Appendix E

Analysis of Capacity Release Trading: Results and Methodology

Appendix E

Analysis of Capacity Release Trading: Results and Methodology

The data used in the capacity release analysis in Chapter 2 were obtained from: (1) Electronic Data Interchange (EDI) data downloaded by the Federal Energy Regulatory Commission (FERC) from pipeline company electronic bulletin boards (EBBs), and (2) keypunched data assembled by Pasha Publications, Inc. (Pasha) from the pipeline company EBBs. The EDI data were the primary source of information for current periods, while the Pasha data were used to provide information on all data during the period before July 1994 and to fill gaps in the EDI data. For example, EDI data were missing for several pipeline companies because FERC has not completed editing and verifying the data. Thus, data for several pipeline companies were included in Pasha but not in the EDI data. Also, although storage capacity transactions are included in the EDI and Pasha data, these transactions were removed for purposes of the analysis of transportation activity.

Prior analyses of the capacity release market by the Energy Information Administration (EIA) were based exclusively on the Pasha data, which are less detailed than the EDI data. A comparison of EDI and Pasha data for comparable periods identified some inconsistencies in the Pasha data. As a result, the present analysis corrects the few cases where capacity release revenues and average prices were overstated in previous EIA analyses. The EDI data allow for reservation and/or usage prices, which are applied either monthly or daily. The price is stated either as a percentage of or discount from the maximum price. The price might also change depending on whether the capacity is released during a heating or nonheating season. The capacity amount can be expressed either in million Btu or in thousand cubic feet (Mcf).

In order to calculate the regional and U.S. average price and revenue for the capacity release transactions, the data were processed and merged to develop a single set. First, price gaps in the EDI data were filled with the appropriate Pasha data. If an EDI record did not have an amount in the price field and there was an exact match of Pasha transaction information (pipeline company name, offer number, and begin date), the price was obtained from Pasha data. There were 4,254 instances (13 percent of the 31,170 EDI records) where Pasha

data price information was appended to EDI data. When there were no Pasha data that matched the EDI transaction or the Pasha price data were missing, the average price of all other transactions on the same day for that pipeline company was used. Average prices for the day were used for 1,569 transactions. These adjustments established complete price information for 30,933 of the 31,170 EDI records. The companies with the greatest number of imputed prices were: El Paso, 884 Pasha prices of 1,643 records; Northwestern, 856 Pasha prices of 1,799 records; Pacific Gas, 243 Pasha prices of 684 records; Tenneco, 379 Pasha prices and 657 average prices of 2,680 records; Transco, 384 Pasha prices and 137 average prices of 2,144 records; Panhandle, 366 Pasha prices of 1,051 records; and Northern Natural, 126 average prices of 1,283 records.

Once the EDI data had been processed to remedy the price data gaps, a single data set was constructed by merging the adjusted EDI and Pasha data. Pasha data were included for all transactions with start dates occurring before July 20, 1994. EDI data were included for all transactions with begin dates after July 19, 1994, except when data were unavailable. Pasha data with start dates after July 19, 1994, were used for the following companies: KN Energy (877 records), Trunkline (431 records), Canyon Creek (28 records), Equitrans (57 records), Great Lakes (120 records), Iroquois (1 record), Kern River (5 records), Koch (3 records), National Fuel (615 records), and Viking (7 records). The combined file has a total of 38,040 transportation records.

Finally, the records of the merged file were "exploded" to analyze the amounts of capacity held by replacement shippers at different periods. The merged file was exploded by extending the records for the number of days the transaction was effective. For example, if an award was for 20 days, then 20 records with identical daily price and volume were created, one record for each day of award. The full 38,040 record file exploded to 1,451,196 records. This file was then summarized by region and heating season to produce the tables and figures used in the Chapter 2 analysis.

