

Staff Report on Capacity Reassignment

I. Background

In Order No. 890, the Commission permitted resellers of point-to-point transmission capacity to charge market based rates. The rates for these reassignments had previously been limited to a cost-based price cap – the maximum of the original purchase price, the transmission provider’s current tariff rate, or the assignor’s opportunity costs capped at the cost of expansion.¹ The removal of the price cap was intended to help expand the secondary market, and further the goals stated in Order No. 888 which began allowing capacity reassignment in 1996. In Order No. 888 the Commission found that allowing holders of firm transmission capacity rights to reassign capacity would help parties manage the financial risks associated with their long term commitments, reduce the market power of transmission providers by allowing customers to compete, and foster efficient capacity allocation.²

The Commission limited reassignments above the price cap to a study period ending October 1, 2010 in Order No. 890-A.³ The Commission directed staff to closely monitor the secondary market for transmission capacity during that time and prepare a report to assist the Commission in deciding whether to extend the rule beyond the study period. In Order No. 890-B the Commission clarified that the report should focus on the competitive effects of removing the price cap for reassigned capacity. Staff was directed to consider the number of reassignments occurring over the study period, the magnitude and variability of resale prices, the term of the reassignments, and any relationship between resale prices and price differentials in related energy markets. Staff was also directed to examine the nature and scope of reassignments undertaken by the transmission provider’s affiliates and include in its report any evidence of abuse in the

¹ *Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, 72 FR 12,266 (March 15, 2007), FERC Stats. & Regs. ¶ 31,241 (2007) (Order No. 890) at P 778.

² See Order No. 890 at P 808.

³ *Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, 72 FR 12,266 (March 15, 2007), FERC Stats. & Regs. ¶ 31,241 (2007) (Order No. 890), order on reh’g, Order No. 890-A, 73 FR 2984 (Jan. 16, 2008), FERC Stats. & Regs. ¶ 31,261 (2007) (Order No. 890-A) at P 390

secondary market for transmission capacity, whether by those affiliates or other customers.⁴

This report presents staff's findings on the secondary market for capacity reassignments subsequent to Order No. 890, based on the required Electronic Quarterly Report (EQR) filings for all transmission providers over the period Q2-2007 through Q4-2009 (study period).⁵

Summary

Twenty-six transmission providers reported capacity reassignments during the study period.⁶ There were almost 35,000 transactions totaling 65 TWh of transmission capacity reassigned. The secondary market experienced strong growth during the study period, as the Commission intended in issuing Order No. 890. Both the number of transactions and capacity volume reassigned rose throughout the two and one half year time span.

Reassignments of hourly, daily, monthly, and yearly terms were reported. Hourly transactions were the most numerous; however, longer term transactions

⁴ *Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, 72 Fed. Reg. 12,266 (March 15, 2007), FERC Stats. & Regs. ¶ 31,241, *order on reh'g*, Order No. 890-A, 73 Fed. Reg. 2984 (January 16, 2008), FERC Stats. & Regs. ¶ 31,261 (2007), *order on reh'g*, Order No. 890-B, 123 FERC ¶ 61,299 (2008) at P 83.

⁵ The Commission required transmission providers to report all transmission capacity reassignments since the effective date of Order No. 890 (May 14, 2007) in their EQR filings. Transmission providers were ordered to correct filings from past quarters. (Order No. 890-B at P 84). Subsequent re-filings have corrected initial filing errors identified by Staff. The results held within this report may be influenced by any remaining unidentified filing inaccuracies as of April 12, 2010 made by transmission providers.

⁶ Transactions on the Bonneville Power Administration system were not reported by the transmission provider, but instead were reported by four entities: Powerex, Idaho Power, Puget Sound Energy, and Portland General Electric. Northeast Utilities reported for its subsidiaries Connecticut Light & Power, Public Service New Hampshire, Western Massachusetts Electric Company, and Holyoke Water Power. Southern Company reported as SCS Inc. in 2007.

had the most total volume reassigned. Transactions of all terms rose in number and volume over the study period.

The pricing of reassignments seemed to be reflective of an uncongested transmission system with little scarcity of available capacity. The number of transactions above the cap increased each year in the study period. There was a fairly tight range of resale prices, which were almost all under \$3.00/MWh. Less than one percent of the total number of reassignment transactions was priced above the cap. For most of these reassignments, the resale prices were not significantly above the tariff rate.

One affiliate reseller negotiated capacity reassignments above the tariff rate. These 32 transactions accounted for less than one percent of all affiliate transactions during the study period.

1. Number of Reassignments

Almost 35,000 capacity reassignment transactions were reported in the study period, encompassing 65 TWh of total volume transferred. Throughout the study period, the number of reported capacity reassignment transactions and the volume reassigned increased each year. In 2007, there were slightly more than 200 transactions. The number of reassignment transactions rose dramatically to almost 3,000 in 2008 and almost 32,000 in 2009. Almost 36 TWh flowed on reassigned paths in 2009, up from 25 TWh in 2008 and 3 TWh in 2007.

