

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

This document summarizes the Bonneville Power Administration's (BPA) analysis of the proposed Block Power Sales Agreement (Block Contract) to Port Townsend Paper Company 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 for Port Townsend proposed June 22, 2009, service to Port Townsend 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 its October 8<sup>th</sup> letter to the region, the modifications that BPA and Port Townsend have negotiated reduce the term of the Block Contract from 2-years to 14-months (November 1, 2009 through December 31, 2010). This analysis demonstrates how the projected revenues BPA recovers from the 14-month IP sale to Port Townsend exceed the forecasted revenues that BPA would otherwise obtain from the market.

This analysis assumes that Port Townsend operates. BPA believes their decision to operate will be made based primarily on the prices for their 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 20 aMW of firm power every hour to Port Townsend 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 20 megawatts in every hour, the demand entitlement is 20 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	Port Townsend Usage			IP-10 Rates		
	Demand (kW)	HLH (MWh)	LLH (MWh)	Demand (\$ / kW)	HLH (\$ / MWh)	LLH (\$ / MWh)
<b>Nov-09</b>	20,000	7,680	6,740	\$2.19	\$33.33	\$29.58
<b>Dec-09</b>	20,000	8,320	6,560	\$2.30	\$35.24	\$31.13
<b>Jan-10</b>	20,000	8,000	6,880	\$1.96	\$38.46	\$32.24
<b>Feb-10</b>	20,000	7,680	5,760	\$1.99	\$37.72	\$31.73
<b>Mar-10</b>	20,000	8,640	6,220	\$1.85	\$35.94	\$30.08
<b>Apr-10</b>	20,000	8,320	6,080	\$1.74	\$32.23	\$26.95
<b>May-10</b>	20,000	8,000	6,880	\$1.44	\$31.69	\$22.29
<b>Jun-10</b>	20,000	8,320	6,080	\$1.32	\$31.18	\$23.29
<b>Jul-10</b>	20,000	8,320	6,560	\$1.61	\$33.33	\$28.66
<b>Aug-10</b>	20,000	8,320	6,560	\$1.89	\$37.31	\$31.40
<b>Sep-10</b>	20,000	8,000	6,400	\$1.96	\$36.49	\$32.26
<b>Oct-10</b>	20,000	8,320	6,560	\$2.05	\$31.92	\$27.01
<b>Nov-10</b>	20,000	8,000	6,420	\$2.19	\$33.33	\$29.58
<b>Dec-10</b>	20,000	8,320	6,560	\$2.30	\$35.24	\$31.13
<b>Jan-11</b>	20,000	8,000	6,880	\$1.96	\$38.46	\$32.24

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

Month	Revenues by Rate Determinant			Projected IP Revenue	
	Demand (\$)	HLH (\$)	LLH (\$)	Month (\$)	Cumulative (\$)
<b>Nov-09</b>	\$43,800	\$255,974	\$199,369	\$499,144	\$499,144
<b>Dec-09</b>	\$46,000	\$293,197	\$204,213	\$543,410	\$1,042,553
<b>Jan-10</b>	\$39,200	\$307,680	\$221,811	\$568,691	\$1,611,244
<b>Feb-10</b>	\$39,800	\$289,690	\$182,765	\$512,254	\$2,123,499
<b>Mar-10</b>	\$37,000	\$310,522	\$187,098	\$534,619	\$2,658,118
<b>Apr-10</b>	\$34,800	\$268,154	\$163,856	\$466,810	\$3,124,928
<b>May-10</b>	\$28,800	\$253,520	\$153,355	\$435,675	\$3,560,603
<b>Jun-10</b>	\$26,400	\$259,418	\$141,603	\$427,421	\$3,988,024
<b>Jul-10</b>	\$32,200	\$277,306	\$188,010	\$497,515	\$4,485,539
<b>Aug-10</b>	\$37,800	\$310,419	\$205,984	\$554,203	\$5,039,742
<b>Sep-10</b>	\$39,200	\$291,920	\$206,464	\$537,584	\$5,577,326
<b>Oct-10</b>	\$41,000	\$265,574	\$177,186	\$483,760	\$6,061,086
<b>Nov-10</b>	\$43,800	\$266,640	\$189,904	\$500,344	\$6,561,430
<b>Dec-10</b>	\$46,000	\$293,197	\$204,213	\$543,410	\$7,104,839
<b>Jan-11</b>	\$39,200	\$307,680	\$221,811	\$568,691	\$7,673,530

