. This product is most likely to be good for a customer who does not see significant future business benefit in direct interface with the open market.

Under this product, the customer declares that the full output of its resources will be delivered to its system load, including nonfirm or secondary generation that exceeds firm capability. The customer declares its resource capability per the posted resource declaration parameters. The amounts to be supplied by BPA are prescheduled by the customer. Ends of month actual loads are used with the declared resource capabilities to determine what the firm entitlement would have been. These amounts are billed under the posted rates. To the extent that the customer took less than its entitlement from BPA because it was delivering secondary energy to its loads, the bill would also reflect a market-priced credit back to the utility based on a pre-agreed-upon index approach reasonably approximating the fair market value of similar energy and a BPA service charge. The product also includes a market-priced approach to payment for

excess BPA amounts taken, although the customer retains the basic responsibility to support its own declared firm resource capability.

3.6. The Block Product and Staple-on Products

3.6.1. The Block Product.

Issues: The Draft Report recommended the adoption of the Block product including the parameters for shaping the Block declared purchase amounts among months and diurnal periods of months. The Block product amounts must be fixed in advance for the period of commitment. They may step down from year to year, but may not step up.

Comments: WPAG commented that the Block product should be modified to cover load growth. WPAG also commented that the Block product could require a customer who suffered load loss to pay for power which it could not use or resell.

Decision: BPA will adopt the Block Product generally as described in the posted Product Catalogue. Language modifications may be needed to be consistent with BPA's policy on net requirements (5b/9c policy). For example, in accordance with that policy, a customer may be required to give annual notice of load losses which might reduce its overall net requirement below the Block amounts originally contracted for.

Block increases to reflect load gain due to load accretion or loss of resource would be treated as new Blocks at the appropriate rate consistent with the Subscription Strategy document and BPA's policy on net requirements under section 5(b) and 9(c) of the Northwest Power Act.

3.6.2. Block Plus Factoring

Issues/Comments/Decision: The Draft Team report recommended adoption of the Factoring staple-on product that could be taken with a Block purchase. There were no direct comments on this option in particular although WPAG comments indicated that the expanded menu of products, including staple-ons was desirable to serve partial requirement needs. BPA will adopt this staple-on product generally as described in the posted Product Catalogue.

3.6.3. Block Plus Shaping Capacity

Issues: The Draft Report recommended another staple-on product to the Block which would allow a customer some MW amount over the flat level of the Block to shape the energy more to system load. BPA proposed limiting the maximum MW amount of shaping capacity and the usage in hours in relation to the customer's energy load placement. The customer would preschedule the product. Its use would be energy neutral within each day.

Comments: EWEB commented that the Draft Team Report proposed a cap on the Shaping Capacity purchase that would prevent many diversified customers from qualifying for any of it. EWEB preferred either a prior BPA proposal discussed with the

work group which would use the criterion of the customer's system load factor to set the MW cap or an EWEB-proposed method based on historical peaking data. EWEB also commented that it should be possible to purchase a Block with Shaping Capacity simultaneously with a Partial Service product. EWEB also recommended that the Shaping Capacity product should be usable by the customer 8 HLHs a day, 7 days a week.

Decision: BPA will adopt the Shaping Capacity staple-on product with some changes from the Draft Report recommendation. BPA adopts the principle of setting the maximum allowable Shaping Capacity so to pass through the customer's reasonable expected system load factor. In view of the fact that the product is prescheduled and BPA's MW stand-ready obligation is limited to a stated amount, the product can meet the business test of presenting an expected cost of service not greater than for Full Service.

The proposed Wholesale Power Rate definitions establish HLHs as occurring only on Monday through Saturday days and LLHs as occurring on those days plus all hours of all Sundays. Demand billing factors are proposed to be on HLH amounts only. An additional consideration is that a customer's Block purchase could result in a variety of potential distributions between HLH and LLH, including LLH only. Since the PF demand charge is only billable on HLH MW amounts, the Shaping Capacity product availability will be limited to shaping the HLH Block energy. LLH shaping capacity would be available by bilateral negotiation under the FPS rate schedule. The limit on the amount of such Shaping Capacity per month that may be subscribed to by the customer will be that amount which, when added to the HLH Block MW level, results in a product capacity factor not less than the customer's HLH system load factor, as determined using historical data.

The product will be prescheduled only. Consistent with the definition of BPA Rate HLHs and LLHs, the product will be usable for 8 hours per day within HLH's only, therefore on Monday to Saturday weekdays only. LLH shaping including Sunday shaping of the LLH Block would be arranged by bilateral negotiation under the FPS rate schedule.

This product may not be combined with Actual Partial Service or Slice. BPA wants to post a Subscription product menu that allows for choice. However, we want to avoid creating the potential for building product mixes that result in different revenues or risks when FCRPS resources are standing ready to what is essentially the same service or at least a partly redundant service.

3.7. Products Considered Since the Draft Report But Not Adopted

3.7.1. Modified 1981 Power Sales Contract.

Issues/Comments/Decision: BPA and interested parties actively considered this proposal by the PGP. The proposal demonstrated customer awareness of the impact on BPA of being exposed to uncertainties related to the open market. This proposal suggested two modifications to relieve BPA of this uncertainty. First, customers would limit economic displacement to only the surplus generation from existing coordinated

hydro projects. Second, (per oral remark at an open meeting) customers would refrain from using hour-ahead scheduling changes for market purposes. The parties acknowledged that practical implementation of these two modifications would be challenging, especially in view of customer desire to keep the BPA product separate from much of their own internal actual data and decision-making.

This proposal showed some customer desire to forego some flexibility and to reasonably limit BPA's uncertainty. However, it would preserve an approach to bundling of load following with resource following services which BPA feels is not appropriate for service in the post-2001 period nor consistent with BPA's other Subscription goals regarding cost control and avoidance of cost shifts among customer groups.

3.72. Actual Energy Service with Fixed Reservation Capacity Level

Issues/Comments/Decision: This product proposed by SUB takes an interesting approach to limiting the uncertainty around BPA's stand-ready obligation. It would create a specified MW peak limit per month above which the customer would have responsibility to serve. It combines this with a fluctuating monthly energy entitlement that would reflect actual cumulative monthly energy need. This product approach seems best for a bilateral arrangement rather than a generic posted product in that it would need agreement on the shaping of the energy entitlement and detail regarding scheduling implementation. It also seemed that implementation of this product would require explicit tailormade scheduling provisions in order to assure that the customer met its peak-following obligation without creating a reliability concern for the BPA control area.

Appendix A

Comments Received on the 2/12/99 Partial Service Products Draft BPA Team Report

The copies in this exhibit were made from electronically transferred documents received from the authors. The only exception is the CARES comment letter which was received in hardcopy only and keyed into this Appendix by BPA staff. Copies of signed letters are available on request.

CARES

Conservation And Renewable Energy System

February 26, 1999

Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208-3621

Attn:
Maureen Flynn
John Elizalde
Paul Norman

February 19, 1999

Re: Comments on the Partial Service Products Draft BPA Team Report

I strongly support the comments regarding the Partial Service Products Draft Report presented to BPA by Klickitat County PUD. As you know, this CARES Member has made a strong commitment to renewable resource development and is striving to be among the leaders of such development in the Northwest.

The following comments are being provided in the context of our work on renewable resources. As you are probably aware, a major element of CARES' mission is to promote indirectly and to participate directly in the development of renewable resources in the Northwest. This mission is carried out primarily through CARES' support for Members' efforts and by the direct involvement of CARES in renewable energy projects.

With the approval of the Board of Directors, CARES' staff and consultants have recently initiated an ambitious business planning effort directed at building a renewable resource portfolio and marketing such resources to Northwest utilities and their retail consumers. This portfolio would include renewables currently and/or planned to be under the control of CARES' members. We believe this initiative will be a good business venture and bring benefits to the retail consumers of CARES' members. In addition, it is consistent with BPA's mission to promote and support the development of renewable energy resources in the Region.

I would encourage the team responsible for drafting the terms and conditions for partial service products to review what has been proposed from the perspective of a partial requirements customer operating or contemplating the development of a renewable resource. In particular, consider the characteristics of an intermittent renewable and the financial impact on a partial requirements customer operating such a resource. Such

Customer would have little ability to predict years in advance, the output to be generated by such a resource.

If implemented, the terms and conditions proposed would have a negative financial impact on those partial requirements customers owning and/or operating certain types of renewable resources. They would create one more obstacle to new renewables development in the Northwest and, in so doing, retard such development. Although unintended, the terms and conditions outlined would create a situation that would run counter to BPA's mission to promote renewables.

They would present BPA customers with a financial penalty for developing and operating such resources, which would be the polar opposite of the reward system proposed via the C&R Discount. Depending on the final rate structure, the financial incentive created by the proposed Discount.