Many transmission providers did not report any reassignments. There was significant variability in the number of transactions among the 26 transmission providers that did see reassignment of capacity transactions on their systems. The most active markets for reassignment were in the Western United States and in the Northeast. There were some noticeable gaps across the country, particularly in regions where transmission must be purchased to move power for sale in nearby markets (*i.e.*, non-RTO areas), such as the Southeast. One explanation for the variability in reassignment volumes among transmission providers is that the energy market may be a viable substitute in most areas. The market price of the capacity should be equivalent to the price spread between the energy markets at the points of receipt and delivery. Therefore the primary capacity holder may choose to transact in the energy market rather than the secondary capacity market. Other factors that may contribute to the variability in capacity reassignments across markets are the volume of trading activity, the availability of primary capacity, and the size of the price spread between locations.

The majority of the transactions, 79 percent in the evaluation period, occurred on the Bonneville Power Administration (BPA) system. Central Vermont Public Service Corporation (CVPS) also reported a large number of transactions, accounting for 17 percent of the dataset.⁷

Table 1
Capacity Reassignment Transactions by Year

	2007	2008	2009
BPA	18	1,204	26,442
CVPS	15	1,365	4,554
All Others	197	360	785
Total	230	2,929	31,781

There were yearly increases in reported transactions for BPA⁸ and CVPS, as well as all other transmission providers in aggregate.⁹

Despite accounting for 79 percent of the transactions, BPA only comprised 11 percent of the volume in TWh because it tended to have more short term reassignment transactions. CVPS, similarly, comprised less than 3 percent of the volume. There were six transmission providers that each had over 5 TWh of capacity reassigned.¹⁰

Table 2
Capacity Reassignments Above the Price Cap

	2007	2008	2009
Number	1	28	105
Volume (MWh)	18,600	3,769,440	2,713,228

⁷ Staff believes the large number of CVPS transactions may be due, in part, to reporting conventions. For EQR reporting purposes, each line of data is counted as one transaction.

⁸ Portland General Electric, the largest filer for BPA, began submitting data in Q4 2008 and did not report transactions that occurred prior to December 2008. Based on data available, it is unclear whether BPA transactions increased over time or whether the increase was solely due to Portland General Electric's reporting.

⁹ See APPENDIX A for quarterly transactions by transmission provider.

¹⁰ See APPENDIX B for quarterly reassignment volume by transmission owner.

The total number of reassignments above the price cap was 134, less than one percent of the transactions during the study period.¹¹ The volume of capacity reassigned above the cap was 6.5 TWh, ten percent of the total volume.¹² The number of capacity reassignments above the cap increased significantly over the evaluation period. There was one in 2007, 28 in 2008, and 105 in 2009. The volume reassigned was 18.6 GWh in 2007, 3.8 TWh in 2008 and 2.7 TWh in 2009.

2. Magnitude and Variability of Resale Prices

Prices for capacity reassignments were fairly consistent and low. The resale price was less than or equal to \$2.00/MWh for 81 percent of transactions and less than or equal to \$3.00/MWh for 99 percent of transactions. The majority of the resale prices, 99 percent were at or below the price cap. Of the 26 transmission providers with capacity reassignments, 8 had some transactions above the price cap, 7 had all transactions at the price cap, and 11 had all transactions at or below the price cap.¹³

The large proportion of reassignments below the cap indicates that reassignments may be mostly competing with primary capacity. If customers can buy available transmission capacity (ATC) directly from the transmission provider at the tariff rate, the reseller must offer a lower price.

If the delivered price spread between delivery and receipt points expands above the tariff rate due to weather, outages, or other scarcity events, ATC is used up first and then buyers have to go to the secondary market. Resellers may command the price equal to the spread. Staff would expect that the ability to price based on the market value would produce a wide range of resale prices during the study period.

¹¹ Prices varied by quarter for long term contracts reported by Northeast Utilities' subsidiaries. For purposes of this report, each quarter was treated as a separate transaction.

¹² See APPENDIX E, APPENDIX F, and APPENDIX G for statistics on reassignments above the cap.

¹³ See APPENDIX C for pricing by transmission provider.

However, it does not appear that buyers and sellers are transacting in the secondary market when spreads are high. There was very little variability in prices above the cap, and overall price levels were low for capacity reassignment transactions. All reassignments above the cap exceeded the cap by less than \$2.00/MWh.¹⁴

3. Term of the Reassignments

Capacity was reassigned for hourly, daily, monthly and yearly terms during the study period. The majority of capacity reassignment transactions executed were for hourly transmission service, followed by those for daily, monthly and yearly reassignments. There were 33,790 hourly transactions, accounting for almost 97 percent of transactions. The largest hourly resellers were on the BPA and CVPS systems.

Table 3
Capacity Reassignments by Term

	Hourly	Daily	Monthly	Yearly
Number	33,790	905	166	79
Volume (MWh)	5,422,949	2,207,709	26,835,752	30,044,800

While hourly transactions were by far the most numerous, long term transactions were associated with higher volumes during the evaluation period. In particular, almost half of the volume, 30 TWh of transmission, was resold for terms of one year or more, and another 27 TWh of transmission was sold for terms of one month to one year. These longer term contracts accounted for 88 percent of the reassigned transmission volume during the study period.

Of the 26 transmission providers that reassigned transmission capacity during the study period, there were 10 with hourly reassignments, 13 with daily reassignments, 18 with monthly reassignments, and 12 with yearly reassignments.¹⁵

¹⁴ See APPENDIX D for number of transactions by price level by transmission provider.

