Summary of BPA's Use of the Regional Economic Study
to Contemplate the Proposed Framework

This document summarizes BPA's use of the 2006 *Regional Employment and Economic Study* to contemplate a framework for possible long-term power sale contracts and why we believe that it remains an indicator that the proposed framework should yield a small, but positive, economic benefit to the region.

The study evaluated four alternatives representing different delivery mechanisms and levels of benefits for the two aluminum smelters:

> Alternative 1 – No benefits; meaning that BPA would not offer power sales to the DSIs
>
> Alternative 2 – Financial benefits based on up to 560 average megawatts (aMW) capped at $59 million of net annual benefits.
>
> Alternative 3b – Up to 560 aMW at BPA's industrial preference (IP) rate
>
> Alternative 4 – Up to 560 aMW at BPA's priority firm (PF) rate.

Alternative 1 has no adverse impact on BPA's other customers. Alternative 2 capped the rate impact on BPA's other customers at $59 million – the equivalent of a $1.00 per MWh change in the PF power rate. Under this alternative, the regional economic study indicated a long-term net gain in employment between 95 and 1,232 jobs, considering a loss of up to 1,110 jobs in non-DSI related sectors, and a gain of up to 2,342 jobs at the smelters and in related sectors.[1] Alternatives 3b and 4 were both evaluated using a BPA power rate of $31.50 per MWh.[2] Both of these alternatives represented power sales of up to 560 aMW. As illustrated in Table 18-A attached here for reference, a range of uncapped, market-priced purchases to support these power sales was then used to calculate BPA's cost for providing this power to the DSIs:[3]

TABLE 18-A - Market Prices and BPA Exposure

Market Price ($ / MWh)	40	45	50	55	60	70
BPA Exposure ($ millions)	40	64	88	111	135	182

The study then concluded that the short-term "positive economic impact of DSI service is significantly reduced as market prices go up" for Alternatives 3b and 4, and illustrated

[1] Regional Employment and Economic Study, William B. Beyers, Lloyd O'Carroll, Paul Sorensen, August 14, 2006, page 2.
[2] Regional Employment and Economic Study, William B. Beyers, Lloyd O'Carroll, Paul Sorensen, August 14, 2006, page 20.
[3] Regional Employment and Economic Study, William B. Beyers, Lloyd O'Carroll, Paul Sorensen, August 14, 2006, page 20. While the study indicated "not all of the 560 MW would be used", the BPA Exposure in Table 18-A is substantially equal to the difference of the Market Price less $31.50 per MWh, multiplied by 560 MW times 8,760 hours in a year (ie. $41.7 million = (40-31.5) * 560 * 8760).

how this exposure adversely affected non-DSI employment in Table 19.[4] Importantly, the authors then contemplated the long-term employment impact of Alternative 2 in Table 21. The indirect non-DSI employment impacts were constant as the price of electricity changed because of the capped nature of the exposure from DSI benefits under Alternative 2 on BPA's other customers.

It's important to understand that the value of the study to BPA was, and is, as an estimate of the potential regional employment impact if it were to offer new contracts to the DSIs. The economic assumptions were not intended to be absolutely predictive. However, the estimates continue to be instructive and will help BPA make the decision to proceed or not proceed with a contract offer to the DSIs.

Specifically, we determined that we should consider contracts that limit the net costs to BPA's ratepayers. The proposed framework does that by establishing price caps for its purchase of power to supply the DSIs. The proposed framework also limits the amount of power BPA will supply to the DSIs and requires the DSIs to pay liquidated damages based on the difference between the market purchase price and current market prices. The DSIs would also take on supplier credit risk so that if the supplier that BPA buys the power from defaults, BPA is relieved of its obligation to serve the DSI or the DSI pays for replacement power costs in excess of the original purchase price.

These mechanisms – taken together – limit the exposure of BPA' s other customers (in real terms) to no more than $100 million per year in the first 5 years, no more than $120 million per year in the second 5 years, with an adjustment mechanism that limits the average cost to $90 million per year over the life of the contract.