Recommendations

To paraphrase and add to Klickitat County PUD's comments, I would recommend the following:

- Conduct a thorough review of the proposed partial service products terms and conditions from the renewable resources perspective. This review should consider the impact on BPA's partial service customers already operating or contemplating development of such resources and the consistency of the proposed terms & conditions with BPA's mission and the proposed C&R Discount.
- Develop a separate policy, set of services, and attendant rates applicable to renewable resources.
- Develop separate contract provisions for renewable resources operated by partial requirements customers. Included among these separate provisions, should be the following:
 - ✓ An exemption of the resources discussed from the factoring charges under Actual Partial service.
 - ✓ An exemption from Unauthorized Increase Charges for PF power overruns driven by under performance of renewable resources, outside the control of the customer.
- Design the Partial Requirements products to be more flexible, when the customer is integrating renewable resources.

In providing these comments and supporting those of Klickitat Co PUD, the intent is not to create a rate structure that pushes legitimate costs incurred by BPA onto some other customer group or rate class, but rather to avoid creating rates, terms and conditions that would be unduly discriminatory for customers with renewable resources. This would be inconsistent with BPA's own stated mission to promote new renewable resource development in the Northwest.

CARES looks forward to working with BPA staff to ensure that the final product designs do not inadvertently discriminate against partial requirements customers operating renewable resource projects nor retard renewable resources development.

Thank you for the opportunity to submit these comments.

Sincerely

John Graham
Managing Director of CARES

Phone: (360) 885-3503

Fax: (360) 885-2934

February 25, 1999

Paul Norman
Senior Vice President for Power Marketing
Power Business Line
Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208-3621

Dear Mr. Norman,

Springfield Utility Board appreciates the opportunity to comment on BPA's Draft Partial Products Team Report (Report). SUB has been an active participant in partial products workshops and has provided written materials as well as computer models to aid in the development of a viable product. SUB views a successful Partial Product as a win-win product for BPA and the partial customer. By setting up a user-friendly and fair product, BPA will incent customers to declare dispatchable resources to meet load – thereby freeing up system capability to serve other customers. Since the default position is that partial customers would declare their resources flat and take the maximum amount of flexibility from BPA to meet load, BPA should view any declaration of resources to follow customer load as a sharing of released flexibility from the customer to BPA. To be viable, a partial product should reflect a sharing of system flexibility between both BPA and the customer.

The Message

If BPA receives one message from these comments, SUB's message is this:

Continue to look for a win-win partial product that provides an incentive to customers to declare variable resources to meet load, thereby freeing up peak system capability to BPA that can be sold to other customers.

While SUB is encouraged that BPA views proposed products as starting points, SUB is concerned that BPA has lost sight of the big picture with its statements on product development. An example is Section 4(e) of the Report that asks "When do grace margins and other flexibilities become opportunity options?". BPA states that:

"installing these features (grace margins) into a core Subscription product would require BPA to choose to: (1) contractually limit the use of the flexibility to the intended purpose -- which implies disfavored behind the meter oversight; (2) charge the individual customers for these flexibilities assuming that virtual put or call options will be used to BPA's direct disbenefit; or (3) roll into the embedded cost rate pool the cost of such risks to for all customers to pay."

BPA is correct - to a point. As stated above the partial customer's default declaration is flat – resulting in maximum BPA system flexibility being purchased from a customer. Any system flexibility that is freed up as a result of variable

customer resource declaration that BPA can use to sell power to other customers is a benefit to BPA. BPA's market mentality is one sided. What if customer declares resources flat and sells its flexibility to the market? BPA and the region lose all benefits of customer variable resources. A more appropriate approach is to try to come up with a workable solution that recognizes that there can be a win-win resolution. The one-sided view that flexibilities would be a virtual put or call option on BPA to be used for BPA's direct disbenefit is unfounded when balanced with the increased flexibility BPA obtains with customers declaring variable resources with associated energy and capacity declarations and obligations to meet customer load.

The third choice listed above, rolling the cost of flexibility into the rate pool, again points to a one-sided view of product design. The irony of the situation is that if BPA does not incorporate some flexibility in product design, customers will take the maximum amount of BPA system flexibility (declaring resources flat) and sell their flexibility on the market. As a result, BPA's system flexibility is lower than if it worked out a viable partial product, BPA's costs are likely higher as a result, and the cost of the rate pool is also higher.

Partial Products and BPA's Subscription Policy

While BPA's Subscription Policy (Policy) does not address Partial Products at length, there are a number of elements within the Policy which one can draw upon for direction in product development. Section II.B(1) of the Policy contains the following

- 1) "BPA staff also will work to resolve the remaining issues around equitable comparability between Full and Partial service products."
- 2) Core Subscription Products (defined as 'i.e. Full Partial Block and Factoring Service') are "available to customers who request net firm power requirements load service to serve regional consumer load, and who accept constraints on their ability to shape their purchases from BPA for any reason other than following variations in consumer load."
- 3) "The product descriptions for the Core Products will establish the services a customer may expect at the posted rates...and will be the basis for the initial proposal in BPA's upcoming rate case."

While the above are guidelines, item 2 above (with its definition of a Core Subscription Product) should be viewed as a minimum criteria when developing a partial product. To do otherwise without some mutually agreed upon alternative would be in conflict with BPA's Subscription Policy.

The Directions/Principles

In the Report, BPA has outlined 5 principles that it has used in the development of the partial product:

- Equitable comparability
- Partial Service not greater cost/risk than Full Service
- Common table of Rates
- Price Signal desirability of flatter load
- Simplicity of Rate Design.

SUB agrees with these basic principles, with the possible exception of the “Price Signal desirability of flatter load” for the following reasons:

- 1) BPA’s resource operations do not produce flat power output, even in critical water years.
- 2) SUB and others have asked for more definitive, quantitative information on BPA’s “preferred purchase shape”, but have not received that information to date.
- 3) BPA’s statement that “Market changes have placed a premium on remaining system flexibility” is disturbing. BPA’s criteria of offering power to its preference customers should not be filtered through a market test. BPA should not be segmenting the output of the FBS based on what it can receive on the market as an alternative to providing system flexibility to offer lowest cost based service to its requirements customers. If, however, BPA is meaning that it would like to incent customers to shape dispatchable resources to meet load with the goal of freeing up system flexibility to serve other customers and lowering cost, SUB agrees with this statement.

In particular, SUB agrees with the principle of Partial Service not creating greater cost/risk than Full Service stated in page 2 of the Report. It should not create more cost/risk to either BPA or the Partial Service customer.

BPA’s statement that “Our recommended products seek to assure that they (Full Service customers) will not be exposed to costs or risk from customers who could purchase power based on both load patterns and resource or price fluctuations. We realize this is controversial.” This statement is not only controversial, but it also conflicts with the Subscription Policy (see above). BPA’s desire to shield full service customers from load variations of Partial Service customers is also unsound from the perspective of equitable comparability. Subscription Policy aside, unless mitigated by other means, such as increased flexibility (addressed below), BPA should be shielding all requirements customers from each other’s load variations to be fully comparable. Cost of service criteria would therefore not be linked to standing ready to serve a particular load. Applying a criteria of shielding load variations, since partial service customers are applying resources to meet their peak load, it stands to reason that Full Service customers put more risk onto partial service customers, not the other way around.

Factoring Benchmark and Load Variations

Early on in the development of the Factoring concept, SUB developed models that showed weaknesses of Factoring and suggested modifications to fix some of the problems posed by factoring. This initial list of weaknesses included:

- 1) Factoring does not follow load variations due to weather conditions. The difference from expected load profile at time of preschedule compared to the actual load profile due to real time impacts factoring charges.
- 2) Factoring does not follow load variations due to retail load outages. Again, if a utility schedules flexible resources to meet load at the time of preschedule based on an expected load profile, the actual load profile with a retail load outage event will impact factoring charges.

- 3) How will non-utility power schedules serving a customer within a distribution territory be handled? An external power provider supplying power to customer with varying load that resides in a Partial customer's control area could impact factoring charges.
- 4) How will independent generating facilities within a distribution area and renewable output be handled? Variable generation within a distribution area that is outside a Partial customer's control impacts hourly loads and resources.

Issue 4 was subsequently addressed, at least in part, by removing some renewables and other generation from the factoring test. However, the first 3 issues reflect variations in consumer load and remain outstanding. Until these are resolved, factoring fails to meet the criteria set by the Subscription Policy (core products have constraints on the ability to shape BPA purchases other than following variations in consumer load)

SUB suggested that "a more straightforward solution would be for BPA to provide some amount of load following (factoring) service at no charge to cover the load deviations from preschedule and actual load." However instead of offering this at no charge, BPA has opted to increase charges (directly or indirectly through implementation of the factoring service) for a service that BPA is providing at no cost for Full Service customers (e.g. all retail outages and changes in weather which impact load are assessed no load factoring charge).