¹⁵ See APPENDIX I and APPENDIX J for number of contracts and contract volume by transmission provider and term.

Table 4
Capacity Reassignment Volume by Term and Year

	2007	2008	2009
Hourly	221,962	1,092,118	4,108,870
Daily	161,972	546,188	1,499,549
Monthly	389,585	9,894,145	16,552,023
Yearly	2,278,032	13,720,001	14,046,767

For all contract durations, the total reassigned capacity increased every year. The largest year over year increase was seen between 2007 and 2008 for yearly reassignments, from 2.2 TWh to 13.7 TWh. Monthly reassignments also experienced high growth, increasing by 9.5 TWh in 2008 and 6.6 TWh in 2009.¹⁶

The presence of resales for all terms indicates that the secondary market is a viable method for owners of primary capacity to sell excess capacity on a short or long term basis.

4. Relationship between resale prices and price differentials in related energy markets

As explained earlier, most of the reassignments in the study period had low resale prices. The resale rate was less than or equal to \$2.00/MWh for 81 percent of reassignments and less than or equal to \$3.00/MWh for 99 percent of reassignments. The intra-day variability of market prices may exceed the resale prices for these transactions, making it difficult to accurately compare the energy market spread to the capacity reassignment price.

Most of the reassignment transactions during the study period had receipt and delivery points in locations without reported energy price indices. However, there were some reassignments between RTOs for which extensive price reporting is available. Resale prices of these transactions can be compared to the market spreads for energy.

There were numerous transactions between points in New England and Quebec with prices similar to the average spread in energy prices between the regions. All reassignments for CVPS and subsidiaries of Northeast Utilities¹⁷

¹⁶ See APPENDIX H for contract volume by term by quarter.

¹⁷ These include Northeast Utilities subsidiaries Connecticut Light & Power, Public Service of New Hampshire, Western Massachusetts Electric Co., and Holyoke Water Power.

were for capacity on the Phase I/II HVDC facility, which connects New England and Quebec.

The average price differential between these locations for all hours during the study period was \$2.15/MWh.¹⁸ This can be compared to the resale rates for all of the NU subsidiaries which had long term monthly and yearly transactions ranging from \$0.44/MWh to \$2.91/MWh. CVPS had numerous transactions for firm and non-firm service with hourly, daily and longer terms all with the same resale price of \$3.00/MWh.

From this we conclude that, at least for the transactions where receipt and delivery points were in locations with reported energy price indices, the value of capacity reassignments rarely exceeded the price differentials between relevant energy markets.

5. Reassignments undertaken by the transmission provider's affiliates

During the study period, there were 6,012 transactions (16 percent) where the reseller was an affiliate of the transmission owner. Ten companies accounted for all of these transactions, including eight in which all transactions were by affiliates. CVPS had 5,934 of the affiliate transactions.¹⁹

Thirty two affiliate transactions were negotiated above the tariff rate, accounting for less than one percent of all affiliate transactions. All of these transactions were long term and the reseller was Northeast Utilities. The weighted average mark-up was \$0.85/MWh, 58% above the tariff rate.

Few of the reassignments by affiliates were transacted above the tariff rate during the study period. The rate of transactions priced above the cap was 0.5% for affiliates, which was roughly the same as the 0.4% rate for non-affiliates. This seems to alleviate concerns that transmission providers would try to channel capacity to their affiliates in order to charge higher prices for their transmission capacity. Other forms of affiliate abuse, such as providing preferential treatment

¹⁸ Based on average hourly real-time prices for all hours 5/14/2007-12/31/2009 reported by ISO-NE for the HQ Interface and Vermont Zone.

¹⁹ See APPENDIX K for number of affiliate and non-affiliate transactions above the tariff rate by transmission owner.

in the allocation of reassigned capacity to an affiliate such that it could be sold above the cap, were not detected during the study period.

Conclusion

Order No. 890 lifted the price cap on transmission capacity reassignments to encourage the development of the secondary market. To some degree this goal has been achieved. Over the two and one half years in the study period, it appears that the secondary market has grown substantially. The number of transactions and transaction volume has increased over time. There were higher volumes of hourly, daily, monthly, and yearly capacity reassigned each year.

However, it does not appear that the removal of the price cap was primarily responsible for the observed growth in the secondary market. The number and volume of reassignments above the cap were relatively small. There were only 134 out of almost 35,000 transactions reassignments above the price cap.

Almost all of the reassignments were priced below the cap, likely due to low price spreads between markets and the availability of primary capacity at the tariff rate. The few transactions priced above the cap have small mark-ups. It is not apparent from the data why there are no transactions with larger mark-ups. It is possible that either the primary capacity holders choose to capture the spreads in the energy market, or there has just been very little congestion on the transmission paths in the study period.

There did not appear to be any evidence of abuse by resellers. There were a few transactions priced above the cap by affiliates, but given that the percentage of transactions above the cap was about the same for affiliates and non-affiliates, this does not lead us to believe there was affiliate abuse.

