

## **Summary of BPA's Analysis of the Block Contract for CFAC**

This document summarizes the Bonneville Power Administration's (BPA) analysis of the proposed Block Power Sales Agreement (Block Contract) to Columbia Falls Aluminum Company (CFAC), an aluminum smelter in Columbia Falls, Montana, at the Industrial Power (IP) rate and how it comports with the opinion of the Ninth Circuit issued in *Pacific Northwest Generating Cooperative v. BPA*, Slip Op. 09-70228 (August 28, 2009) ("PNGC II"). BPA believes that with modifications to the draft contract proposed September 3, 2009, service to CFAC is consistent with sound business principles, as described in PNGC II, since the forecasted market value of the energy is below the value of an IP sale.

As indicated in our concurrent letter to the region, the modifications that BPA is proposing for CFAC reduce the committed term of the Block Contract from 2-years to 19-months (December 1, 2009 through June 30, 2011). This analysis demonstrates how the projected revenues BPA recovers from the 19-month IP sale to CFAC exceed the forecasted revenues that BPA would otherwise obtain from the market.

This analysis assumes that CFAC operates. BPA believes its decision to operate will be made based primarily on the prices for its output which are independent of power prices. Therefore, curtailments allowed under the Block Contract are not forecast to have an advantageous or disadvantageous effect on this analysis.

### **BPA's Projected Revenues**

In the Block Contract, BPA sells 70 aMW of firm power every hour to CFAC under the IP-10 rate schedule. As a result, BPA's projected monthly revenues are determined by multiplying the heavy load hour (HLH) and light load hour (LLH) energy entitlements and demand entitlement by their respective IP rates for each month. The energy entitlements are the projected amounts of megawatt-hours to be sold by diurnal period each month. The demand entitlement is the megawatt amount consumed during the hour of BPA's system peak. Since the Block Contract sells 70 megawatts in every hour, the demand entitlement is 70 megawatts. BPA's projected monthly revenues are then accumulated and the result is illustrated in Tables 1 and 2:

**TABLE 1 - Usage and Rates**

Month	CFAC Usage			IP-10 Rates		
	Demand (kW)	HLH (MWh)	LLH (MWh)	Demand (\$ / kW)	HLH (\$ / MWh)	LLH (\$ / MWh)
<b>Nov-09</b>	-	-	-	\$2.19	\$33.33	\$29.58
<b>Dec-09</b>	70,000	29,120	22,960	\$2.30	\$35.24	\$31.13
<b>Jan-10</b>	70,000	28,000	24,080	\$1.96	\$38.46	\$32.24
<b>Feb-10</b>	70,000	26,880	20,160	\$1.99	\$37.72	\$31.73
<b>Mar-10</b>	70,000	30,240	21,770	\$1.85	\$35.94	\$30.08
<b>Apr-10</b>	70,000	29,120	21,280	\$1.74	\$32.23	\$26.95
<b>May-10</b>	70,000	28,000	24,080	\$1.44	\$31.69	\$22.29
<b>Jun-10</b>	70,000	29,120	21,280	\$1.32	\$31.18	\$23.29
<b>Jul-10</b>	70,000	29,120	22,960	\$1.61	\$33.33	\$28.66
<b>Aug-10</b>	70,000	29,120	22,960	\$1.89	\$37.31	\$31.40
<b>Sep-10</b>	70,000	28,000	22,400	\$1.96	\$36.49	\$32.26
<b>Oct-10</b>	70,000	29,120	22,960	\$2.05	\$31.92	\$27.01
<b>Nov-10</b>	70,000	28,000	22,470	\$2.19	\$33.33	\$29.58
<b>Dec-10</b>	70,000	29,120	22,960	\$2.30	\$35.24	\$31.13
<b>Jan-11</b>	70,000	28,000	24,080	\$1.96	\$38.46	\$32.24
<b>Feb-11</b>	70,000	26,880	20,160	\$1.99	\$37.72	\$31.73
<b>Mar-11</b>	70,000	30,240	21,770	\$1.85	\$35.94	\$30.08
<b>Apr-11</b>	70,000	29,120	21,280	\$1.74	\$32.23	\$26.95
<b>May-11</b>	70,000	28,000	24,080	\$1.44	\$31.69	\$22.29
<b>Jun-11</b>	70,000	29,120	21,280	\$1.32	\$31.18	\$23.29
<b>Jul-11</b>	70,000	28,000	24,080	\$1.61	\$33.33	\$28.66