The Products in the Team Report

Actual Partial Service for customers with flat resources appears to be a viable product. For customers with variable resources, BPA proposed Variations 1 and 2 both include factoring with no tolerance for load based events or some tolerance (with additional charges and product constraints). Neither meets the Subscription Policy criteria. Variation 3 (hourly resource declarations with no factoring or demand adder charge) avoids the factoring issue but still places load risks on partial customers which is covered for full service customers. For example, for customers who are (or want to be) heavily diversified and purchase a relatively small amount of BPA requirements power, resource declarations for 5 years would likely result in over commitment of resources relative to load (i.e. negative PF) across hours and months due to weather and load variations (e.g. retail load outages). Since BPA has expressed interest in providing benefits of the FBS to the region, it is in BPA's interest to encourage some amount of diversification. However, since any diversification combined with a Variation 3 Partial Product results in the assumption of load risk by the customer, Variation 3 is not viable without some ability to change declared resources. In the team report, BPA is proposing to use historic load profiles to determine the optimum hourly pattern for Variation 3. This is inappropriate for the following reasons:

- 1) Basing future requirements purchases based on historic levels subjects BPA to legal challenge.
- 2) It is illogical on an operational basis. Historic load is based in part on abnormal weather events that impact load and resource operations on a monthly, daily, and hourly basis. To mandate future purchases on historic load should not be a requirement for this reason alone.

- 3) Basing future purchases on historic load patterns is illogical when combined with BPA's desire to fundamentally change rate design for subscription power compared to today's PF rates.

Special Challenges of Defining Load Following Products for Customers with Dispatchable Resources

Section 4(d)

Section 4(d) of the team report addressed the question "When is 'load uncertainty' different from 'resource uncertainty'?" The last part of the section states:

"Some customers have urged that the Partial Service products view this problem as a load uncertainty problem which should be rolled into the service package consistent with the standard of equitable comparability. Other customers and BPA have pointed out that the problem is actually one of resource integration and is therefore one of the costs of diversification."

Again, the Subscription Policy is clear on this point and BPA's perspective on this issue conflicts with its own Policy (core products have constraints on the ability to shape BPA purchases other than following variations in consumer load). Unless this issue is mitigated by mutual agreement between BPA and affected partial customers, the final partial product must comply with the current Policy.

Product Concepts

Throughout the process customers and BPA brainstormed partial products concepts. These included:

- 1) Unbundled power products (Block, Capacity, Reserves, etc...) used to serve full service customers would be linked to create a partial product.
- 2) Modifying the scheduling provisions of the 1981 Power Sales Contract
- 3) Demand Declaration (energy service with fixed reservation capacity level)
- 4) Factoring
- 5) Firm Block w/ Capacity

SUB has been disappointed with the amount of attention (or lack thereof) given to product concepts other than factoring. BPA's responses to product designs that were put aside were filtered through qualitative rather than quantitative BPA criteria. However, when similar qualitative criteria was used to assess Factoring, such as its complexity, BPA pushed forward with the concept rather than treating it in the same manner other product designs. From SUB's perspective, it was a struggle to introduce discussion on products that did not involve Factoring. In the future, SUB would encourage any product development to begin by establishing product evaluation criteria (to be applied consistently) and if criteria changes through the course of product development that all concepts be re-evaluated.

SUB's Demand Declaration Concept

BPA accurately described the basics of this concept in its Team Report (Section 6(c)(3) "Actual energy service with fixed reservation capacity level"). This has been summarized and expanded below:

- Customer resource declarations would be made as under current BPA standard product rules -- i.e., resource monthly HLH/LLH energy and peak.
- The customer would also declare a MW cap on the amount of PF it would be entitled to take, i.e., “reservation capacity”. This declaration would be within a specified window (e.g. 2 months ahead of the month of delivery), declared at the signing of the contract, or combination of the two. Some portion of the reservation capacity should be declared within a window of time as opposed to 5 years in advance to allow customers to incorporate updated weather forecast information in its declared reservation capacity amount. The reserved capacity would be take-or-pay, regardless of the actual level of demand used.
- There would be no declared cap on the amount of energy entitlement.
- The customer would have a right to receive the difference between the actual month’s energy load and their resource energy declarations.
- The customer would take on the obligation to acquire other power to cover their system hourly loads if they exceeded the amount of the declared resource peak plus the PF reservation capacity amount. If the customer failed to acquire that power, BPA’s Unauthorized Increase demand charge would apply.

This product benefits BPA in that it limits the amount of obligation to meet load based on weather related events (such as an arctic express) while guaranteeing revenue with a take-or-pay demand charge.

BPA had three concerns with this approach. Below is a description of these concerns and SUB’s response to those concerns:

- 1) System reliability may be impacted if customers do not acquire sufficient power to meet load (vis-à-vis unauthorized increase situation).

From SUB’s perspective, system reliability is a transmission service related issue as opposed to a power product issue. If BPA feels this is a power product issue, SUB would appreciate further clarification of this concern and how other products, such as those proposed by BPA, address this concern.

- 2) Within month capacity and energy purchases from BPA would give customers too much flexibility and create cost shifts.

While a consistent concern throughout the development process, BPA has failed to provide quantifiable examples of this. From SUB’s perspective, BPA also has failed to incorporate energy and demand declarations that a customer must comply with when determining amounts of flexibility. For example, when developing BPA’s proposed products, all within month flexibility has been addressed by further tightening of the Factoring service and has ignored flexibility constraints based on the customer’s rigid resource declarations (HLH energy, LLH energy, Capacity). SUB has repeatedly requested BPA incorporate these limits when addressing flexibility concerns, but to date BPA has continued to use Factoring as the vehicle to address this concern (which has already been fixed to a large

degree by resource declarations). Finally, in order to create a viable, win-win product BPA should recognize that the customer must have some resource flexibility to meet load.

- 3) BPA asked how could customers be prevented from over-declaring capacity (creating a potential burden when serving other firm customers)?

Since daily use of reserved capacity is constrained by the customer's monthly resource declarations, obligations to provide reserved capacity on an operational basis is limited. As a result, the impact to other customers should be the same, or less than, the burden placed on BPA by other partial customers. Also, SUB has suggested a reasonableness test could be applied to capacity declarations.

A Final Note: "Price Signal Desirability of flatter load"

One of BPA's principles/guidelines is to incent customers to place a certain load profile on BPA through pricing (rate design). However, there is a disconnect within BPA's product description which should be addressed. Specifically, BPA is proposing to sell cost-based, subscription power with some link to a customer's historic load profile. Setting aside legal arguments on the viability of basing future preference purchases on historic load, BPA is also proposing radically different PF rates for Subscription power than exist today to promote the purchase of a certain load profile by customers. The desired load profile may be different than the historic profile, hence the breakdown in product design. BPA therefore has two basic alternatives:

- 1) keep the current PF rate structure that reinforces historic load patterns. (BPA still faces a potential legal challenge)
- 2) remove the historic load constraints as eligibility criteria to purchase cost based subscription products.

SUB appreciates BPA's efforts in the development of Actual Partial service and I look forward to discussing this issue with you in the future.

Sincerely,

Steve Loveland
General Manager
Springfield Utility Board

cc: BPA - Maureen Flynn, John Elizalde, Angela Wykoff
SUB – Bob Schmitt, Pam Hewitt, Jeff Nelson

MEMO

To: Maureen Flynn

From: Terry Mundorf

Re: Comments on Partial Products Team Report

The following comments are offered on the Partial Products Team Report (Report) dated February 12, 1999. The utilities that comprise the Western Public Agencies Group (WPAG) wish to thank the Bonneville staff that worked on the partial service products. The issues presented in this area were extremely challenging and difficult to address, and the staff dedicated long hours to exploring all feasible solutions. While the alternatives offered in the Report will not meet with the approval of all customers, it is not for lack of effort on the part of the Bonneville staff.

1. General Overview

Constructing partial service products that are useful for all customers wishing to receive only a portion of their power supply from Bonneville is a complex undertaking, due in large measure to the diversity of non-federal power supply options available to customers and the existence of a robust wholesale power market accessible to all customers. To deal with this diversity in its customer base, Bonneville has tried to follow two principles in designing partial service products. First, Bonneville has attempted to ensure that the requirements service available to full and partial service customers is equitably comparable. And second, that all customers pay a fair price for the services that Bonneville provides to them. These are sound principles, and have provided a solid foundation for designing partial service products.

As Bonneville noted in the Report, many things have changed since the 1981 Power Sales Contracts (PSC) were negotiated. The operational flexibility that formerly was the hallmark of the Federal power system is no more. Further, there is a wholesale power market that provides all of Bonneville's customers with a constantly available power supply. Under these changed circumstances, operational flexibility made available to customers requires Bonneville to stand ready to serve the customer, and thereby reduces the amount of power Bonneville can sell on the market. Reduced market sales cause lower surplus revenues, which in turn results in higher firm power rates to all other customers. As a consequence, operational flexibility has value to the customer who receives it and a cost to Bonneville's other customers when it is provided. Operational flexibility should be made available to customers seeking it at a fair, cost based price.