It is not certain whether the removal of the price cap was the primary driver of the growth of the secondary market. However, based on the study period data, the removal of the cap does not seem to be causing problems. During the study period, it appears that resellers used the secondary market mainly to derive value from unneeded capacity. Prices were depressed below the tariff rate due to availability of primary capacity or low market price spreads between the points. When resellers did charge above the cap, the price differential was small. There was no indication that participants were able to or did take advantage of their capacity rights to manipulate prices. In the future, unrestricted secondary market prices may enable capacity reassignments to increase as an alternative to transacting in the energy market and provide price signals to indicate scarcity and appropriate areas for new investment.

APPENDIX A

Total Transactions (By Start Date)

	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09	Total
APS	-	-	-	-	4	-	-	-	-	-	-	4
Avista Corp	-	-	-	-	10	-	-	-	8	34	3	55
Black Hills	-	-	-	-	-	-	-	1	-	-	-	1
Central Vermont	-	9	6	217	485	276	387	267	1,636	1,911	740	5,934
Cross Sound Cable	66	15	16	23	36	27	20	26	17	7	16	269
EPE	-	-	-	-	1	-	1	1	-	-	-	3
Entergy	-	11	-	1	3	4	1	13	2	29	25	89
Idaho Power	-	-	-	3	2	3	3	5	2	-	18	36
Maine PS	-	-	-	-	-	-	-	1	-	-	-	1
MidAmerican	-	-	1	-	-	-	-	-	-	-	-	1
MAPP	-	37	3	-	-	-	-	-	-	7	79	126
MISO	-	-	-	1	-	-	-	-	1	-	1	3
Nevada Power	-	-	-	-	-	1	1	-	-	-	-	2
Northwestern	-	-	8	3	2	32	4	3	18	134	2	206
CL&P	-	-	-	2	2	2	2	2	2	2	2	16
PSNH	-	-	-	2	2	2	2	-	2	2	2	14
WMECO	-	-	-	-	-	-	-	2	4	4	4	14
WMECO & HWP	-	-	-	2	2	2	2	-	-	-	-	8
Pacificorp	-	1	-	-	1	11	12	-	-	75	11	111
PNM	-	-	-	-	4	-	-	-	-	-	-	4
Puget Sound	-	-	-	-	-	-	1	-	1	-	-	2
Southern	-	22	17	12	47	20	-	-	4	113	47	282
SPP	-	-	-	1	-	1	-	-	1	-	1	4
Tampa Electric	-	-	-	-	-	-	40	43	2	5	-	90
TVA	-	-	-	-	-	-	-	1	-	-	-	1
Total w/o BPA	66	95	51	267	601	381	476	365	1,700	2,323	951	7,276
BPA	-	17	1	1	87	401	715	4,583	8,039	8,721	5,099	27,664
Total	66	112	52	268	688	782	1,191	4,948	9,739	11,044	6,050	34,940

APPENDIX B

Total Volume Reassigned (MWh)

	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09	Total
APS	-	-	-	-	86,640	220,800	220,800	216,000	218,400	220,800	220,800	1,404,240
Avista Corp	-	-	-	-	19,152	-	-	-	20,352	16,392	1,800	57,696
Black Hills	-	-	-	-	-	-	-	43,200	43,680	44,160	44,160	175,200
Central Vermont	-	154,821	154,560	159,002	162,132	174,757	177,963	179,706	189,949	183,653	109,975	1,646,518
Cross Sound Cable	17,410	1,886	5,766	10,118	10,560	4,952	3,372	3,163	1,303	370	4,510	63,411
EPE	-	-	-	-	26,400	220,800	437,856	503,280	508,872	514,464	514,464	2,726,136
Entergy	-	493,480	-	982,800	61,312	112,320	160	617,704	142,968	1,398,888	436,409	4,246,041
Idaho Power	-	-	-	67,272	206,088	158,496	31,104	117,440	323,232	326,784	344,176	1,574,592
Maine PS	-	-	-	-	-	-	-	20,832	61,152	61,824	61,824	205,632
MidAmerican	-	-	2,088	-	-	-	-	-	-	-	-	2,088
MAPP	-	27,611	6,000	-	-	-	-	-	-	2,400	150,180	186,191
MISO	-	-	-	7,200	-	-	-	-	148,800	-	292,800	448,800
Nevada Power	-	-	-	-	-	213,840	640,891	598,315	-	-	-	1,453,046
Northwestern	-	-	198,377	583,124	670,046	764,562	580,700	568,076	642,559	1,040,350	737,502	5,785,294
CL&P	-	-	-	807,840	807,840	816,816	816,816	798,864	807,840	816,816	816,816	6,489,648
PSNH	-	-	-	460,080	460,080	465,192	465,192	-	460,080	465,192	465,192	3,241,008
WMECO	-	-	-	-	-	-	-	162,336	168,480	170,352	170,352	671,520
WMECO & HWP	-	-	-	168,480	112,320	170,352	170,352	-	-	-	-	621,504
Pacificorp	-	33,120	33,120	32,760	54,720	74,304	40,320	32,400	-	1,170,326	1,202,816	2,673,886
PNM	-	-	-	-	24,816	207,552	207,550	-	-	-	-	439,918
Puget Sound	-	607,200	607,200	600,600	600,600	607,200	664,272	594,000	982,800	496,800	496,800	6,257,472
Southern	-	41,928	415,464	667,536	699,384	696,408	662,400	648,000	909,600	1,699,800	1,495,200	7,935,720
SPP	-	-	-	2,562,000	546,000	732,000	1,104,000	540,000	1,099,200	1,126,080	1,272,480	8,981,760
Tampa Electric	-	-	-	-	-	-	6,054	12,142	101	90	-	18,387
TVA	-	-	-	-	-	-	-	5,880	-	-	-	5,880
Total w/o BPA	17,410	1,360,046	1,422,574	7,108,812	4,548,091	5,640,351	6,229,802	5,661,338	6,729,368	9,755,541	8,838,256	57,311,589
BPA	-	238,720	12,800	58,700	769,216	736,970	160,510	616,616	1,468,440	2,184,046	953,603	7,199,621
Total	17,410	1,598,766	1,435,374	7,167,512	5,317,307	6,377,321	6,390,312	6,277,954	8,197,808	11,939,587	9,791,859	64,511,210