Table E1. Summary of Capacity Release Data by Pipeline Company, November 1993 - March 1996

	Data	Number of	Average Award Length	Capacity Held by Replacement Shippers	Revenue	Average Rate	Percent Discounted from	Percent of Capacity Subject
Season / Region / Pipeline Company Name	Source	Awards	(days)	(million cubic feet)	(\$000)	(\$/Mcf-mo)	Max Rate	to Recall
1993-94 Heating Season								
Central Region								
Colorado Interstate Gas Co	Pasha	40	24	6,426	1,506	7.13		•
KN Interstate Gas Co	Pasha	95	19	8,273	942	3.46		•
Mississippi River Transmission Co	Pasha	81	36	10,249	1,146	3.40		•
Natural Gas Pipeline Co of America	Pasha	222	21	38,137	6,474	5.16		
Northern Border Pipeline Co	Pasha	20	22	7,145	165	0.70		
Northern Natural Gas Co	Pasha	92	31	24,854	2,253	2.76		
Trailblazer Pipeline Co	Pasha	25	40	10,688	1,219	3.47		
Williams Natural Gas Co	Pasha	51	29	7,001	476	2.07		
Regional Total		626	26	112,773	14,181	3.82		•
Midwest Region								
ANR Pipeline Co	Pasha	78	21	9.417	2.181	7.04	_	
Midwestern Gas Transmission Co	Pasha	5	19	763	36	1.42	•	•
Panhandle Eastern Pipeline Co	Pasha	178	25	23,513	2,600	3.36	•	•
Texas Gas Transmission Co	Pasha	177	54	30,649	3,153	3.13	•	•
Regional Total	1 43114	438	36	64,342	7,969	3.77	•	•
Regional Total		430	30	04,342	7,909	3.11		•
Northeast Region								
Algonquin Gas Transmission Co	Pasha	17	1,399	6,533	1,326	6.17		•
Columbia Gas Transmission Co	Pasha	464	81	76,681	8,473	3.36		•
CNG Transmission Co	Pasha	204	82	46,327	5,455	3.58		•
East Tennessee Gas Co	Pasha	25	662	11,014	2,596	7.17		•
Equitrans Inc	Pasha	2	26	1,515	151	3.04		•
Iroquis Gas	Pasha	1	29	290	1	0.06		•
Tennessee Gas Pipeline Co	Pasha	149	215	26,411	7,201	8.29		•
Texas Eastern Transmission Co	Pasha	137	112	26,872	2,948	3.34		
Transcontinental Gas Pipeline Co	Pasha	42	577	6,080	1,418	7.09		
Trunkline Gas Co	Pasha	53	23	8,190	1,040	3.86		
Regional Total		1,094	153	209,913	30,609	4.44		
Southeast Region								
Florida Gas Transmission Co	Pasha	15	58	1,319	37	0.86		
Southern Natural Gas Co	Pasha	54	29	9,039	365	1.23		
Regional Total	· dona	69	35	10,358	403	1.18		
Southwest Region								
NORAM Gas Transmission	Pasha	20	231	4,819	342	2.16		
Regional Total	газна	20	231	4,819	342	2.16	•	
West Region								
El Paso Natural Gas Co	Pasha	197	25	54,974	9.040	5.00		
Northwest Pipeline Co	Pasha	80	25 68	19,041	5,288	8.45	•	•
•					,		•	•
Pacific Gas Transmission Co	Pasha	189	82	83,147	10,102	3.70	•	•
Paiute Pipeline Co	Pasha	5	14	13	4	9.76	•	•
Transwestern Gas Pipeline Co	Pasha	11	38	7,308	520	2.17	•	•
Regional Total		482	55	164,483	24,955	4.61		•
1993-94 Heating Season Total		2,729	85	566,688	78,459	4.21		

Table E1. Summary of Capacity Release Data by Pipeline Company, November 1993 - March 1996 (Continued)