2. Directions/Principles

Generally, the principles used by Bonneville in the design of the partial service products are sound. There is one area that could use additional consideration. As part of the desire to have a common table of rates, Bonneville is considering the use of the same billing determinants for all customers. This is not a wise choice. The objective of having one common table of rates can be met, while using different billing determinants to achieve the objectives of Bonneville and the customers. For example, using the generating customer's system peak as a demand billing determinant, while using the

Bonneville system peak as the demand billing determinant serves the purpose of enabling customers to take actions to flatten their peak load on Bonneville while retaining the common table of rates. Such a thoughtful approach to the implementation of the common table of rates objective will help both Bonneville and its customers.

3. Recommendations

Bonneville has proposed a range of partial service products in an effort to address the diversity of presented by the partial service customer class. While not perfect, when combined with the custom products that Bonneville will make available to customers, these products are adequate to meet the needs of the partial service customers. This includes the staple on products offered in conjunction with the block product. There are, however, certain aspects of the block product that should be re-thought

As currently configured, the block product will be sold as a requirements product, but will not be offered in a manner that covers the requirements load of the customer as it grows over time. There is a serious legal question whether Bonneville can offer a requirements power product that does permit the customer to purchase power for its entire statutory requirements load. Allowing the customer to increase the amount of the block purchase over the five year rate period would bring this product into compliance with the statutory definition of requirements service.

At the other end of the spectrum, the block product is formulated as a take or pay product. This requires the customer to pay for power even when its requirements load is less than its block product purchase. In other words, the block product obligates the customer to pay for requirements power it cannot use, which is in excess of its requirements load, and which the customer has no statutory right to purchase as requirements power. It is legally questionable whether a customer can be required to pay for power it has no statutory right to purchase as requirements power. A potential solution to this problem would be for Bonneville to sell power in excess of the customer's requirements load as surplus power. This would allow the customer to dispose of the power in excess of its requirements load, while permitting Bonneville to continue to impose the take or pay obligation on the customers. This change would also bring this product into compliance with the applicable statutes.

4. Conclusion

The WPAG utilities appreciate the effort put into the partial service products, and look forward to working with Bonneville in the rate case and the Subscription process to finalize and implement these products.

Bellevue, WA

Vancouver, WA

April 19, 1999

Maureen Flynn
Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208-3621

SUBJECT: PRM's Comments on the BPA Partial Products Team Report

Dear Maureen,

For over one year staff members from Power Resource Managers, LLP have been working with you and other BPA and utility staff members to develop a partial service product that will work with generating resources other than simple block purchases. By their very nature the output of these types of resources is difficult to predict with certainty, and thus the difficulty of designing this product. PRM staff has taken an active role in these meetings in order to meet the needs of our clients. In addition, an important goal that we have had is to work with BPA to develop a partial service product that our clients will want to buy. Unfortunately, after many hours of labor we have still not achieved our goal.

We have appreciated the opportunity to work with you and have developed some understanding of the agency's concerns. However, we have not yet seen any demonstration of the real and quantifiable costs of allowing your customers to have resource flexibility. As a result we now have an actual partial service product that is quite inflexible with little understanding of why this approach is necessary. Our comments on the path you have chosen to take in designing these products are attached. We urge you to revise the Actual Partial service product along the lines that we propose.

Sincerely,

POWER RESOURCE MANAGERS, LLP

G. R. Garman, P.E.
President

Comments on BPA Partial Products Team Report (PRM 2/26/99)

Overview:

- This proposal precludes BPA's Actual Partial customers from achieving their objective, which is to operate their resources to follow load. Under BPA's Actual Partial product customers will be penalized for the vagaries of load that cannot be known in advance.
- The excessive requirements insisted on by BPA prohibit the Actual Partial customers from using their capacity resources since the use of those capacity resources will result in unacceptable cost to the customers. This is detrimental to both BPA and its customers.
- BPA should evaluate the real business risk of Actual Partial Service along the lines that we describe below, along with the benefits (to BPA and its other customers) contributed by the Partial customers' resources that are dedicated for meeting firm load and capacity.

Comments:

Variation No. 1 – Within day factoring checks and posted demand charge “adder”

- Actual Partial customers benefit BPA (and its other customers) by relieving BPA from meeting a portion of their load, in both energy and capacity terms.
- In exchange, the Actual Partial customers ask BPA for operating flexibilities to put their declared resources against their load.
- The demand adder proposed by BPA will negate the economic benefit of being able to match resource capacity to load and discourage anyone from bringing in resources that have higher capacity value than the average energy output of the resource.

Variation No. 2 – Within day and within month factoring – no demand adder

- Because of the take-or-pay provision, taking less PF energy than the factoring will allow on one day will likely be addressed by taking more PF energy than the factoring will allow on another day within the same month. Therefore, BPA's proposal of checking both upper and lower boundaries subjects the customer to two penalties as a result of a single violation. Also, the customer is subject to an unreasonable dilemma. When the customer's daily load equals its monthly average, the customer's PF energy take on that day must be right exactly equal to its monthly average entitlement because of the checking of both upper and lower boundaries. However, the monthly average load and entitlement only become known when the month is over. The customer has no knowledge during scheduling whether the next day's load will or will not equal to the monthly average. The customer is forced to take a risk every time it wishes to use any of its resource flexibility to match load. This is the same as forcing the customer to declare a flat resource.
- A reasonable “Factoring Approach” (without the checking of a lower boundary) has been demonstrated to establish an equitable baseline for comparing the amount of flexibility received by the Actual Partial customers versus the Full Service customers.

- Actual Partial customers will pay for flexibility taken above and beyond their rights established by their actual hour-to-hour and day-to-day load variations under the “Factoring Approach”.
- In addition, the Actual Partial customers agree to submit resource declarations to BPA, five years in advance, in terms of monthly energy, capacity and Heavy-Load-Hour energy.
- With all these sideboards in place, BPA is shielded from potential gaming by the Actual Partial customers.
- In return, BPA should allow a reasonable grace margin under the “Factoring Approach” to encourage the Actual Partial customers to actively match their resources to load. The grace margin will relieve the customers from small and reasonable load forecast errors. A grace margin can be constructed along the line that for a small quantity of factoring usage, BPA will allow the customer to balance out its excessive use of factoring in one period with its under use of factoring in another period before the factoring charges kick in. BPA’s current factoring approach is a one way street. The customer will pay when it exceeds the factoring boundaries (i.e. use more flexibility than a Full Service customer) but receive no credit when it stays below the factoring boundaries (i.e. use less flexibility than a Full Service customer). A grace margin will achieve better equality among the Full Service customers and the Partial Service customers.

Variation No. 3 – Customer resource hourly quantities fixed in advance

- We agree with BPA’s principle of no greater business risk for Actual Partial Service than Full Service, however Actual Partial Service is fundamentally different from Full Service.
- We believe that equitable treatment does not mean equal treatment. BPA is wrong to insist on treating Actual Partial customers as though they are Full Service customers with reduced load, by demanding that the Actual Partial customers predetermine the amount of the hourly loads that will be met by the customers’ resources five years in advance.

Conclusion:

- The Actual Partial customers derive economic benefits through the efficient operation of their resources and these benefits do not come at the expense of BPA and its other customers.
- The Actual Partial customers need scheduling flexibility to operate their resources to follow load. A good portion of that flexibility comes from the right to make schedule adjustments in response to load deviation from forecast.
- We believe the tradeoff of a small increase in scheduling uncertainty for BPA in return for a known reduction in BPA’s load and capacity obligation is fair and equitable to BPA and its other customers.
- We urge BPA to adopt the “Factoring Approach”, without the checking of lower boundaries, along with reasonable grace margins and the flexibility to allow for schedule adjustments due to load forecast error. BPA should not unfairly penalize its Actual Partial customers by imposing rules that will cause inefficient operation of their resources or through a demand adder.

Bonneville Power Administration
P.O. Box 3621
Portland OR 97208-3621

Attn:
Maureen Flynn
John Elizalde
Paul Norman

February 19, 1999

Re: Partial Service Products Draft BPA Team Report

Klickitat PUD is strongly interested in progress on the proposed terms and conditions of Partial Requirements products for the post-2001 period. Lon Peters has been following these developments for Klickitat, and has forwarded to me a copy of the February 12 draft report by BPA on partial requirements products. The report indicates that it is being sent to work group members for comments and that comments are due by COB Friday 2/26/99. Even though I am not a member of the work group, I would like to submit some general comments on the relationship of these products to renewable resource development, and hope they will be seriously considered as BPA formulates final product designs.

Klickitat PUD has embarked on an aggressive renewable resource development program. The partial service products report does not address renewable energy products separately, as I believe it should. The report does talk about hydro operations and indicates they are often controlled by other-than-power purposes. Some hydroelectric projects have storage capabilities. In contrast, renewable operations are totally dependent on the renewable energy source. This total reliance on the intermittent characteristics of the energy source will cause significant costs to those Partial Requirements customers developing these resources, if the recommendations in this report on product design are adopted. These costs will unnecessarily and unreasonably interfere with the development of renewable resources in the Northwest.