APPENDIX C
Pricing \$/MWh

	Market Rate			Tariff Rate			Difference		
	Min	Average	Max	Min	Average	Max	Min	Average	Max
APS	\$ 2.24	\$ 2.56	\$ 2.85	\$ 2.24	\$ 2.56	\$ 2.85	\$ -	\$ -	\$ -
Avista Corp	\$ 0.25	\$ 1.24	\$ 2.25	\$ 1.40	\$ 1.54	\$ 4.00	\$ (1.75)	\$ (0.31)	\$ 0.60
Black Hills	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ 2.88	\$ -	\$ -	\$ -
BPA	\$ -	\$ 1.51	\$ 3.72	\$ 1.25	\$ 3.74	\$ 3.74	\$ (3.74)	\$ (2.23)	\$ -
Central Vermont	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.50	\$ 3.54	\$ 3.82	\$ (0.82)	\$ (0.54)	\$ (0.50)
Cross Sound Cable	\$ 12.76	\$ 16.20	\$ 26.79	\$ 12.76	\$ 16.20	\$ 26.79	\$ -	\$ -	\$ -
EPE	\$ 0.56	\$ 0.82	\$ 1.19	\$ 0.56	\$ 1.19	\$ 2.08	\$ (0.89)	\$ (0.37)	\$ -
Entergy	\$ 1.85	\$ 2.27	\$ 3.00	\$ 1.88	\$ 2.26	\$ 3.00	\$ (0.02)	\$ 0.00	\$ 0.79
Idaho Power	\$ -	\$ 0.64	\$ 2.16	\$ 1.00	\$ 1.78	\$ 2.28	\$ (2.28)	\$ (1.13)	\$ -
Maine PS	\$ 2.63	\$ 2.63	\$ 2.63	\$ 2.63	\$ 2.63	\$ 2.63	\$ -	\$ -	\$ -
MidAmerican	\$ 2.21	\$ 2.21	\$ 2.21	\$ 2.21	\$ 2.21	\$ 2.21	\$ -	\$ -	\$ -
MAPP	\$ -	\$ 1.70	\$ 3.00	\$ 0.24	\$ 0.59	\$ 2.30	\$ (2.30)	\$ 1.11	\$ 2.66
MISO	\$ -	\$ -	\$ -	\$ -	\$ 1.36	\$ 4.08	\$ (4.08)	\$ (1.36)	\$ -
Nevada Power	\$ 0.64	\$ 0.64	\$ 0.64	\$ 1.94	\$ 1.94	\$ 1.94	\$ (1.30)	\$ (1.30)	\$ (1.30)
Northwestern	\$ 2.00	\$ 3.07	\$ 4.68	\$ 2.00	\$ 3.31	\$ 4.68	\$ (2.43)	\$ (0.25)	\$ -
CL&P	\$ 0.60	\$ 1.31	\$ 2.08	\$ 1.25	\$ 1.47	\$ 1.60	\$ (1.00)	\$ (0.16)	\$ 0.50
PSNH	\$ 2.55	\$ 2.82	\$ 2.91	\$ 1.25	\$ 1.45	\$ 1.60	\$ 0.95	\$ 1.37	\$ 1.66
WMECO	\$ 0.44	\$ 1.11	\$ 1.39	\$ 1.25	\$ 1.30	\$ 1.60	\$ (1.16)	\$ (0.19)	\$ 0.14
WMECO & HWP	\$ 1.06	\$ 1.61	\$ 2.39	\$ 1.58	\$ 1.59	\$ 1.60	\$ (0.54)	\$ 0.02	\$ 0.81
Pacificorp	\$ 0.11	\$ 0.95	\$ 5.48	\$ 2.77	\$ 2.79	\$ 2.81	\$ (2.66)	\$ (1.84)	\$ 2.71
PNM	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ 2.84	\$ -	\$ -	\$ -
Puget Sound	\$ -	\$ -	\$ -	\$ -	\$ 0.32	\$ 3.86	\$ (3.86)	\$ (0.32)	\$ -
Southern	\$ -	\$ 1.86	\$ 3.50	\$ 3.05	\$ 3.91	\$ 4.16	\$ (4.16)	\$ (2.05)	\$ -
SPP	\$ 1.25	\$ 1.97	\$ 2.44	\$ 1.26	\$ 2.00	\$ 2.47	\$ (0.03)	\$ (0.03)	\$ (0.02)
Tampa Electric	\$ -	\$ -	\$ -	\$ 1.62	\$ 1.62	\$ 1.62	\$ (1.62)	\$ (1.62)	\$ (1.62)
TVA	\$ 3.88	\$ 3.88	\$ 3.88	\$ 3.88	\$ 3.88	\$ 3.88	\$ -	\$ -	\$ -