	Data	Number of	Average Award Length	Capacity Held by Replacement Shippers	Revenue	Average Rate	Percent Discounted from	Percent of Capacity Subject
Season / Region / Pipeline Company Name	Source	Awards	(days)	(million cubic feet)	(\$000)	(\$/Mcf-Mo)	Max Rate	to Recall
1994 Nonheating Season Central Region								
Colorado Interstate Gas Co	Merged File	205	59	23,262	4,430	5.79	98	24
KN Interstate Gas Co	Pasha	255	23	29,425	2,039	2.11		
Mississippi River Transmission Co	Merged File	103	40	13,536	1,572	3.53		20
Natural Gas Pipeline Co of America	Merged File	621	30	215,165	56,986	8.06		81
Northern Border Pipeline Co	Merged File	25	27	11,641	700	1.83		
Northern Natural Gas Co	Merged File	214	39	73,839	4,832	1.99		
Trailblazer Pipeline Co	Merged File	69	94	60,010	5,645	2.86		59
Williams Natural Gas Co	Merged File	303	36	62,182	3,251	1.59	98	99
Regional Total		1,795	38	489,060	79,455	4.94	98	82
Midwest Region								
ANR Pipeline Co	Merged File	238	33	69,123	5,425	2.39	85	63
Midwestern Gas Transmission Co	Merged File	47	20	8,094	253	0.95		86
Panhandle Eastern Pipeline Co	Merged File	375	20	32,179	3,508	3.32		50
Texas Gas Transmission Co	Merged File	609	23	77,068	6,247	2.47		87
Viking Gas Transmission Co	Pasha	7	57	6,607	490	2.26		
Regional Total		1,276	24	193,070	15,924	2.51	85	72
Northeast Region								
Algonquin Gas Transmission Co	Merged File	80	72	20,832	2,522	3.68	_	32
Columbia Gas Transmission Co	Merged File	920	43	144,032	14,762	3.12	96	33
Columbia Gulf Transmission Co	Merged File	485	22	61,682	539	0.27	94	25
CNG Transmission Co	Merged File	574	30	94,676	4,388	1.41	91	64
East Tennessee Gas Co	Merged File	108	38	23,940	4,436	5.64		98
Equitrans Inc	Pasha	2	31	1,551	155	3.04		
National Fuel Gas Supply Co	Pasha	73	27	3,536	207	1.78		97
Tennessee Gas Pipeline Co	Merged File	1.009	35	171,016	15.835	2.82		73
Texas Eastern Transmission Co	Merged File	339	103	138,385	8,948	1.97	59	84
Transcontinental Gas Pipeline Co	Merged File	450	63	55,411	6,604	3.63		64
Trunkline Gas Co	Pasha	91	28	8,560	566	2.01		34
Regional Total		4,131	44	723,621	58,962	2.48	84	57
Southeast Region								
Florida Gas Transmission Co	Merged File	18	21	2,373	408	5.23		43
Southern Natural Gas Co	Merged File	390	47	81.543	10.035	3.74	•	99
Regional Total	worged i lie	408	46	83,916	10,443	3.79		93
Southwest Region								
NORAM Gas Transmission	Merged File	73	150	9,814	1.072	3.32		67
Regional Total	wicigou i lie	73	150	9,814	1,072	3.32		67
West Region								
El Paso Natural Gas Co	Merged File	465	27	225,479	15.563	2.10		61
Kern River Transmission Co	Pasha	465 5	30	225,479 995	15,563	4.46	•	01
Northwest Pipeline Co	Merged File		133	57,043	8,825	4.40	•	•
Pacific Gas Transmission Co	Merged File	328	118	191,133	22,307	3.55		74
Paiute Pipeline Co	Merged File	11	21	363	42	3.54	•	74
Transwestern Gas Pipeline Co	Merged File	82	34	63,940	2,138	1.02	•	76
Regional Total	wicigou i lie	1,035	71	538,953	49,021	2.77		65
1994 Nonheating Season Total		8,718	44	2,038,435	214,877	3.21	92	67
1994 Normeating Season Total		0,710	44	2,030,435	214,011	3.21	92	07

Table E1. Summary of Capacity Release Data by Pipeline Company, November 1993 - March 1996 (Continued)