Generally our experience has been one of plowing new ground each time we attempt to integrate a resource that does not fit neatly into the predefined boxes of traditional generation projects. Each time we successfully negotiate a one-time-only solution that solves the immediate problem, but leaves the bigger questions to be fought another day. The design of partial service products and the relevant rates provide an opportunity for BPA to acknowledge the position and uniqueness of renewable projects and their importance in the region's energy future.

I do not believe it was the intent of BPA to hamper the development of renewable resources, but that is exactly the effect of BPA's product designs. BPA should be assisting utilities in the development and integration of these types of resources, rather than imposing severe economic consequences on such development through unreasonable approaches to the design of partial requirements services, including the rates for those services.

- **BPA should agree to separate contract provisions for renewable resources operated by Partial Requirements customers, and specifically exempt these resources from the factoring charges under Actual Partial service.**
- **In addition, Unauthorized Increase Charges should not apply to PF overruns driven by temporary underperformance of renewable resources that is outside the control of the customer.**

In addition, the design of the Partial Requirements products should be more flexible when the customer is integrating renewable resources. For example, it is completely unreasonable for a customer to be asked to define the monthly heavy load hour and light load hour energy output of many renewable resources several years in advance. Some of BPA's hydro-based customers have advanced product designs that are based on monthly declarations of energy amounts; this approach is much more amenable to renewable resources than the standard partial products BPA is considering, which require more detailed resource declarations. Additional variations to the standard partial product designs may be necessary to recognize the unique characteristics of specific renewable resources.

Renewable resources are not of such a magnitude that they will greatly affect BPA's costs when adopting such accommodations. The maximum amount of renewables expected to be eligible to receive the Conservation and Renewable Discount proposed in the rate case is approximately 60 MW. Even if the total amount of renewable resources eligible for exemption from unreasonable charges exceeds this level, these recommended changes are appropriate and necessary steps for the promotion of renewable resources, in addition to the Conservation and Renewable Discount. This strong confirmation of BPA's commitment to renewable resource projects would go a long way to sending the proper signals of the region's commitment to the environment and our willingness to make the necessary accommodations for nontraditional generating resources.

We look forward to working with BPA to ensure that the final product designs do not pose unreasonable barriers to the development of renewable energy resources in the region. Thank you for the opportunity to submit these comments.

Sincerely,

Tm D. Svendsen P.E.
Power Manager
Phone (509) 773-7616
Fax (509) 773-4969
Email tsvendsen@klickpud.com

Cc: Rachael Shimshak

Comments of the Eugene Water & Electric Board on the

Draft BPA Partial Products Team Report

We appreciate the opportunity to comment on the Draft Report of the BPA Partial Products Team dated February 12, 1999. We recognize the difficulty in coming up with a single product design that meets the needs of all of BPA's customers with dispatchable resources. We applaud your decision to offer multiple alternatives at a posted price as the best way to try and meet those diverse needs.

1. Comments on the Capacity Staple-on to the Firm Block Purchase

While we very much appreciate BPA's willingness to add the Capacity Staple-on to the Firm Block as a new posted price product--unfortunately, the method that BPA has chosen for establishing peaking entitlement appears to preclude EWEB from purchasing any of it. In fact, the only customers who will be eligible to purchase the Capacity Staple-on are those customers with very low system load factors, and/or those customers with a small percentage of their resources diversified away from BPA.

We aren't certain if this is what BPA intended. If so, we wonder why BPA has decided to offer the Capacity Staple-on at all.

Below is an example showing how the current proposal would treat EWEB in a winter peaking month. Following that we present two alternatives that we believe meets BPA's objective to limit a customer's entitlement to subscribe to additional peaking, but which yield numbers greater than zero.

a. BPA's proposed method to limit entitlement to the Capacity Staple-on

As proposed, the maximum amount of capacity is set by the following equation.

$$\text{Max total Capacity Factor} = \frac{\text{Average energy system load (aMW)}}{\text{Peak system load} * \% \text{ energy load placed on BPA}}$$

EWEB has approximately a 400 aMW energy load in winter months and a 600 MW peak load. EWEB also supplies about one-third of its load from its own generation. Even if EWEB were to choose to place the remaining two-thirds of our load on BPA after 2001 we would not be able to purchase any of the Capacity Staple-on in a winter month, and probably none in any month given our loads and resources throughout the year.

$$\text{Max total capacity factor} = \frac{400 \text{ aMW}}{600 \text{ MW} * 67\%} = 1$$

A maximum capacity factor of 1 or more means there is no ability to purchase additional peaking, even if though EWEB would be purchasing 268 aMW of Firm Block, take-or-pay energy in that month. It would be necessary for EWEB to purchase energy storage from a third party in order to turn flat blocks of energy into variable energy that we could shape to our load.

b. EWEB’s first alternative method to limit entitlement to the Capacity Staple-on

Product Team meetings in January. This proposal also limits a customer’s entitlement to

However, the equation differs as below.

$$(\text{Peak system load} * \% \text{ energy load placed on BPA}) - \text{energy load placed on BPA}$$

following amount of additional peaking via the Capacity Staple-on.

This method limits the load factor BPA supplies resources at to the customer’s system load factor, are the load factors resulting from the above calculations.

$$\frac{\text{Peak system load} * \% \text{ energy load placed on BPA}}{268 \text{ aMW} + 132 \text{ peak MW}} = 67\%$$
$$\text{EWEB load factor} = \frac{132 \text{ aMW}}{132 \text{ aMW} + 68 \text{ peak MW}} = 67\%$$

Note that while this method is *fair* to BPA, it isn’t clear that it is *legal*. EWEB’s understanding of statutory requirements is that preference customers are allowed to place load on BPA, with no constraints about the load factor.

c. EWEB’s second alternative method to limit entitlement to the Capacity Staple-on

This alternative method for determining a customer’s entitlement to the Capacity Staple-on was presented to the Partial Products Team in January. This method would actually calculate a customer’s entitlement to 8-hour peaking based on historical loads and estimated load growth. While this method would require additional analysis prior to contract completion compared to the first alternative, it does have the advantage of being consistent with statutory requirements. That is because it is essentially the same method that is used to determine overall energy and peak entitlement, only at a more detailed level.

In brief, this method would go beyond what will be necessary to calculate a customer’s entitlement to HLH and LLH blocks by adding one more step. It will calculate an entitlement to 8 hour peaking based on historical loads and estimated load growth. The difference between the 8 hour peaking value and the 16 hour HLH peaking value is the maximum Capacity Staple-on to which a customer could subscribe. The peaking ability of the customer’s own resources would need to be taken into account, but how to do that was never worked out. However, this shouldn’t be a difficult value to calculate. It is very similar to the 50 hour sustained peaking capability calculations contained in the annual BPA Whitebook.

d. Capacity Staple-on cannot be combined with other BPA products

BPA states that the Capacity Staple-on to the Block “is not available at posted prices with any other BPA product.” We are interpreting that statement to mean that we cannot purchase firm blocks with a Capacity Staple on and a Partial Service product. This makes no sense to us, given BPA’s stated goal of using a common table of rates across its products. If BPA does indeed

implement a common table of rates then BPA should be indifferent to whether a customer purchases the Capacity Staple-on or not.

From EWEB's perspective it will reduce our flexibility in subscribing to BPA power. EWEB's current resource portfolio produces monthly entitlements to PF that have very high peaking entitlements with little or no energy entitlements. This has been a challenge to operate under, and we desire a post-2001 entitlement that is more balanced. Unless BPA allows the Capacity Staple-on to be combined with Partial Service you force customers that desire to purchase firm blocks into just such an imbalanced portfolio.

This restriction seems detrimental and unnecessary. We recommend that it be removed.

e. Capacity Staple-on hours per period related to customer's load

In the draft report BPA recommends "that the hours per period parameters for this product should be related to the customer's load needs in light of its other resources, including the BPA block."

We are not certain what BPA means by this statement. If this is intended towards the calculation that determines entitlement prior to contract completion, then EWEB agrees with this intent. See Section 1.c above. Most definitely, the entitlement calculation should taking into account the customer's resource capability before determining what amount of 8 hour peaking the customer may subscribe for. (This is no different than determining subscription right for a 16 hour HLH block.) A customer with a 1, 2, or even 7 hour peaking need would not be entitled to subscribe for that need with this product.

One of the product features that was stressed in the Partial Products Team meetings was its standard nature, 8 hours per day, 7 days a week, limited to hour ending 7:00 A.M. and 10:00 P.M. Opening the door to varying the hours per period on a customer specific basis would make this product look like a variable load factor sale, and would render it difficult to offer as a posted-price product.

2. The proposed billing factor for the demand charge “adder” will bill customers for demand that BPA doesn’t stand-ready to serve.