APPENDIX D
Number of Transactions By Rate

	Above Tariff	At Tariff	Below Tariff	Total
APS	-	4	-	4
Avista Corp	10	-	45	55
Black Hills	-	1	-	1
BPA	-	1	27,663	27,664
Central Vermont	-	-	5,934	5,934
Cross Sound Cable	-	269	-	269
EPE	-	1	2	3
Entergy	4	57	28	89
Idaho Power	-	21	15	36
Maine PS	-	1	-	1
MidAmerican	-	1	-	1
MAPP	86	-	40	126
MISO	-	2	1	3
Nevada Power	-	-	2	2
Northwestern	-	174	32	206
CL&P	6	-	10	16
PSNH	14	-	-	14
WMECO	8	-	6	14
WMECO & HWP	4	-	4	8
Pacificorp	2	6	103	111
PNM	-	4	-	4
Puget Sound	-	1	1	2
Southern	-	1	281	282
SPP	-	-	4	4
Tampa Electric	-	-	90	90
TVA	-	1	-	1
	134	545	34,261	34,940

APPENDIX E

Number of Transactions Above the Tariff Rate

	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09	Total
APS	-	-	-	-	-	-	-	-	-	-	-	-
Avista Corp	-	-	-	-	10	-	-	-	-	-	-	10
Black Hills	-	-	-	-	-	-	-	-	-	-	-	-
BPA	-	-	-	-	-	-	-	-	-	-	-	-
Central Vermont	-	-	-	-	-	-	-	-	-	-	-	-
Cross Sound Cable	-	-	-	-	-	-	-	-	-	-	-	-
EPE	-	-	-	-	-	-	-	-	-	-	-	-
Entergy	-	1	-	-	-	-	-	2	-	1	-	4
Idaho Power	-	-	-	-	-	-	-	-	-	-	-	-
Maine PS	-	-	-	-	-	-	-	-	-	-	-	-
MidAmerican	-	-	-	-	-	-	-	-	-	-	-	-
MAPP	-	-	-	-	-	-	-	-	-	7	79	86
MISO	-	-	-	-	-	-	-	-	-	-	-	-
Nevada Power	-	-	-	-	-	-	-	-	-	-	-	-
Northwestern	-	-	-	-	-	-	-	-	-	-	-	-
CL&P	-	-	-	2	2	-	-	-	2	-	-	6
PSNH	-	-	-	2	2	2	2	-	2	2	2	14
WMECO	-	-	-	-	-	-	-	-	4	-	4	8
WMECO & HWP	-	-	-	-	2	-	2	-	-	-	-	4
Pacificorp	-	-	-	-	-	2	-	-	-	-	-	2
PNM	-	-	-	-	-	-	-	-	-	-	-	-
Puget Sound	-	-	-	-	-	-	-	-	-	-	-	-
Southern	-	-	-	-	-	-	-	-	-	-	-	-
SPP	-	-	-	-	-	-	-	-	-	-	-	-
Tampa Electric	-	-	-	-	-	-	-	-	-	-	-	-
TVA	-	-	-	-	-	-	-	-	-	-	-	-
	-	1	-	4	16	4	4	2	8	10	85	134

APPENDIX F

Volume Above Tariff Rate (MWh)

	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09	Total
APS	-	-	-	-	-	-	-	-	-	-	-	-
Avista Corp	-	-	-	-	19,152	-	-	-	-	-	-	19,152
Black Hills	-	-	-	-	-	-	-	-	-	-	-	-
BPA	-	-	-	-	-	-	-	-	-	-	-	-
Central Vermont	-	-	-	-	-	-	-	-	-	-	-	-
Cross Sound Cable	-	-	-	-	-	-	-	-	-	-	-	-
EPE	-	-	-	-	-	-	-	-	-	-	-	-
Entergy	-	18,600	-	-	-	-	-	23,040	-	472	-	42,112
Idaho Power	-	-	-	-	-	-	-	-	-	-	-	-
Maine PS	-	-	-	-	-	-	-	-	-	-	-	-
MidAmerican	-	-	-	-	-	-	-	-	-	-	-	-
MAPP	-	-	-	-	-	-	-	-	-	2,400	150,180	152,580
MISO	-	-	-	-	-	-	-	-	-	-	-	-
Nevada Power	-	-	-	-	-	-	-	-	-	-	-	-
Northwestern	-	-	-	-	-	-	-	-	-	-	-	-
CL&P	-	-	-	807,840	807,840	-	-	-	807,840	-	-	2,423,520
PSNH	-	-	-	460,080	460,080	465,192	465,192	-	460,080	465,192	465,192	3,241,008
WMECO	-	-	-	-	-	-	-	-	168,480	-	170,352	338,832
WMECO & HWP	-	-	-	-	112,320	-	170,352	-	-	-	-	282,672
Pacificorp	-	-	-	-	-	1,392	-	-	-	-	-	1,392
PNM	-	-	-	-	-	-	-	-	-	-	-	-
Puget Sound	-	-	-	-	-	-	-	-	-	-	-	-
Southern	-	-	-	-	-	-	-	-	-	-	-	-
SPP	-	-	-	-	-	-	-	-	-	-	-	-
Tampa Electric	-	-	-	-	-	-	-	-	-	-	-	-
TVA	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	18,600	-	1,267,920	1,399,392	466,584	635,544	23,040	1,436,400	468,064	785,724	6,501,268