**TABLE 2 - BPA's Projected Revenue**

Month	Revenues by Rate Determinant			Projected IP Revenue	
	Demand (\$)	HLH (\$)	LLH (\$)	Month (\$)	Cumulative (\$)
<b>Nov-09</b>	\$0	\$0	\$0	\$0	\$0
<b>Dec-09</b>	\$161,000	\$1,026,189	\$714,745	\$1,901,934	\$1,901,934
<b>Jan-10</b>	\$137,200	\$1,076,880	\$776,339	\$1,990,419	\$3,892,353
<b>Feb-10</b>	\$139,300	\$1,013,914	\$639,677	\$1,792,890	\$5,685,243
<b>Mar-10</b>	\$129,500	\$1,086,826	\$654,842	\$1,871,167	\$7,556,410
<b>Apr-10</b>	\$121,800	\$938,538	\$573,496	\$1,633,834	\$9,190,244
<b>May-10</b>	\$100,800	\$887,320	\$536,743	\$1,524,863	\$10,715,107
<b>Jun-10</b>	\$92,400	\$907,962	\$495,611	\$1,495,973	\$12,211,080
<b>Jul-10</b>	\$112,700	\$970,570	\$658,034	\$1,741,303	\$13,952,383
<b>Aug-10</b>	\$132,300	\$1,086,467	\$720,944	\$1,939,711	\$15,892,094
<b>Sep-10</b>	\$137,200	\$1,021,720	\$722,624	\$1,881,544	\$17,773,638
<b>Oct-10</b>	\$143,500	\$929,510	\$620,150	\$1,693,160	\$19,466,798
<b>Nov-10</b>	\$153,300	\$933,240	\$664,663	\$1,751,203	\$21,218,001
<b>Dec-10</b>	\$161,000	\$1,026,189	\$714,745	\$1,901,934	\$23,119,935
<b>Jan-11</b>	\$137,200	\$1,076,880	\$776,339	\$1,990,419	\$25,110,354
<b>Feb-11</b>	\$139,300	\$1,013,914	\$639,677	\$1,792,890	\$26,903,244
<b>Mar-11</b>	\$129,500	\$1,086,826	\$654,842	\$1,871,167	\$28,774,411
<b>Apr-11</b>	\$121,800	\$938,538	\$573,496	\$1,633,834	\$30,408,245
<b>May-11</b>	\$100,800	\$887,320	\$536,743	\$1,524,863	\$31,933,108
<b>Jun-11</b>	\$92,400	\$907,962	\$495,611	\$1,495,973	\$33,429,081
<b>Jul-11</b>	\$112,700	\$933,240	\$690,133	\$1,736,073	\$35,165,154

**Forecasted Revenues Obtained from the Market**

BPA routinely shapes its inventory to meet the needs of its portfolio of contracts and manages its surplus inventory by purchasing and selling in the Pacific Northwest power market as described in BPA's WP-10 rate proceeding.<sup>1</sup> BPA established its forecast of Mid-C electricity prices in the WP-10 rate proceeding to value these purchases and sales.<sup>2</sup> For the period covered by the Block Contract BPA has updated its natural gas price forecast from that used in BPA's WP-10 rate proceeding to forecast electricity prices to reflect a more contemporary understanding of natural gas fundamentals and to be consistent with the natural gas price forecast used in *Summary of BPA's Analysis of the Block Contract for Port Townsend* and BPA's draft Resource Program released September 30<sup>th</sup>.<sup>3</sup>

<sup>1</sup> Refer to section 2.4 of the *Risk Analysis and Mitigation Study* in the WP-10 rate proceeding for a more complete description of the operating risk factors BPA faces in the course of doing business – in particular “the variation in hydro generation due to the variation in the volume of water supply from one year to the next...” which significantly impacts market prices, our need for shaping purchases and our ability to make surplus sales. (see WP-10-FS-BPA-04 beginning on page 21)

<sup>2</sup> BPA employs its electricity price forecast for multiple purposes in the WP-10 rate proceeding as outlined in the *Market Price Forecast Study*. The study also details how BPA established its forecast of Mid-C electricity prices in the WP-10 rate proceeding. (See WP-10-FS-BPA-03, beginning on page 1.)