For the Actual Partial Service product Variation No. 1 BPA has proposed a new interpretation for a “demand adder” that is not what we understood was meant by the term and is inconsistent with industry norms. In addition, the proposed billing factor appears to run contrary to BPA’s stated objective to incent customers to “flatten their loads on BPA.”

As originally discussed in meetings, BPA would charge a higher demand charge in Variation No. 1 to compensate for the higher level of optionality that is embedded in this product. We could agree with that concept. However, the standard industry practice is to charge a demand charge (or option fees) on the capacity being sold. BPA is proposing to bill customers a demand charge on the capacity it isn’t selling. That is, the capacity that a customer declares it will serve from its own resources is the capacity that BPA’s proposed billing factor will tax.

BPA called this billing factor a stand-ready charge. BPA does supply a stand-ready service, but it isn’t for the customer’s peaking capability. BPA must stand-ready to supply the peak requirement again, which customers may call upon later in the month. The appropriate billing factor is the regular peak demand.

This billing factor makes no sense to us. BPA has stated publicly that it wants a higher demand charge to incent customers to flatten their take on BPA. This new billing factor will incent customers to do just the opposite -- to not declare their own peaking capability to serve their load and let BPA serve their peak needs.

Why make things more complicated? We strongly urge you to drop this new billing factor interpretation and use a demand adder that is applied to the actual peak demand of the customer.

3. Comments on Factoring

We are unclear if there will be any factoring benchmark for Light Load Hours, and what, if any billing factors will be assessed.

In Attachment 2 Factoring Benchmark Methods there are several defined terms that are not sufficiently explained. It appears that of eight terms defined, the first six are planning values set in advance of the month. For instance, the term “Daily Average Load” would normally imply a running average to us, but it is apparent from your spreadsheet that this value is set once and does not change over the month. A little additional clarity would be appreciated.

Memorandum

To: Maureen Flynn
From: Paul M. Murphy
Date: February 26, 1999
Re: Comments on Partial Service Products Team Report

On behalf of my clients, Northwest Aluminum Company, Goldendale Aluminum Company, Kaiser Aluminum & Chemical Corporation, and Reynolds Aluminum Company, I offer the following comments on the Partial Service Products Team Draft Reports (Reports).

We greatly appreciate the hard work and professionalism exhibited by the partial products Team throughout the many months in which the team reviewed various options for meeting the requirements of customers with resources. Based on our observations, the Team carefully considered every clearly articulated option proposed by any participant in the process.

We are pleased to see that the draft report adheres to the principle that the partial service product is designed to serve loads, not resource variations. It may be difficult for customers to operate their resources in complete synch with loads. It would be even more difficult for BPA to sort out the effects of unavoidable errors from purposeful behavior of customers trying to minimize costs and maximize revenues using techniques for which the product was not designed. Therefore, we strongly support the Reports Rejections of generous grace margins. Grace margins do not protect the interests of customers that will not be partial service products customers.

Recent events demonstrate that power markets can be extremely volatile and charges for unauthorized behavior, which at one time would have been viewed as punitive, can on occasion look like a bargain. Therefore, a key element of assuring that other customers are not harmed by the partial service products will be in the design of unauthorized increase charges and excess factoring charges. These issues are the proper subjects of the upcoming rate case. We hope that BPA will not acquiesce in recent requests by customers to allow its rate design to deviate substantially from the market. We believe that BPA's failure to have a meaningful power demand charge in the PF 96 rate was a costly mistake. BPA should also recognize that, with high volatility in power markets, fixed unauthorized increase charges would either be unreasonably punitive most of the time, or inadequate on the very occasions that unauthorized charges would be the most

harm to the system. We were pleased to see BPA's initial thinking with respect to charges for unauthorized use of capacity, energy and factoring in a recent rate case workshop. Charges such as those described in the workshop are necessary complements to the rules describing partial service products if BPA is to assure such products not to produce unfair cross subsidies among customers.

Thank you very much for this opportunity to comment on the Team's Draft Report.

March 16, 1999

Public Utility Specialist
Bonneville Power Administration
905 N.E. 11th Avenue-PGS5
Portland, Oregon 97232

Dear Maureen:

PNGC is submitting these comments on the *DRAFT* BPA Team Report on Partial Service Products dated February 12, 1999. While there remain many details to work out before the product offerings are finalized, PNGC supports the basic approach recommended by the team.

In particular, we support the principles enunciated on pages 2-3 of the document. We agree with BPA that the 1981 contracts are no longer relevant to the new environment of competition and open wholesale markets in which BPA now operates. Due to the reduced flexibility of the federal system and BPA's exposure to market prices and volatility, it is extremely important that BPA put in place contract arrangements that minimize the extent to which the costs of resource operation can be shifted from one group of BPA customers to another. In particular, it is important that utilities be held fully responsible for the uncertainties and risks that may be inherent in their own resources.

The uncertainties associated with utility load variations can and should be distinguished from utility resource uncertainties. We fully support a policy under which core products do not include resource services at rolled-in posted prices. BPA's utility customers should obtain any needed resource support services from the competitive market including from BPA at negotiated prices and under bilateral arrangements tailored to the specific needs of the individual utility or groups of utilities, such as those served by PNGC.

BPA has identified several approaches to measuring and charging for the services required to support utility resource operations. PNGC supports of the types of approaches BPA is pursuing to provide customers with resource flexibility and will continue to participate with BPA and other parties in refining those approaches.

Sincerely,

Joe Nadal
Sr. Vice President, Power Management

Appendix B Factoring Benchmark Methods

Section 1. Defined terms.

"Allowable factoring" means a range of factoring service which BPA intends to provide in the Actual Partial Service product line based on the amount of factoring service that the underlying load would have required in the absence of customer resource deliveries. The allowable factoring ranges give an Actual Partial service customer as much access to factoring service for the purpose of following actual system load as BPA provides to a Full Service customer.

1981 PSC defined terms (modernized to recognize HLH and LLH):

- Assured Energy Capability --customer's declared resource amounts in average kW's per month for HLH and LLH
- Assured Peak Capability -- customer's declared resource peak amount in kW per month
- CPR -- Computed Peak Requirement -- the difference between the customer's system load on it's peak hour in the month and its Assured Peak Capability for that month.
- CAER-- HLH and LLH -- the average kW differences between the customer's system average HLH and LLH load for the month and its Assured Energy Capability for HLH and LLH.
- Daily Average Load – HLH and LLH – For the within month factoring test, the customer's system average HLH and LLH load, calculated at the end of each month, times the number of HLH and LLH hours in such day.
- Day CAER – HLH and LLH – the CAER HLH and LLH times the number of HLH and LLH hours in the day.
- Daily Actual Load – HLH and LLH – the sum of the customer's hourly system HLH and LLH load in the day.
- Daily Actual Take – HLH and LLH -- is the sum of the hourly actual HLH and LLH energy delivered by BPA.

"Day" means a calendar day from Hour Ending (HE) 0100 to HE 2400. In this

HLH and LLH diurnal periods. References to "day" will not always repeat the reference to diurnal periods.

"Factoring" is a service of providing energy hour by hour in a certain shape. For the Subscription core products, it refers to BPA's service of providing a total amount of

"Load" will be used in this attachment to refer to the customer's system load which is the basis of their right to be served by BPA under a Subscription core product.

its hourly load.

"Take" will be used in this attachment to refer to the hour by hour amounts that the customer actually received from BPA. For a customer who purchases a product that serves customer actual load, this will be the difference between the measured system load for an hour and the net customer resource delivery for that hour. For a customer who receives their BPA purchase by means of interchange schedule, the amounts scheduled would be the "take".

Section 2. Within day factoring test -- checks for factoring service across hours of a diurnal period of a day

a. Description:

The within day factoring test compares the hour by hour shape of load versus take within a day. It identifies whether or not the hour by hour shape of the customer's take from BPA has used more within day factoring service, measured in kWh's, than the underlying load would have used.

b. Application of test:

(1) Allowable within day factoring service needed by the actual load.

Allowable within day factoring service is a range with two boundaries. The lower boundary is "no factoring" (a flat take within the day). The upper boundary is a take that requires no more factoring than the actual load would require. The amount of factoring used by the load is calculated by looking at the relationship of the hour by hour load amounts to that day's average energy load (within a diurnal period).

The within day factoring check counts the hourly amounts which are greater than the average instead of both greater and lesser. This is because our working assumption is that the BPA posted demand charge will provide some incentive to customers to try to shape their resource deliveries to minimize their probable demand billing factor (which is assumed to be the customer's peak take for the month).

(2) Within day factoring service actually used based on take. The amount of factoring used based on take is calculated by looking at the relationship of the hour by hour take amounts to that day's average energy take (within a diurnal period). The amounts by which each hour's take amount are greater than the average are summed in kWh.