	Data	Number of	Average Award Length	Capacity Held by Replacement Shippers	Revenue	Average Rate	Percent Discounted from	Percent of Capacity Subject
Season / Region / Pipeline Company Name	Source	Awards	(days)	(million cubic feet)	(\$000)	(\$/Mcf-Mo)	Max Rate	to Recall
1994-95 Heating Season								
Central Region								
Canyon Creek Gas Co	Merged File	7	33	2,917	29	0.30	85	
Colorado Interstate Gas Co	Merged File	186	26	19,551	3,597	5.60	98	66
KN Interstate Gas Co	Pasha	172	20	16,404	1,129	2.09	68	93
Mississippi River Transmission Co	Merged File	49	38	5,995	709	3.59	42	99
Natural Gas Pipeline Co of America	Merged File	376	36	111,961	32,434	8.81	53	89
Northern Border Pipeline Co	Merged File	6	181	2,855	3	0.04	99	
Northern Natural Gas Co	Merged File	293	35	75,301	3,911	1.58	81	
Trailblazer Pipeline Co	Merged File	84	40	42,099	3,079	2.22		35
Williams Natural Gas Co	Merged File	267	82	71,360	6,271	2.67	98	94
Regional Total		1,440	42	348,443	51,163	4.47	93	79
Midwest Region								
ANR Pipeline Co	Merged File	258	21	30,637	2,493	2.48	78	71
Midwestern Gas Transmission Co	Merged File	31	9	3,616	85	0.72		40
Panhandle Eastern Pipeline Co	Merged File	254	28	26,150	3,071	3.57	77	70
Texas Gas Transmission Co	Merged File	608	26	63,883	7,056	3.36		91
Regional Total		1,151	25	124,286	12,705	3.11	78	80
Northeast Region								
Algonquin Gas Transmission Co	Merged File	58	439	15,162	1,689	3.39	96	60
Columbia Gas Transmission Co	Merged File	1,021	53	137,147	9,644	2.14	76	68
Columbia Gulf Transmission Co	Merged File	644	96	127,339	6,744	1.61	72	65
CNG Transmission Co	Merged File	512	32	90,696	10,754	3.61	46	81
East Tennessee Gas Co	Merged File	42	44	12,418	2,875	7.04	46	91
Equitrans Inc	Pasha	15	24	3,035	281	2.82		94
National Fuel Gas Supply Co	Pasha	108	28	7,714	806	3.18	16	74
Tennessee Gas Pipeline Co	Merged File	429	26	52,322	7,843	4.56	77	82
Texas Eastern Transmission Co	Merged File	204	240	151,981	14,209	2.84	45	83
Transcontinental Gas Pipeline Co	Merged File	321	100	52,735	11,118	6.41		66
Trunkline Gas Co	Pasha	145	33	24,561	1,840	2.28	84	77
Regional Total		3,499	74	675,111	67,802	3.05	62	74
Southeast Region								
Florida Gas Transmission Co	Merged File	36	25	4,903	1,004	6.23	78	80
Southern Natural Gas Co	Merged File	301	18	74,403	3.697	1.51		99
Regional Total		337	19	79,305	4,702	1.80		98
Southwest Region								
Koch Gateway Pipeline Co	Merged File	3	605	4,450	1,990	13.60		
NORAM Gas Transmission	Merged File	51	130	5,726	1,081	5.74	33	89
Regional Total	morgou i no	54	156	10,177	3,071	9.18	33	43
West Region								
El Paso Natural Gas Co	Merged File	261	24	125,067	9,199	2.24	81	22
Northwest Pipeline Co	Merged File	0		11,141	2,894	7.90		
Pacific Gas Transmission Co	Merged File	153	309	163,652	19,678	3.66	69	42
Paiute Pipeline Co	Merged File	24	20	161	55	10.34		93
Transwestern Gas Pipeline Co	Merged File	63	62	49,512	1,477	0.91		58
Regional Total	904 1 110	501	116	349,532	33,302	2.90	81	36
1994-95 Heating Season Total		6,982	60	1,586,854	172,744	3.31	82	69

Table E1. Summary of Capacity Release Data by Pipeline Company, November 1993 - March 1996 (Continued)