**Forecasted Revenues Obtained from the Market**

BPA routinely shapes its inventory to meet the need of its portfolio of contracts and sells 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

<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)

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 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 forecast used in BPA's draft Resource Program released September 30<sup>th</sup>.<sup>3</sup>

In the absence of the Block Contract selling 20 aMW of firm power to Port Townsend every hour, BPA would have one less requirement sale in our aggregated portfolio load shape to purchase for and 20 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 Port Townsend.

**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	\$220,772	\$177,776	\$398,548	\$398,548
<b>Dec-09</b>	\$30.61	\$27.41	\$254,686	\$179,826	\$434,512	\$833,060
<b>Jan-10</b>	\$34.13	\$29.51	\$273,032	\$203,019	\$476,051	\$1,309,110
<b>Feb-10</b>	\$34.46	\$29.77	\$264,654	\$171,473	\$436,127	\$1,745,238
<b>Mar-10</b>	\$33.92	\$29.16	\$293,105	\$181,373	\$474,478	\$2,219,716
<b>Apr-10</b>	\$32.95	\$28.05	\$274,139	\$170,563	\$444,702	\$2,664,418
<b>May-10</b>	\$33.93	\$24.45	\$271,455	\$168,220	\$439,675	\$3,104,094
<b>Jun-10</b>	\$34.33	\$26.33	\$285,619	\$160,085	\$445,704	\$3,549,798
<b>Jul-10</b>	\$37.33	\$32.18	\$310,572	\$211,074	\$521,646	\$4,071,444
<b>Aug-10</b>	\$42.48	\$35.63	\$353,413	\$233,703	\$587,116	\$4,658,559
<b>Sep-10</b>	\$42.86	\$38.00	\$342,871	\$243,178	\$586,049	\$5,244,608
<b>Oct-10</b>	\$43.31	\$36.85	\$360,342	\$241,727	\$602,070	\$5,846,678
<b>Nov-10</b>	\$45.36	\$40.59	\$362,894	\$260,574	\$623,467	\$6,470,145
<b>Dec-10</b>	\$48.81	\$43.42	\$406,097	\$284,854	\$690,951	\$7,161,096
<b>Jan-11</b>	\$50.70	\$42.13	\$405,610	\$289,834	\$695,445	\$7,856,541

<sup>2</sup> BPA employs the 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 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.)

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

*Net Benefit (IP – Market)*

BPA determined its net benefit of serving Port Townsend 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>	\$100,596	\$100,596
<b>Dec-09</b>	\$108,898	\$209,494
<b>Jan-10</b>	\$92,640	\$302,134
<b>Feb-10</b>	\$76,127	\$378,261
<b>Mar-10</b>	\$60,141	\$438,402
<b>Apr-10</b>	\$22,107	\$460,509
<b>May-10</b>	(\$4,000)	\$456,509
<b>Jun-10</b>	(\$18,283)	\$438,226
<b>Jul-10</b>	(\$24,130)	\$414,095
<b>Aug-10</b>	(\$32,913)	\$381,183
<b>Sep-10</b>	(\$48,465)	\$332,718
<b>Oct-10</b>	(\$118,310)	\$214,408
<b>Nov-10</b>	(\$123,124)	\$91,284
<b>Dec-10</b>	(\$147,541)	(\$56,257)
<b>Jan-11</b>	(\$126,753)	(\$183,011)