(3) Determination of excess within day factoring service used. If the kWh sum from (2) is greater than (1), excess factoring service has been used and the excess is subject to excess within day factoring service charges.

c. Examples of the test:

The tables for this example test are included below. The examples are in MWh for simplification. Billing calculations are performed in kWh. The table titled "Actual Load – Finding the upper limit" shows the calculation of the upper limit. Each hour, the day's

average energy load (50) is subtracted from each value in the "load amount" column. If the load amount exceeds the average energy the difference is placed in the "Exceeds average by" column, otherwise a zero is placed in that column. The sum of the "Exceeds Average by" column is the Factoring Upper Limit for the day. In the example, the Factoring Upper Limit is 17. The Factoring Lower Limit is always zero.

The other three tables depict possible customer resource operation, and given that operation, a calculation of the Factoring actually used in the take from BPA. In each of these tables we are subtracting average take (30 in all cases) from the "actual Take" column. If the actual Take exceeds the Average take the difference is placed in the "Exceeds average by" column, otherwise a zero is placed in that column. The sum of the "Exceeds average by" column is the amount of Factoring actually used in the Take from BPA.

For the "Flat Resource" example, the Factoring actually used is 17, which is equal to the Factoring Upper Limit. No excess within day factoring charges would be assessed.

For the "Resource not shaped to follow load" example, the Factoring actually used is 21 which exceeds the Factoring Upper Limit by 4. Excess within day factoring charges would be assessed on 4 MWh.

For the "Resource shaped to follow load" example, the Factoring actually used is 12 which is less than the Factoring Upper Limit. No excess within day factoring charges would be assessed.

HLH Example of the Within Day Factoring test for a single day.

Actual Load - Finding the upper limit.		
day's average energy load 50		
Hour	Load amount	Exceeds Average by
7	47	0
8	49	0
9	51	1
10	53	3
11	54	4
12	52	2
13	50	0
14	47	0
15	49	0
16	50	0
17	52	2
18	53	3
19	52	2
20	50	0
21	47	0
22	44	0
		Factoring Upper Limit
		17

A Flat Resource		
Average Take 30		
Resource	actual Take	Exceeds average by
20	27	0
20	29	0
20	31	1
20	33	3
20	34	4
20	32	2
20	30	0
20	27	0
20	29	0
20	30	0
20	32	2
20	33	3
20	32	2
20	30	0
20	27	0
20	24	0
		Factoring actually used
		17

Resource not shaped to follow load		
Average Take 30		
Resource	actual Take	Exceeds average by
22	25	0
20	29	0
18	33	3
18	35	5
20	34	4
22	30	0
20	30	0
20	27	0
20	29	0
20	30	0
18	34	4
22	31	1
20	32	2
18	32	2
22	25	0
20	24	0
		Factoring actually used
		21

Resource shaped to follow load		
Average Take 30		
Resource	actual Take	Exceeds average by
18	29	0
20	29	0
20	31	1
22	31	1
22	32	2
20	32	2
20	30	0
18	29	0
18	31	1
20	30	0
22	30	0
22	31	1
20	32	2
18	32	2
20	27	0
20	24	0
		Factoring actually used
		12

Section 3. Within month factoring test -- checks factoring service used day by day within a calendar month.

a. Description:

The within month factoring test compares the day by day shape of load versus take within a month. It identifies whether the day by day shape of the customer's take from BPA used more within month factoring service than the underlying load would have used. The within day factoring test is not equipped to 'see' a factoring service issue if, for example, the customer resource deliveries were zero for the day. The within month factoring test is equipped to address that type of instance.

b. Application of test:

- (1) Allowable within month factoring service based on load. Allowable within month factoring service is a range with two boundaries. The boundaries are a flat load placement on BPA and a load placement that follows the shape of the customer's total load.
- (2) Within month factoring service allowable range (Upper and Lower Boundaries) is based on the customer's actual load and its Day CAER. The calculation of the boundaries is shown below.

If a customer's *Daily Actual Load* exceeds the customer's *Daily Average Load* for the day, the boundaries on the BPA deliveries for the day are:

Lower Boundary equals the *Day CAER*.

Upper Boundary equals the *Day CAER* plus (the difference between the *Daily Average Load* and the *Daily Actual Load*).

If a customer's *Daily Actual Load* is less than the customer's *Daily Average Load* for the day, the boundaries on the BPA deliveries for the day are:

Upper Boundary equals the *Day CAER*.

Lower Boundary equals the *Day CAER* minus (the difference between the *Daily Actual Load* and the *Daily Average Load*).

- (3) Determination of excess within month service is performed by comparing the customer's actual take against the boundaries established in (2) as described below. Actual take outside the boundaries, either above the Upper Boundary or below the Lower Boundary, whichever is greater, is subject to excess within month factoring service charges.

If the *Daily Actual Take* exceeds the *Upper Boundary*, the difference expressed in KWh is excess within month factoring.

If the *Daily Actual Take* is less than the *Lower Boundary*, the difference, expressed in kWh, is excess within month factoring.

c. Example of the test:

The table below contains an example of the calculation of the Upper and Lower Boundaries for the HLH days of a month. All billing calculations are performed in kWh. For simplification, the table below is shown in MWh. Since all HLH days have 16 HLH hours, the *Daily Average Load*, and *Day CAER* do not change from day to day. This would not be true for LLH where Monday through Saturday have 8 LLH, and Sundays have 24 LLH (except when switching from/to daylight savings time).

In the table below, the customer's *Daily Actual Load* exceeds the customer's *Daily Average Load* on days 16 through 26. Looking at just day 16,

Lower Boundary equals the *Day CAER*.
Lower Boundary for day 16 = 2800.

Upper Boundary equals the *Day CAER* plus (the difference between the *Daily Actual Load* and the *Daily Average Load*).
Upper Boundary for day 16 = 2800 + (4880 – 4800) = 2800 + 80 = 2880

If the *Daily Actual Take* *Upper*
Boundary KWh. The 20,000 kWh is excess within

If the *Daily Actual Take* *Lower*
Boundary month factoring.

In the table below the customer's is less than the customer's *Daily*
on days 1 through 15. Looking just at day 1,

Upper Boundary *Day CAER*.
for day 1 = 2800.

Lower Boundary *Day CAER* minus (the difference between the
Average Load and the).
Lower Boundary

The calculation of excess within month factoring for day 1 would work as shown above for day 16, except that the upper and lower boundaries would be 2800MWh and

At the end of each month, actual takes above the Upper Boundary and actual takes below the Lower Boundary are summed separately. The larger of the two sums is used

	A	B	C	D	E
1		HLH Only			
2		Total Load in MWh (measured)	124800	Resource Commitment (Contract)	52000
3		system average load	300	Assured Energy Capability	125
4		Daily Average Load	4800	Daily Average Resource Commitment	2000
5					
6		CAER	175	Day CAER	2800
7					
8	Day	Daily Actual Load	Difference between Daily Actual Load and Daily Average Load ABS(B9-\$C\$)	Lower Boundary IF(B9<\$C\$4, \$E\$6-C9, \$E\$6)	Upper Boundary IF(B9>\$C\$4, \$E\$6+C9, \$E\$6)
9	1	4000	800	2000	2800
10	2	4280	520	2280	2800
11	3	4480	320	2480	2800
12	4	4360	440	2360	2800
13	5	4400	400	2400	2800
14	6	4240	560	2240	2800
15	7	4160	640	2160	2800
16	8	4320	480	2320	2800
17	9	4440	360	2440	2800
18	10	4320	480	2320	2800
19	11	4400	400	2400	2800
20	12	4520	280	2520	2800
21	13	4560	240	2560	2800
22	14	4480	320	2480	2800
23	15	4720	80	2720	2800
24	16	4880	80	2720	2880
25	17	5160	360	2440	3160
26	18	5240	440	2360	3240
27	19	5320	520	2280	3320
28	20	5440	640	2160	3440
29	21	5560	760	2040	3560
30	22	5320	520	2280	3320
31	23	5400	600	2200	3400
32	24	5600	800	2000	3600
33	25	5760	960	1840	3760
34	26	5440	640	2160	3440

Attachment 3

Electronic copy of PGP "ACTPART.doc"

Draft Actual Partial Requirements Service for Utilities with Coordinated Hydro

1. The customer will notify BPA of its coordinated hydro resources, and other firm resources to be dedicated to load, at the time of contract execution (e.g., late 1999 or early 2000); firm resources will be included in an exhibit to the contract; firm resources are generally dedicated to the customer's metered actual loads for the duration of the contract (not the amounts, but by name only); resources may be deleted from the resource exhibit at any time due to "obsolescence, retirement, or loss" per section 5(b)(1) of the Northwest Power Act; resources may not be added to the exhibit during the term of the contract and rate period (assumed to be five years).
2. In advance of each contract year (on a date to be determined), the customer will provide notice to BPA of the assured capability (firm energy and capacity by month, but not by HLH and LLH) of the sum of its resources, in conjunction with coordinated planning under PNCA.
3. During each contract month, the customer is responsible for that amount of its actual contracted load associated with the assured capability of its declared resources; instead of a distinction between firm load and interruptible load, the customer would contractually identify those loads that would be excluded from this contract and separately metered (by notice, the list of such "excluded" loads could be modified); the customer will provide BPA with energy and peak load data at the end of the month for those loads covered by this service.
4. During each month, scheduling limits as in the '81 contract (for various periods during the month) will apply to PF schedules; all PF power is scheduled (either pre-scheduled or "memo scheduled"); the customer has the right to change preschedules, as in the '81 contract.
5. The customer will have a "flexibility account" for its coordinated hydro resources, similar to the account in the 1981 contract.
6. In each month, the customer has a take-or-pay obligation to purchase as PF power the difference between (a) its reported actual loads (capacity and energy) and (b) the assured capability of its own resources, except that the customer may also displace PF purchases up to an amount equal to the difference between its total actual generation in the month and the "adjusted firm assured capability", where the "adjusted firm assured capability" depends on the use of the flexibility account. This service does not permit displacement by purchases from the market.
7. This service will be available at posted monthly energy and capacity prices, without an "availability charge".