<sup>3</sup> BPA's natural gas forecast used in the WP-10 rate proceeding is outlined in section 3.3 of the *Market Price Forecast Study*. (See WP-10-FS-BPA-03, beginning on page 11.) BPA's more contemporary understanding of natural gas market fundamentals caused a lowering of our natural gas price forecast in 2010 and an increase in 2011. The primary reasons for our recent reductions became apparent in the

In the absence of the Block Contract selling 70 aMW of firm power to CFAC every hour, BPA would have one less requirement sale in our aggregated portfolio load shape to purchase for and expects to have 70 aMW more surplus energy to sell in the market. As illustrated in Table 3, BPA has forecasted the revenues it would otherwise obtain from the market using the same forecasting methodology applied in the WP-10 rate proceeding to incorporate our updated forecast of natural gas prices in the development of our electricity price forecast used in this analysis of the Block Contract for CFAC.<sup>4</sup>

**TABLE 3 - BPA's Forecasted Revenues Obtained from the Market**

Month	Forecasted Market		Forecasted Revenues Obtained from the Market			
	HLH Price (\$ / MWh)	LLH Price (\$ / MWh)	HLH (\$)	LLH (\$)	Month (\$) (HLH + LLH)	Cumulative (\$)
<b>Nov-09</b>	\$28.75	\$26.38	\$0	\$0	\$0	\$0
<b>Dec-09</b>	\$30.61	\$27.41	\$891,401	\$629,391	\$1,520,792	\$1,520,792
<b>Jan-10</b>	\$34.13	\$29.51	\$955,613	\$710,565	\$1,666,178	\$3,186,969
<b>Feb-10</b>	\$34.46	\$29.77	\$926,291	\$600,155	\$1,526,446	\$4,713,415
<b>Mar-10</b>	\$33.92	\$29.16	\$1,025,867	\$634,806	\$1,660,673	\$6,374,089
<b>Apr-10</b>	\$32.95	\$28.05	\$959,488	\$596,971	\$1,556,459	\$7,930,547
<b>May-10</b>	\$33.93	\$24.45	\$950,094	\$588,770	\$1,538,864	\$9,469,411
<b>Jun-10</b>	\$34.33	\$26.33	\$999,667	\$560,297	\$1,559,964	\$11,029,375
<b>Jul-10</b>	\$37.33	\$32.18	\$1,087,002	\$738,758	\$1,825,760	\$12,855,135
<b>Aug-10</b>	\$42.48	\$35.63	\$1,236,945	\$817,960	\$2,054,906	\$14,910,041
<b>Sep-10</b>	\$42.86	\$38.00	\$1,200,049	\$851,122	\$2,051,171	\$16,961,211
<b>Oct-10</b>	\$43.31	\$36.85	\$1,261,198	\$846,046	\$2,107,245	\$19,068,456
<b>Nov-10</b>	\$45.36	\$40.59	\$1,270,127	\$912,008	\$2,182,136	\$21,250,592
<b>Dec-10</b>	\$48.81	\$43.42	\$1,421,340	\$996,988	\$2,418,328	\$23,668,920
<b>Jan-11</b>	\$50.70	\$42.13	\$1,419,637	\$1,014,420	\$2,434,056	\$26,102,977
<b>Feb-11</b>	\$50.78	\$42.80	\$1,365,051	\$862,816	\$2,227,867	\$28,330,844
<b>Mar-11</b>	\$49.33	\$40.83	\$1,491,756	\$888,845	\$2,380,601	\$30,711,444
<b>Apr-11</b>	\$46.35	\$38.79	\$1,349,611	\$825,451	\$2,175,062	\$32,886,506
<b>May-11</b>	\$47.15	\$32.65	\$1,320,209	\$786,264	\$2,106,473	\$34,992,979
<b>Jun-11</b>	\$46.50	\$33.58	\$1,354,078	\$714,687	\$2,068,765	\$37,061,744
<b>Jul-11</b>	\$50.65	\$43.26	\$1,418,120	\$1,041,604	\$2,459,724	\$39,521,468

The following is a summary of the additional steps BPA employed to forecast the revenues we would otherwise obtain from the market:

- Net benefit is equal to the projected IP revenue minus the forecasted revenues obtained from the market;
- Adjust for the value of reserves;