APPENDIX G
Transactions Above Tariff Rate

	Number	MWh	Weighted Avg Rate	Weighted Avg Tariff Rate	Difference	% Difference
Avista Corp	10	19,152	\$ 2.00	\$ 1.40	\$ 0.60	43%
Entergy	4	42,112	\$ 2.08	\$ 2.03	\$ 0.05	2%
MAPP	86	152,580	\$ 2.42	\$ 0.71	\$ 1.71	241%
CL&P	6	2,423,520	\$ 1.76	\$ 1.48	\$ 0.29	19%
PSNH	14	3,241,008	\$ 2.82	\$ 1.45	\$ 1.37	95%
WMECO	8	338,832	\$ 1.38	\$ 1.25	\$ 0.13	10%
WMECO & HWP	4	282,672	\$ 2.12	\$ 1.59	\$ 0.53	33%
Pacificorp	2	1,392	\$ 4.69	\$ 2.77	\$ 1.92	69%
	134	6,501,268	\$ 2.30	\$ 1.44	\$ 0.86	60%

APPENDIX H

Volume by Quarter and Transaction Duration

Active Contract Volume (MW)

	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09
Hourly	17,720	3,652	2,545	3,763	36,372	41,241	55,315	423,207	779,836	911,611	604,292
Daily	4,000	2,129	1,212	664	19,091	9,065	290	1,731	11,159	21,234	9,357
Monthly	-	257	267	1,250	1,265	1,617	1,695	1,375	1,830	4,222	2,832
Yearly	-	551	800	1,461	1,481	1,649	1,748	1,655	1,917	1,760	1,642
Total	21,720	6,589	4,824	7,138	58,209	53,572	59,048	427,968	794,742	938,827	618,123

Active Contract Volume (MWh)

	2Q07	3Q07	4Q07	1Q08	2Q08	3Q08	4Q08	1Q09	2Q09	3Q09	4Q09	Total
Hourly	17,410	185,986	18,566	16,240	468,027	535,847	72,003	525,059	1,106,713	1,708,651	768,446	5,422,949
Daily	-	127,220	34,752	19,536	278,168	238,972	9,512	53,000	315,325	721,691	409,532	2,207,709
Monthly	-	191,208	198,377	2,691,939	1,985,801	2,510,200	2,706,203	2,680,043	2,786,131	5,958,782	5,127,067	26,835,752
Yearly	-	1,094,352	1,183,680	4,439,796	2,585,310	3,092,301	3,602,594	3,019,851	3,989,639	3,550,463	3,486,815	30,044,800
Total	17,410	1,598,766	1,435,374	7,167,512	5,317,307	6,377,321	6,390,312	6,277,954	8,197,808	11,939,587	9,791,859	64,511,210

APPENDIX I
Total Contracts

	<u>Hourly</u>	<u>Daily</u>	<u>Monthly</u>	<u>Yearly</u>	<u>Total</u>	<u>RANK</u>
APS	-	-	-	4	4	16
Avista Corp	-	55	-	-	55	10
Black Hills	-	-	-	1	1	23
BPA	27,391	270	2	1	27,664	1
Central Vermont	5,838	39	1	56	5,934	2
Cross Sound Cable	269	-	-	-	269	4
EPE	-	-	1	2	3	19
Entergy	11	38	39	1	89	9
Idaho Power	6	15	14	1	36	11
Maine PS	-	-	1	-	1	23
MidAmerican	-	1	-	-	1	23
MAPP	94	31	1	-	126	6
MISO	-	1	2	-	3	19
Nevada Power	-	-	2	-	2	21
Northwestern	39	138	22	7	206	5
CL&P	-	-	16	-	16	12
PSNH	-	-	14	-	14	13
WMECO	-	-	14	-	14	13
WMECO & HWP	-	-	8	-	8	15
Pacificorp	66	21	23	1	111	7
PNM	-	-	4	-	4	16
Puget Sound	-	-	1	1	2	21
Southern	2	279	-	1	282	3
SPP	-	-	1	3	4	16
Tampa Electric	74	16	-	-	90	8
TVA	-	1	-	-	1	23
Total Contracts	33,790	905	166	79	34,940	

APPENDIX J
Contract Volume (MWh)