*Value of Reserves*

In addition, BPA takes into account the value to BPA of the reserves Port Townsend 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 5, this is done for every megawatt hour of the 20 aMW not sold to Port Townsend:

**TABLE 5 - BPA's Net Benefit after Adjustments**

Month	Value of Reserves		BPA's Adjusted Net Revenue	
	Month (\$)	Cumulative (\$)	Month (\$)	Cumulative (\$)
<b>Nov-09</b>	\$11,520	\$11,520	\$112,116	\$112,116
<b>Dec-09</b>	\$11,904	\$23,424	\$120,802	\$232,918
<b>Jan-10</b>	\$11,904	\$35,328	\$104,544	\$337,462
<b>Feb-10</b>	\$10,752	\$46,080	\$86,879	\$424,341
<b>Mar-10</b>	\$11,904	\$57,984	\$72,045	\$496,386
<b>Apr-10</b>	\$11,520	\$69,504	\$33,627	\$530,013
<b>May-10</b>	\$11,904	\$81,408	\$7,904	\$537,917
<b>Jun-10</b>	\$11,520	\$92,928	(\$6,763)	\$531,154
<b>Jul-10</b>	\$11,904	\$104,832	(\$12,226)	\$518,927
<b>Aug-10</b>	\$11,904	\$116,736	(\$21,009)	\$497,919
<b>Sep-10</b>	\$11,520	\$128,256	(\$36,945)	\$460,974
<b>Oct-10</b>	\$11,904	\$140,160	(\$106,406)	\$354,568
<b>Nov-10</b>	\$11,520	\$151,680	(\$111,604)	\$242,964
<b>Dec-10</b>	\$11,904	\$163,584	(\$135,637)	\$107,327
<b>Jan-11</b>	\$11,904	\$175,488	(\$114,849)	(\$7,523)

As a result, this analysis demonstrates how the projected revenues BPA recovers from the 14-month IP sale to Port Townsend (from November 1, 2009 through December 31, 2010) exceed by \$107,327 the forecasted revenues that BPA would otherwise obtain from the market. There are other benefits to BPA's operations that may contribute to other similar demonstrations in the future, including: a) avoided transmission costs for a portion of surplus sales;<sup>4</sup> and b) a forecasted increase in the market price of electricity for BPA's other surplus sales as a result of direct-service industry (DSI) load operating.<sup>5</sup> Adjustments for these benefits to BPA are not included here because they are not of sufficient magnitude to affect the outcome for this 20 aMW sale.

<sup>4</sup> When BPA makes a requirements sale, its customers – including Port Townsend – cover the cost of transmission through their own transmission contract. Market prices assume power is delivered by the seller to Mid-C. BPA Power Services must pay those transmission costs to move the power to the Mid-C delivery point in order to realize the full market value for its surplus sales. BPA PS maintains an inventory of transmission to move the surplus power it intends to sell. However, this inventory is not sufficient to move all of the surplus power BPA would sell under all water conditions. As a result, there is a subset of water conditions under which BPA would incur an incremental transmission cost to sell the incremental surplus energy if it did not sign contracts to serve the DSI loads – including the Block Contract with Port Townsend. These incremental transmission costs are avoided when BPA makes an IP sale(s) to the DSIs.

BPA would determine the value of these avoided transmission costs using the same methodology it used in the WP-10 rate proceeding to establish the costs and risks associated with its transmission inventory. Specifically, we would identify the subset of water conditions. Then we would apply the tariff costs established by BPA TS to the incremental transmission need under each water condition. The mean value of the 3,500 games for which this was done represents the forecasted cost of the incremental transmission avoided when BPA makes an IP sale(s) to the DSIs – including the Block Contract with Port Townsend.

<sup>5</sup> When BPA serves the DSI loads – including Port Townsend – and they operate – as opposed to not operating if BPA does not sell to them – BPA's surplus sales realize increased revenues because the mean value of prices for electricity for 3,500 games in Western power markets are higher than they would otherwise be had the DSI loads not consumed electricity from Western power markets.