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progression of time since the natural gas price forecast for the WP-10 rate proceeding was constructed; these are: a) continued strength of natural gas production despite steep reductions in rig counts, b) continued slow recovery of natural gas demand – particularly on the industrial side, c) record amount of natural gas in storage, d) reduced risk of hurricane impact on supply now that the 2009 hurricane season is nearly over. (See also Short-term Energy Outlooks from the EIA for September and October that have reduced their forecasted Henry Hub Spot Price average for 2010 to \$4.78 and \$5.02 per Mcf respectively [or \$4.64 and \$4.87 per MMBtu using EIA’s conversion of 1 Mcf = 1.031 MMBtu], *Short-term Energy Outlook*, DOE EIA, September 9, 2009, page 1; *Short-Term Energy and Winter Fuels Outlook*, DOE EIA, October 6, 2009, p. 3.)

<sup>4</sup> DSI load is assumed to be in the load used to forecast the revenues obtained from the market at this stage. Please refer to the section on Demand Shift for how a shift in demand can affect BPA’s surplus sales.

- Adjust for the avoided transmission and ancillary services expenses; and,
- Adjust for the shift in demand.

*Net Benefit (IP – Market)*

BPA determined its net benefit of serving CFAC at the IP rate for each month by subtracting the opportunity cost forecast to be obtained in the market detailed in Table 3 from the projected IP revenues described in Table 2. BPA’s net benefit before adjustments is illustrated in Table 4:

**TABLE 4 - BPA's Net Benefit before Adjustment**

Month	Net Revenue or (Cost)	
	Month (\$)	Cumulative (\$)
<b>Nov-09</b>	\$ 0	\$ 0
<b>Dec-09</b>	\$ 381,142	\$ 381,142
<b>Jan-10</b>	\$ 324,242	\$ 705,383
<b>Feb-10</b>	\$ 266,444	\$ 971,828
<b>Mar-10</b>	\$ 210,494	\$ 1,182,322
<b>Apr-10</b>	\$ 77,375	\$ 1,259,697
<b>May-10</b>	(\$ 14,001)	\$ 1,245,696
<b>Jun-10</b>	(\$ 63,991)	\$ 1,181,705
<b>Jul-10</b>	(\$ 84,457)	\$ 1,097,248
<b>Aug-10</b>	(\$ 115,194)	\$ 982,054
<b>Sep-10</b>	(\$ 169,627)	\$ 812,427
<b>Oct-10</b>	(\$ 414,085)	\$ 398,342
<b>Nov-10</b>	(\$ 430,933)	(\$ 32,591)
<b>Dec-10</b>	(\$ 516,395)	(\$ 548,986)
<b>Jan-11</b>	(\$ 443,637)	(\$ 992,623)
<b>Feb-11</b>	(\$ 434,977)	(\$ 1,427,600)
<b>Mar-11</b>	(\$ 509,433)	(\$ 1,937,033)
<b>Apr-11</b>	(\$ 541,228)	(\$ 2,478,261)
<b>May-11</b>	(\$ 581,610)	(\$ 3,059,871)
<b>Jun-11</b>	(\$ 572,792)	(\$ 3,632,663)
<b>Jul-11</b>	(\$ 723,651)	(\$ 4,356,314)

*Value of Reserves*

In addition, BPA takes into account the value to BPA of the reserves CFAC is required to make available to BPA under the Block Contract. Sales at the IP rate reflect the value of a right for BPA to obtain operating reserves. Specifically, the energy rate tables in the IP-10 rate schedule include an \$0.80 per MWh credit for the value of these reserves. Therefore, BPA’s net benefit above compares a firm surplus sale to a sale at the IP rate with reserves. We have adjusted for this by adding back a value of reserves that provides an equal and opposite offset to the \$0.80 per MWh credit for the value of reserves in the IP-10 rate schedule. As illustrated by Table 5a, this is done for every megawatt hour of the 70 aMW not sold to CFAC:

**TABLE 5a - BPA's Net Benefit Adjustments**  
**Value of Reserves**

Month	Month (\$)	Cumulative (\$)
<b>Nov-09</b>	\$0	\$0
<b>Dec-09</b>	\$41,664	\$41,664
<b>Jan-10</b>	\$41,664	\$83,328
<b>Feb-10</b>	\$37,632	\$120,960
<b>Mar-10</b>	\$41,608	\$162,568
<b>Apr-10</b>	\$40,320	\$202,888
<b>May-10</b>	\$41,664	\$244,552
<b>Jun-10</b>	\$40,320	\$284,872
<b>Jul-10</b>	\$41,664	\$326,536
<b>Aug-10</b>	\$41,664	\$368,200
<b>Sep-10</b>	\$40,320	\$408,520
<b>Oct-10</b>	\$41,664	\$450,184
<b>Nov-10</b>	\$40,376	\$490,560
<b>Dec-10</b>	\$41,664	\$532,224
<b>Jan-11</b>	\$41,664	\$573,888
<b>Feb-11</b>	\$37,632	\$611,520
<b>Mar-11</b>	\$41,608	\$653,128
<b>Apr-11</b>	\$40,320	\$693,448
<b>May-11</b>	\$41,664	\$735,112
<b>Jun-11</b>	\$40,320	\$775,432
<b>Jul-11</b>	\$41,664	\$817,096

*Avoided Transmission and Ancillary Services Expenses*

When BPA makes a requirements sale, its customers – including CFAC – cover the cost of transmission and ancillary services through their own transmission contracts. Market prices assume power is delivered by the seller to Mid-C. Power Services (PS) is the organization within BPA that is responsible for the management and sale of Federal power. PS must pay the transmission and ancillary services costs to move the power to the Mid-C delivery point in order to realize the full market value for its surplus sales. PS maintains an inventory of transmission products and services to deliver the surplus power it intends to sell. However, this inventory is not sufficient to deliver all of the surplus power PS would sell under all load and resource conditions, especially under high streamflows. As a result, there is a subset of load and resource conditions under which PS would incur incremental costs for transmission and ancillary services to deliver incremental surplus energy sales, if PS did not sign contracts to serve the DSI loads - including the Block Contract with CFAC. The planned transmission and ancillary services expenses to address both the expected expenses and their uncertainty were addressed in the WP-10 rate proceeding.<sup>5</sup> Since PS overall marketing strategy is to serve all its loads out of inventory and meet any power deficits with short-term purchases, the

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<sup>5</sup> Refer to section 4 of the *Revenue Requirement Study*, WP-10-FS-BPA-02 and section 2.4 of the *Risk Analysis and Mitigation Study* in the WP-10 rate proceeding.

incremental transmission and ancillary services costs are avoided when BPA makes IP sales to the DSIs.

PS valued these avoided transmission and ancillary services costs using the same methodology used in the WP-10 rate proceeding to establish the total costs and risks associated with PS' inventory of transmission products and services. In these computations, both fixed, take-or-pay costs and variable incremental transmission and ancillary service costs were computed under 3,500 load and resource conditions for each month. Incremental transmission and ancillary services costs were computed by comparing the amount of surplus energy available to the monthly excess amount of firm transmission products in the PS inventory. Tariff costs established by BPA's Transmission Services organization were applied to all the amount of surplus energy in excess of the PS transmission products inventory. Total monthly transmission and ancillary services costs were computed assuming no service to the DSI and DSI service of 372 aMW. The average total monthly expense values of the 3,500 games were computed for with and without service to the DSI and the differences were computed to determine the avoided PS transmission and ancillary services costs when PS makes an IP sale(s) to the DSIs – including the Block Contract with CFAC. For the purposes of this analysis, CFAC has been allotted 18.8% of this PS benefit in each month as illustrated in Table 5b below. This percent allotment is the result of the proportion of the 70 aMW in the Block Contract as compared to the 372 aMW forecasted for all DSI customers.

**TABLE 5b - BPA's Net Benefit Adjustments**  
**Avoided Tx and Ancillary Service Costs**

Month	Month	Proportional Month	Cumulative
	Month	Month	Month
	(\$)	(\$)	(\$)
<b>Nov-09</b>	\$0	\$0	\$0
<b>Dec-09</b>	\$156,071	\$29,368	\$29,368
<b>Jan-10</b>	\$433,019	\$81,482	\$110,850
<b>Feb-10</b>	\$337,948	\$63,592	\$174,443
<b>Mar-10</b>	\$445,677	\$83,864	\$258,307
<b>Apr-10</b>	\$575,724	\$108,335	\$366,642
<b>May-10</b>	\$834,511	\$157,032	\$523,673
<b>Jun-10</b>	\$740,250	\$139,294	\$662,968
<b>Jul-10</b>	\$595,655	\$112,086	\$775,053
<b>Aug-10</b>	\$130,714	\$24,597	\$799,650
<b>Sep-10</b>	\$44,104	\$8,299	\$807,949
<b>Oct-10</b>	\$41,468	\$7,803	\$815,752
<b>Nov-10</b>	\$71,647	\$13,482	\$829,234
<b>Dec-10</b>	\$155,421	\$29,246	\$858,480
<b>Jan-11</b>	\$432,717	\$81,425	\$939,905
<b>Feb-11</b>	\$331,754	\$62,427	\$1,002,332
<b>Mar-11</b>	\$427,269	\$80,400	\$1,082,732
<b>Apr-11</b>	\$506,502	\$95,309	\$1,178,042
<b>May-11</b>	\$790,853	\$148,816	\$1,326,858
<b>Jun-11</b>	\$692,557	\$130,320	\$1,457,178
<b>Jul-11</b>	\$589,718	\$110,968	\$1,568,146