	Hourly	Daily	Monthly	Yearly	Total	RANK
APS	-	-	-	1,404,240	1,404,240	14
Avista Corp	-	57,696	-	-	57,696	23
Black Hills	-	-	-	175,200	175,200	21
BPA	5,173,993	1,076,168	122,760	826,700	7,199,621	3
Central Vermont	95,492	13,001	2,160	1,535,865	1,646,518	11
Cross Sound Cable	63,411	-	-	-	63,411	22
EPE	-	-	217,056	2,509,080	2,726,136	9
Entergy	4,338	242,296	3,699,935	299,472	4,246,041	7
Idaho Power	1,120	17,072	1,521,360	35,040	1,574,592	12
Maine PS	-	-	205,632	-	205,632	19
MidAmerican	-	2,088	-	-	2,088	26
MAPP	41,531	75,060	69,600	-	186,191	20
MISO	-	7,200	441,600	-	448,800	17
Nevada Power	-	-	1,453,046	-	1,453,046	13
Northwestern	8,572	200,501	3,136,539	2,439,683	5,785,294	6
CL&P	-	-	6,489,648	-	6,489,648	4
PSNH	-	-	3,241,008	-	3,241,008	8
WMECO	-	-	671,520	-	671,520	15
WMECO & HWP	-	-	621,504	-	621,504	16
Pacificorp	21,796	18,936	2,501,394	131,760	2,673,886	10
PNM	-	-	439,918	-	439,918	18
Puget Sound	-	-	57,072	6,200,400	6,257,472	5
Southern	-	486,120	1,797,600	5,652,000	7,935,720	2
SPP	-	-	146,400	8,835,360	8,981,760	1
Tampa Electric	12,696	5,691	-	-	18,387	24
TVA	-	5,880	-	-	5,880	25
Total	5,422,949	2,207,709	26,835,752	30,044,800	64,511,210	

APPENDIX K
Affiliate Transactions

	Affiliate Transactions			Non-Affiliate Transactions			All Transactions		
	Above Tariff	Total	Percent	Above Tariff	Total	Percent	Above Tariff	Total	Percent
APS	-	-	-	-	4	-	-	4	-
Avista Corp	-	-	-	10	55	18%	10	55	18%
Black Hills	-	1	-	-	-	-	-	1	-
BPA	-	-	-	-	27,664	-	-	27,664	-
Central Vermont	-	5,934	-	-	-	-	-	5,934	-
Cross Sound Cable	-	-	-	-	269	-	-	269	-
EPE	-	-	-	-	3	-	-	3	-
Entergy	-	-	-	4	89	4%	4	89	4%
Idaho Power	-	18	-	-	18	-	-	36	-
Maine PS	-	-	-	-	1	-	-	1	-
MidAmerican	-	1	-	-	-	-	-	1	-
MAPP	-	-	-	86	126	68%	86	126	68%
MISO	-	-	-	-	3	-	-	3	-
Nevada Power	-	-	-	-	2	-	-	2	-
Northwestern	-	-	-	-	206	-	-	206	-
CL&P	6	16	38%	-	-	-	6	16	38%
PSNH	14	14	100%	-	-	-	14	14	100%
WMECO	8	14	57%	-	-	-	8	14	57%
WMECO & HWP	4	8	50%	-	-	-	4	8	50%
Pacificorp	-	2	-	2	109	2%	2	111	2%
PNM	-	4	-	-	-	-	-	4	-
Puget Sound	-	-	-	-	2	-	-	2	-
Southern	-	-	-	-	282	-	-	282	-
SPP	-	-	-	-	4	-	-	4	-
Tampa Electric	-	-	-	-	90	-	-	90	-
TVA	-	-	-	-	1	-	-	1	-
Total	32	6,012	0.5%	102	28,928	0.4%	134	34,940	0.4%

APPENDIX L Transmission Provider Key and Notes

Transmission Provider	Name as Filed in EQR
APS	Arizona Public Service Company (Transmission)
Avista Corp	Avista Corporation
Black Hills	Black Hills Power, Inc. on behalf of BHPI, BEPC & PREC
BPA	Bonneville Power Administration
Central Vermont	Central Vermont Public Service Corporation
Cross Sound Cable	Cross-Sound Cable Company, LLC
EPE	El Paso Electric Company
Entergy	Entergy Services, Inc.
Idaho Power	Idaho Power Company
Maine PS	Maine Public Service Company
MidAmerican	MidAmerican Energy Co.
MAPP	Mid-Continent Area Power Pool
MISO	Midwest Independent Transmission System Operator, Inc.
Nevada Power	Nevada Power Company
Northwestern	NorthWestern Energy
CL&P	NUSCO as agent for CL&P
PSNH	NUSCO as agent for PSNH
WMECO	NUSCO as agent for WMECO
WMECO & HWP	NUSCO as agent for WMECO and HWP
Pacificorp	PacifiCorp
PNM	Public Service Company of New Mexico - Transmission and Reliability
Puget Sound	Puget Sound Energy, Inc.
Southern	Southern Company Services, Inc.
SPP	Southwest Power Pool, Inc.
Tampa Electric	Tampa Electric Company - R
TVA	Tennessee Valley Authority

Notes:

1. Southern Company reported as SCS Inc. in 2007.
2. Bonneville Power Administration was reported by Powerex, Idaho Power, Puget Sound Energy, and Portland General Electric.
3. Transactions and volume occurring outside the study period (May 17, 2007 - December 31, 2009) were excluded.
4. Prices varied by quarter for NUSCO transactions. Each quarter was treated as a separate transaction.