Appendix C

Table of Billing Factors for Core Subscription Products

Demand	Demand Entitlement	Billing Demand	Unauthorized Increase	Demand Adjuster
Full Service	Measured Demand on GSP	Same as Entitlement	N/A	no
Partial Service dispatchable resource	CSP minus declared resource peak capability	Same as Entitlement	Any amount by which the largest single hour HLH take exceeds entitlement	yes
Partial Service fixed resource	CSP minus resource declaration on CSP hour	Same as Entitlement	Hourly take on the customer's CSP that exceeds their Entitlement.	yes
Block Flat	Contract Demand = HLH block aMW	Same as Entitlement	Any hourly HLH take greater than entitlement	no
Block w/ Capacity	Contract Demand= HLH block aMW plus additional capacity amount	Same as Entitlement	Any hourly HLH take greater than entitlement	no
Block w/ factoring	CSP minus declared resource peak capability	Same as Entitlement	Any amount by which the largest single hour HLH take exceeds entitlement	yes

GSP: Generation System Peak CSP: Customer System Peak

Load Variance	Load Variance Billing Factor
Full Service	Total Retail Load
Partial Service dispatchable resource	Total Retail Load
Partial Service fixed resource	Total Retail Load
Block Flat	N/A

Block w/ Capacity	N/A			
Block w/ factoring	N/A			
Partial Service fixed resource	CSP minus resource declaration on CSP hour	Same as Entitlement	Hourly take on the customer's CSP that exceeds their Entitlement.	yes
Block Flat	Contract Demand = HLH block aMW	Same as Entitlement	Any hourly HLH take greater than entitlement	no
Block w/ Capacity	Contract Demand= HLH block aMW plus additional capacity amount	Same as Entitlement	Any hourly HLH take greater than entitlement	no
Block w/ factoring	CSP minus declared resource peak capability	Same as Entitlement	Any amount by which the largest single hour HLH take exceeds entitlement	yes

GSP: Generation System Peak CSP: Customer System Peak

Load Variance	Load Variance Billing Factor
Full Service	Total Retail Load
Partial Service dispatchable resource	Total Retail Load
Partial Service fixed resource	Total Retail Load
Block Flat	N/A
Block w/ Capacity	N/A
Block w/ factoring	N/A

HLH Energy	HLH Entitlement	HLH Billing Factor	HLH UAI
Full Service	System load in HLH minus allowable reductions	Energy Entitlement in HLH	The sum of the hourly takes in excess of the hourly entitlement in HLH
Partial Service dispatchable resource	Hourly Entitlement, any amount up to the demand entitlement. Monthly Entitlement, HLH system load minus HLH resource commitment	HLH system load minus HLH resource commitment	The greater of: The sum of the hourly takes in excess of the demand entitlement OR the HLH take in excess of the HLH Billing Factor
Partial Service fixed resource	Hourly Entitlement: system load minus resource commitment.	Sum of Hourly Entitlements	Sum of hourly takes in excess of hourly entitlement.
Block Flat	Hourly Entitlement: contract aMW quantity.	Same as Entitlement	Sum of hourly takes in excess of hourly entitlement.
Block w/ Capacity equal daily amounts, shaped within day up to capacity limit	Hourly Entitlement: any amount up to the demand entitlement. Daily Entitlement: contract aMW quantity times # of HLH hours in the day.	Contract aMW quantity times the number of HLH hours in the month	The sum of the daily excesses. The daily excess is the greater of the sum of the hourly takes in excess of the demand entitlement OR the take in excess of the Daily Entitlement
Block w/ factoring equal daily amounts, shaped within day up to capacity and factoring limits.	Hourly Entitlement, any amount up to the demand entitlement. Daily Entitlement: contract aMW quantity times # of HLH hours in the day.	Contract aMW quantity times the number of HLH in the month.	The sum of the daily excesses. The daily excess is the greater of the sum of the hourly takes in excess of the demand entitlement OR the take in excess of the Daily Entitlement

LLH Energy	LLH Entitlement	LLH Billing Factor	LLH UAI
Full Service	System load in LLH minus allowable reductions	Energy Entitlement in LLH	The sum of the hourly takes in excess of the hourly entitlement in LLH
Partial Service dispatchable resource	Hourly Entitlement: any amount up to hourly system load. Monthly Entitlement: LLH system load minus LLH resource commitment	LLH system load minus LLH resource commitment	The greater of: The sum of the hourly takes in excess of the Hourly Entitlement OR the LLH take in excess of the LLH Billing Factor
Partial Service fixed resource	Hourly Entitlement: system load minus resource commitment.	Sum of Hourly Entitlements	Sum of hourly takes in excess of hourly entitlement.
Block Flat	Hourly Entitlement: contract aMW quantity.	Same as Entitlement	Sum of hourly takes in excess of hourly entitlement.
Block w/ Capacity equal daily amounts, shaped within day up to capacity limit	Hourly Entitlement: any amount up to the demand entitlement. Daily Entitlement: contract aMW quantity times # of LLH hours in the day.	Contract aMW quantity times the number of LLH hours in the month	The sum of the daily excesses. The daily excess is the greater of the sum of the hourly takes in excess of the demand entitlement OR the take in excess of the Daily Entitlement
Block w/ factoring equal daily amounts, shaped within day up to capacity and factoring limits.	Hourly Entitlement: any amount less than demand entitlement. Daily Entitlement: contract aMW quantity times # of LLH hours in the day.	Contract aMW quantity times the number of LLH in the month.	The sum of the daily excesses. The daily excess is the greater of the sum of the hourly takes in excess of the demand entitlement OR the take in excess of the Daily Entitlement

Within Day Factoring (HLH & LLH)	Allowable Factoring	Excess Factoring
Full Service	N/A	(see #1 below)
Partial Service dispatchable resource	Limited by TRL within day shape	The sum of the daily amounts by which within day factoring of the BPA take exceeds the limit.
Partial Service fixed resource	N/A	(see #2 below)
Block Flat	N/A	(see #2 below)
Block w/ Capacity	N/A	(see #2 below)
Block w/ factoring	Limited by TRL within day shape	The sum of the daily amounts by which within day factoring of the BPA take exceeds the limit.

TRL - Total Retail Load

#1 By definition/design, a Full Service customer is not subject to the factoring test.

If we applied the within day factoring test to the load net of retail suppliers deliveries, it could help us identify a utility whose energy suppliers may not be following their retail load.

#2 These products are not subject to the factoring test. Failure to take the correct hourly energy amount is reflected in the energy and demand UI charges.

Within Month Factoring (HLH & LLH)	Allowable Factoring	Excess Factoring
Full Service	N/A	(see #1 below)
Partial Service dispatchable resource	Any daily diurnal amount within boundaries which are between flat and following the diurnal load shape.	The greater of 1. the sum of excesses above the upper boundary or 2. the sum of the excesses below the lower boundary.
Partial Service fixed resource	N/A	(see #2 below)
Block Flat	N/A	(see #2 below)
Block w/ Capacity	N/A	(see #2 below)
Block w/ factoring	N/A	(see #2 below)

#1 By definition/design, a Full Service customer is not subject to the factoring test.

If we applied the within month factoring test to the load net of retail suppliers deliveries, it could help us identify a utility whose energy suppliers may not be following their retail load.

#2 These products are not subject to the within month factoring test. Failure to take the correct energy amounts is reflected in the energy and demand UI charges.

Interactions:

Unauthorized Increase Demand and Unauthorized Increase Energy work independantly. It is possible to incur both charges on the same hour.

HLH excess within day factoring amounts in a day will be reduced by any Unauthorized Increase energy caused by exceeding the demand entitlement in the HLH of the same day.

Separately for HLH and LLH:

Excess within month factoring amounts for the month will be reduced by any Unauthorized Increase energy charged for the month.