*Demand Shift*

When BPA serves the DSI loads – including CFAC – and they operate – as opposed to not operating if BPA does not sell to them – all of BPA’s surplus sales realize increased revenues because the mean value of prices for electricity in Western power markets are higher than they would otherwise be had the DSI loads not consumed electricity from Western power markets. BPA has forecasted these increased revenues by reducing loads in the PNW by 372 aMW in each month for each of the 3,500 games AURORA<sup>xmp®</sup> simulated for the forecast used in Table 3 above. This lowered the mean price forecast by a 12-month average of \$0.29 per MWh and by \$0.41 per MWh for fiscal years 2010 and 2011 respectively. The monthly difference resulting from this lower mean price forecast was then multiplied by BPA’s monthly surplus energy from the WP-10 rate proceeding to determine the increased revenues available to BPA’s surplus sales when BPA makes an IP sale(s) to the DSIs – including the Block Contract with CFAC. For the purposes of this analysis, CFAC has been allotted 18.8% of this benefit to BPA in each month as illustrated in Table 5c below. This percent allotment is the result of the proportion of the 70 aMW in the Block Contract as compared to the 372 aMW forecasted for all DSI customers.

**TABLE 5c - BPA's Net Benefit Adjustments**  
**Demand Shift**

Month	Proportional		Cumulative
	Month	Month	
	(\$)	(\$)	(\$)
<b>Nov-09</b>	\$0	\$0	\$0
<b>Dec-09</b>	\$33,739	\$6,349	\$6,349
<b>Jan-10</b>	\$165,427	\$31,129	\$37,478
<b>Feb-10</b>	\$163,910	\$30,843	\$68,321
<b>Mar-10</b>	\$270,282	\$50,859	\$119,180
<b>Apr-10</b>	\$414,989	\$78,089	\$197,270
<b>May-10</b>	\$1,207,218	\$227,165	\$424,434
<b>Jun-10</b>	\$824,433	\$155,135	\$579,569
<b>Jul-10</b>	\$476,666	\$89,695	\$669,265
<b>Aug-10</b>	\$31,807	\$5,985	\$675,250
<b>Sep-10</b>	(\$27,510)	(\$5,177)	\$670,073
<b>Oct-10</b>	\$16,584	\$3,121	\$673,194
<b>Nov-10</b>	\$1,716	\$323	\$673,517
<b>Dec-10</b>	\$45,369	\$8,537	\$682,054
<b>Jan-11</b>	\$326,923	\$61,518	\$743,572
<b>Feb-11</b>	\$226,555	\$42,631	\$786,203
<b>Mar-11</b>	\$464,072	\$87,325	\$873,528
<b>Apr-11</b>	\$493,954	\$92,948	\$966,477
<b>May-11</b>	\$1,351,845	\$254,379	\$1,220,856
<b>Jun-11</b>	\$1,046,624	\$196,945	\$1,417,801
<b>Jul-11</b>	\$669,330	\$125,949	\$1,543,751