	Data	Number	Average Award Length	Capacity Held by Replacement Shippers	Revenue	Average Rate	Percent Discounted from	Percent of Capacity Subject
Season / Region / Pipeline Company Name	Source	Awards	(days)	(million cubic feet)	(\$000)	(\$/Mcf-Mo)	Max Rate	to Recall
1995 Nonheating Season								
Central Region								
Canyon Creek Gas Co	Pasha	12	72	13,354	273	0.62	69	42
Colorado Interstate Gas Co	Merged File	293	30	43,884	7,940	5.50	58	59
KN Interstate Gas Co	Pasha	194	27	22,713	2,047	2.74	75	96
Mississippi River Transmission Co	Merged File	179	130	46,881	1,160	0.75	77	14
Natural Gas Pipeline Co of America	Merged File	653	33	314,472	77,615	7.51	31	92
Northern Border Pipeline Co	Merged File	20	752	8,646	19	0.07	99	4
Northern Natural Gas Co	Merged File	528	41	204,048	7,010	1.05	86	
Trailblazer Pipeline Co	Merged File	111	51	100,272	11,527	3.50		61
Williams Natural Gas Co	Merged File	468	40	123,046	8,695	2.15	99	97
Regional Total		2,458	49	877,316	116,285	4.03	92	79
Midwest Region								
ANR Pipeline Co	Merged File	474	29	113,241	6,480	1.74	84	66
Midwestern Gas Transmission Co	Merged File	10	20	2,264	24	0.32	86	
Panhandle Eastern Pipeline Co	Merged File	322	28	42,392	4,161	2.99	75	71
Texas Gas Transmission Co	Merged File	834	32	119.422	8.049	2.05	7.5	84
Regional Total	Worged I lie	1,640	30	277,319	18,715	2.05	81	75
Northeast Region								
Algonquin Gas Transmission Co	Merged File	157	34	33,055	2,666	2.45	89	32
Columbia Gas Transmission Co	Merged File		39	189,581	9,881	1.59	82	32
Columbia Gulf Transmission Co	Merged File		36	188,196	5,812	0.94	80	36
CNG Transmission Co	Merged File	700	33	146,627	5,656	1.17	84	69
East Tennessee Gas Co		700	59		,	4.93	79	99
	Merged File			24,453	3,960		79 96	
Equitrans Inc	Pasha	31	29	7,514	502	2.03		90
National Fuel Gas Supply Co	Pasha	199	30	11,666	769	2.00	64	59
Tennessee Gas Pipeline Co	Merged File	899	40	184,513	15,931	2.63	84	81
Texas Eastern Transmission Co	Merged File	732	49	339,568	24,807	2.22	55	72
Transcontinental Gas Pipeline Co	Merged File	950	47	166,255	19,898	3.64	57	62
Trunkline Gas Co	Pasha	77	42	25,758	1,118	1.32	88	68
Regional Total		6,091	40	1,317,185	90,999	2.10	75	60
Southeast Region								
Florida Gas Transmission Co	Merged File	110	33	11,387	2,887	7.71	66	26
Southern Natural Gas Co	Merged File	555	31	125,401	3,762	0.91	92	98
Stingray Pipeline Co	Merged File	85	28	6,974	746	3.25		78
Regional Total		750	31	143,762	7,395	1.56	87	91
Southwest Region								
Koch Gateway Pipeline Co	Pasha	0		6,899	3,118	13.75		
NORAM Gas Transmission	Merged File	36	214	20,947	2,161	3.14	75	18
Regional Total	3	36	198	27,846	5,279	5.77	75	14
West Region								
El Paso Natural Gas Co	Merged File	671	29	306,668	29,813	2.96	68	14
Northwest Pipeline Co	Merged File	571	48	119,585	10,870	2.76	70	82
Pacific Gas Transmission Co	Merged File	209	191	207,141	27,342	4.01	63	31
Paiute Pipeline Co	Merged File	130	27	2,345	400	5.19	97	95
Transwestern Gas Pipeline Co	Merged File	34	46	45,276	2,209	1.48	- ·	39
Regional Total	900 1 110	1,615	57	681,014	70,634	3.15	72	33

Table E1. Summary of Capacity Release Data by Pipeline Company, November 1993 - March 1996 (Continued)