These limits on the exposure of BPA's other customers are in contrast to the $182 million exposure of Alternatives 3b and 4 at a $70 per MWh market price described in Table 18-A included above, and are more comparable to the capped nature of Alternative 2. To further consider the potential regional economic impacts of such limits in a possible contract offer, BPA revised Table 21 by updating four inputs to be consistent with the proposed framework and reflect more contemporary economic analysis. First, the indirect non-DSI job loss was increased from 1,110 to 1,749 – proportional to the increase from the $59 million capped cost in Alternative 2 to the $93 million average cost limit in the proposed framework.[5] Second, the effective power rate in the proposed framework is the IP rate which is forecast to be $38 per MWh in 2012 escalating at 2.5% each year, as opposed to the market price of power purchases minus the $12 per MWh financial benefit contemplated in Alternative 2.[6] Third, direct smelter employment was reduced to 690 jobs to reflect minimum employment commitments contemplated in the

[4] Regional Employment and Economic Study, William B. Beyers, Lloyd O'Carroll, Paul Sorensen, August 14, 2006, page 21.
[5] Regional Employment and Economic Study, William B. Beyers, Lloyd O'Carroll, Paul Sorensen, August 14, 2006, page 2; and DSI Workshop presentation, Bonneville Power Administration, October 20, 2008, page 3.
[6] "Exhibit A, Framework for Negotiation", Memorandum of understanding between Bonneville Power Administration and Alcoa, Bonneville Power Administration, page 1; and Regional Employment and Economic Study, William B. Beyers, Lloyd O'Carroll, Paul Sorensen, August 14, 2006, page 2.

proposed framework, as envisioned for both smelters.[7] Lastly, BPA employed the Primary Metals multiplier of 2.782 released by the State of Washington in May 2008 which is lower than 3.2 – the simple average of the high and low indirect employment multipliers (3.9 and 2.5, respectively) utilized in the regional economic study.[8] The combined effect of updating these assumptions to be consistent with the proposed framework is illustrated by this revised Table 21:

TABLE 21 - Long Term Employment and Income Impact Alternative 2 [REVISED]

Price of Electricity $/MWh (IP rate)	40	45	50	55	60	70
Employment						
Direct DSI	690	690	480			
Alcoa	480	480	480			
CFAC	210	210	-			
Indirect DSI	1,919	1,919	1,335			
Indirect non-DSI	(1,749)	(1,749)	(1,263)			
Total	170	170	72			

As this revised Table 21 indicates, BPA believes there is a small, genuine economic benefit to our region in the form of a net employment gain of up to 170 jobs as a result of the proposed framework. There is also potential for the net gain in regional employment to exceed 1,300 jobs if Alcoa maintains its current employment level of 660 employees at Intalco and BPA is able to purchase power at today's forward price, which is $10 per MWh below the market price caps in the proposed framework, thereby reducing the costs borne by its other customers by $30 million and mitigating the Indirect non-DSI employment impact.

[7] "Exhibit A, Framework for Negotiation", Memorandum of understanding between Bonneville Power Administration and Alcoa, Bonneville Power Administration, page 10. Table 2 in the proposed framework contemplates $48 million Annual Employment Expenditures (in 2012$) for a 1.5 potline operation at Alcoa's Intalco plant which covers "…about 480 of the plant's current 660 workers, but Rousseau [the Intalco plant manager] said the company could supplement the BPA power supply with electricity from other sources to maintain higher production and payroll if market conditions warrant" as reported in the *Bellingham Herald*, October 10, 2008. The proposed framework also envisions a similar level of value for CFAC, for a combined Annual Employment Expenditure (2012$) of $690 million, or 690 jobs.

[8] "2002 Washington State Input-Output (I-O) Study", State of Washington, Office of Financial Management, May 2008, page 15; and Regional Employment and Economic Study, William B. Beyers, Lloyd O'Carroll, Paul Sorensen, August 14, 2006, page 13.