**TABLE 6 - BPA's Net Benefit after Adjustments**

Month	BPA's Adjusted Net Revenue or (Cost)					
	Net Revenue or (Cost) (A) Month (\$)	Value of Reserves (B) Month (\$)	Avoided Tx Costs (C) Month (\$)	Demand Shift (D) Month (\$)	A + B + C + D Month (\$)	Cumulative (\$)
Nov-09	\$0	\$0	\$0	\$0	\$0	\$0
Dec-09	\$381,142	\$41,664	\$29,368	\$6,349	\$458,523	\$458,523
Jan-10	\$324,242	\$41,664	\$81,482	\$31,129	\$478,517	\$937,039
Feb-10	\$266,444	\$37,632	\$63,592	\$30,843	\$398,512	\$1,335,551
Mar-10	\$210,494	\$41,608	\$83,864	\$50,859	\$386,825	\$1,722,376
Apr-10	\$77,375	\$40,320	\$108,335	\$78,089	\$304,120	\$2,026,496
May-10	(\$14,001)	\$41,664	\$157,032	\$227,165	\$411,859	\$2,438,355
Jun-10	(\$63,991)	\$40,320	\$139,294	\$155,135	\$270,758	\$2,709,114
Jul-10	(\$84,457)	\$41,664	\$112,086	\$89,695	\$158,988	\$2,868,102
Aug-10	(\$115,194)	\$41,664	\$24,597	\$5,985	(\$42,948)	\$2,825,153
Sep-10	(\$169,627)	\$40,320	\$8,299	(\$5,177)	(\$126,184)	\$2,698,969
Oct-10	(\$414,085)	\$41,664	\$7,803	\$3,121	(\$361,497)	\$2,337,472
Nov-10	(\$430,933)	\$40,376	\$13,482	\$323	(\$376,753)	\$1,960,720
Dec-10	(\$516,395)	\$41,664	\$29,246	\$8,537	(\$436,948)	\$1,523,772
Jan-11	(\$443,637)	\$41,664	\$81,425	\$61,518	(\$259,030)	\$1,264,742
Feb-11	(\$434,977)	\$37,632	\$62,427	\$42,631	(\$292,287)	\$972,456
Mar-11	(\$509,433)	\$41,608	\$80,400	\$87,325	(\$300,100)	\$672,356
Apr-11	(\$541,228)	\$40,320	\$95,309	\$92,948	(\$312,650)	\$359,705
May-11	(\$581,610)	\$41,664	\$148,816	\$254,379	(\$136,750)	\$222,955
Jun-11	(\$572,792)	\$40,320	\$130,320	\$196,945	(\$205,207)	\$17,748
Jul-11	(\$723,651)	\$41,664	\$110,968	\$125,949	(\$445,070)	(\$427,321)

As a result, this analysis demonstrates how the projected revenues BPA recovers from the 19-month IP sale to CFAC (from December 1, 2009 through June 30, 2010) exceed by \$17,748 the forecasted revenues that BPA would otherwise obtain from the market.

There are other benefits to BPA and its operations that may contribute to other similar demonstrations in the future, examples of which may include: a) CFAC's waiver of any claim to money or any other remedy with respect to its Subscription Agreement with BPA<sup>6</sup>; b) CFAC's agreements not to challenge the validity of the Draft Contract and not to request surplus firm power from BPA or challenge BPA's sales of surplus firm power to other customers<sup>7</sup>; c) potential for BPA's sales to the DSIs at the IP rate to mitigate the risk that BPA's surplus sales may be impacted by periods of negative pricing (ie. suppliers would be paying counterparties to take their power) that are the result of rationale economic behavior by suppliers of generation but not sufficiently addressed by models currently available to forecast prices of electric power<sup>8</sup>; and d) CFAC's provision of additional reserve products or restriction rights to BPA<sup>9</sup>. However, adjustments for these benefits to BPA are not included here because they are more qualitative than quantitative at this time and therefore do not presently affect the outcome for this 19-

<sup>6</sup> Draft Power Sales Agreement with CFAC, Bonneville Power Administration, October 30, 2009, section 22.2 Waiver of Claims Under Prior Agreement, page 25.

<sup>7</sup> Draft Power Sales Agreement with CFAC, Bonneville Power Administration, October 30, 2009, section 24 CFAC Covenants, page 26.

<sup>8</sup> *Frequent negative power prices in the West region of ERCOT result from wasteful renewable power subsidies*, Knowledge Problem, November 20, 2008, [http://knowledgeproblem.com/2008/11/20/frequent\\_negati/](http://knowledgeproblem.com/2008/11/20/frequent_negati/)

<sup>9</sup> Draft Power Sales Agreement with CFAC, Bonneville Power Administration, October 30, 2009, section 9.7 Additional or Alternative Arrangements for Power Reserves, page 11.

month sale of 70 aMW. Adjustments for these or other benefits may affect the tenor and/or megawatt amount of future sales.