			Average	Capacity Held			Percent	Percent
		Number	Award	by Replacement		Average	Discounted	of Capacity
Season / Region / Pipeline Company Name	Data Source	of Awards	Length (days)	Shippers (million cubic feet)	Revenue (\$000)	Rate (\$/Mcf-Mo)	from Max Rate	Subject to Recall
1995-96 Heating Season								
Central Region								
Canyon Creek Gas Co	Pasha	7	209	11,614	320	0.84	59	65
Colorado Interstate Gas Co	Merged File	117	22	15,158	3,005	6.03	32	67
KN Interstate Gas Co	Pasha	131	34	11,354	1,978	5.30	38	100
Mississippi River Transmission Co	Merged File	61	26	41,161	1,430	1.06	60	19
Natural Gas Pipeline Co of America	Merged File	259	112	221,363	66,171	9.09	51	95
Northern Border Pipeline Co	Merged File	16	891	15,891	6	0.01		
Northern Natural Gas Co	Merged File	332	51	123,707	7,065	1.74	84	90
Trailblazer Pipeline Co	Merged File	83	84	53,779	5,135	2.90		71
Williams Natural Gas Co	Merged File	214	41	76,549	7,215	2.87	99	98
Regional Total		1,220	71	570,575	92,324	4.92	85	82
Midwest Region								
ANR Pipeline Co	Merged File	223	32	53,711	10,959	6.21	40	82
Great Lakes Transmission Co	Pasha	110	175	48,203	9,760	6.16	18	42
Midwestern Gas Transmission Co	Merged File	32	31	17,401	613	1.07	49	99
Panhandle Eastern Pipeline Co	Merged File	235	39	48,463	16,270	10.21	18	44
Texas Gas Transmission Co	Merged File	812	43	180,970	24,910	4.19		83
Regional Total		1,412	51	348,747	62,513	5.45	27	72
Northeast Region								
Algonquin Gas Transmission Co	Merged File	22	80	17,437	3,054	5.33	28	38
Columbia Gas Transmission Co	Merged File		50	135,297	16,463	3.70	53	58
Columbia Gulf Transmission Co	Merged File	364	80	68,930	4,148	1.83	64	35
CNG Transmission Co	Merged File	509	61	108,369	15,561	4.37	31	39
East Tennessee Gas Co	Merged File	59	377	12,150	2,746	6.87	9	97
Equitrans Inc	Pasha	6	23	2,095	108	1.57		96
National Fuel Gas Supply Co	Pasha	221	26	11,981	1,391	3.53	88	34
Tennessee Gas Pipeline Co	Merged File	614	47	133,143	31,336	7.16	43	85
Texas Eastern Transmission Co	Merged File	403	182	245,599	54,699	6.77	25	85
Transcontinental Gas Pipeline Co	Merged File	232	172	81,136	15,064	5.65	20	49
Trunkline Gas Co	Pasha	49	39	30,462	6,045	6.04	54	91
Regional Total		3,485	82	846,599	150,617	5.41	40	67
Southeast Region								
Alabama-Tennessee Gas Co	Merged File	6	363	1,176	160	4.13	32	99
Florida Gas Transmission Co	Merged File	33	91	3,935	749	5.79	75	34
Southern Natural Gas Co	Merged File	314	33	77,290	3,499	1.38	88	97
Stingray Pipeline Co	Merged File	82	84	1,984	247	3.79		87
Regional Total		435	52	84,385	4,655	1.68	87	94
Southwest Region								
Koch Gateway Pipeline Co	Pasha	0		4,868	2,200	13.75	•	
NORAM Gas Transmission	Merged File	0		15,673	1,392	2.70	76	3
Regional Total		0		20,541	3,592	5.32	76	2
West Region								
El Paso Natural Gas Co	Merged File	489	43	173,252	22,377	3.93	50	33
Northwest Pipeline Co	Merged File	591	180	194,552	30,172	4.72	46	64
Pacific Gas Transmission Co	Merged File	187	637	190,487	24,390	3.89		19
Paiute Pipeline Co	Merged File	67	27	1,334	295	6.73	97	•
Transwestern Gas Pipeline Co	Merged File	33	61	20,161	1,497	2.26	-	22
Regional Total		1,367	183	579,786	78,731	4.13	48	39
1995-96 Heating Season Total		7,919	90	2,450,634	392,432	4.87	65	65

\$/Mcf-mo = Dollars per thousand cubic feet per month. Merged file = Data file created by combining Pasha and EDI data. EDI = Federal Energy Regulatory Commission, Electronic Data Interchange capacity release data set. Pasha = Pasha Publications, Inc. capacity release data set. Source: Energy Information Administration, Office of Oil and Gas, derived from: **November 1993 - July 1994:** Pasha Publications, Inc. **July 1994**

⁻ March 1996: Federal Energy Regulatory Commission, Electronic Data Interchange (EDI) data.