5. Inter-Zonal Congestion Management Market

5.1 Summary of 2005 Inter-Zonal Congestion Management Market

5.1.1 Overview

Under the current zonal model, the CAISO manages congestion in the forward market only on major inter-ties and two large internal paths (Path 15 and Path 26). It uses adjustment bids to mitigate the congestion while minimizing the cost of schedule adjustments and keeping each Scheduling Coordinator's (SC) schedule in balance. The marginal SC establishes the usage charge for the inter-zonal interface. All SCs pay this charge based on their accepted, scheduled flow on the interface. The CAISO pays the net amount of congestion charges it collects to the Transmission Owners (TOs) and the owners of Firm Transmission Rights (FTRs). Figure 5.1 shows the active congestion zones and major inter-zonal pathways (branch groups) in the CAISO grid that are active effective December 1, 2005. The new footprint of the CAISO grid reflects several operational changes that became effective on December 1, 2005, including:

- Transition of COTP and MID to the SMUD Control Area,
- TID becoming an independent control area,
- The new Plumas-Sierra Interconnection,
- The new and converted metered sub-systems, and
- A Pilot Pseudo Tie for Calpine's Sutter Plant.

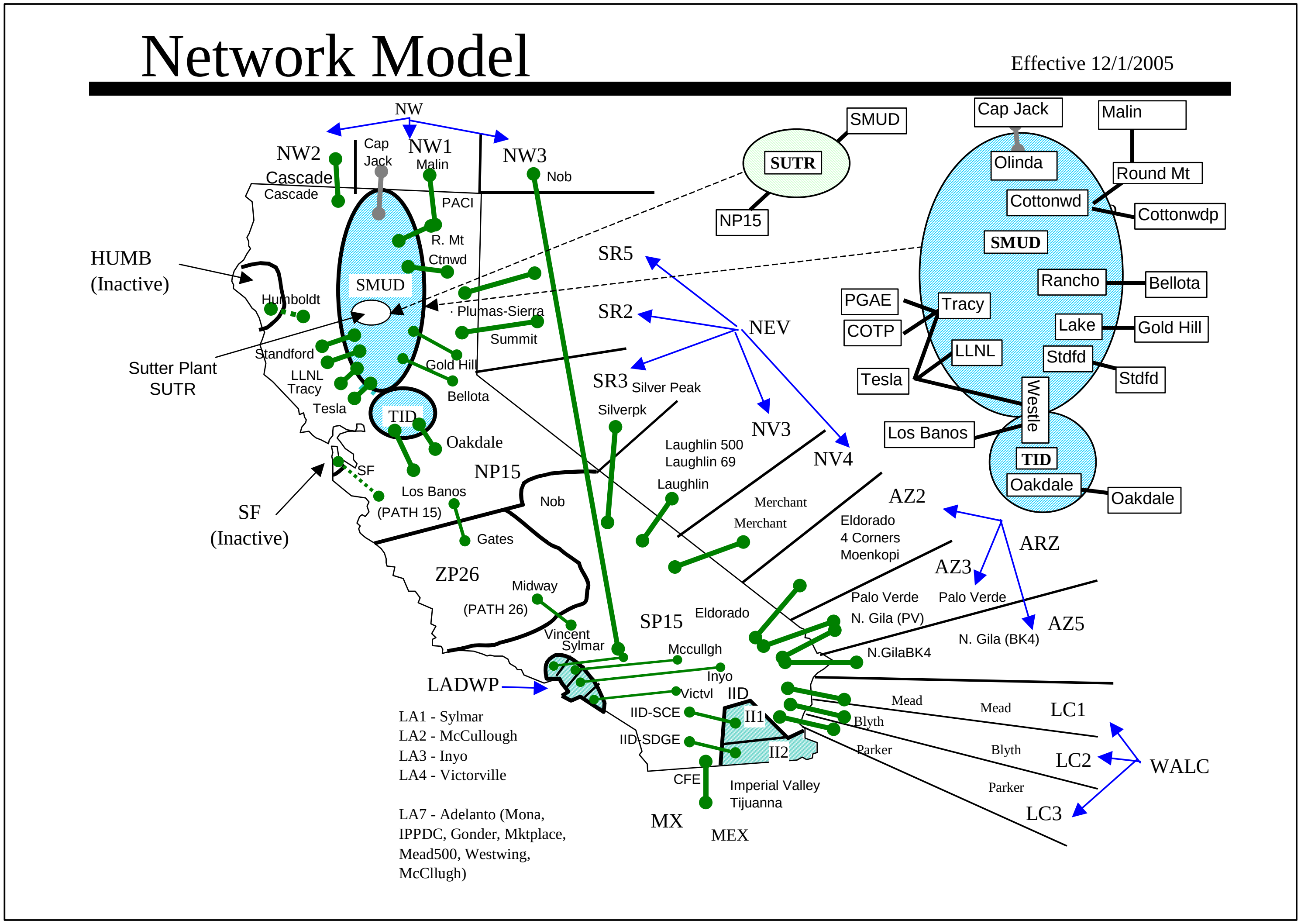
Total inter-zonal congestion cost for both the Day Ahead and Hour Ahead Markets in 2005 was $54.6 million, slightly lower than the $55.8 million in 2004, higher than the $ 26.1 million in 2003 and $41.8 in 2002, but significantly lower than $107.1 in 2001 and $391.4 in 2000. Table 5.1 shows the historical annual total inter-zonal congestion cost since the year 2000.

Table 5.1 Historical Inter-Zonal Congestion Cost

Year	Total Inter-Zonal Congestion Cost ($ Million)
2000	$ 391.4
2001	$ 107.1
2002	$ 41.8
2003	$ 26.1
2004	$ 55.8
2005	$ 54.6

The reduced inter-zonal congestion cost in 2005 was mainly due to upgrades of Path 26 that were effective during 2005, as well as upgrades of Path 15 that were effective December 2004. Compared to 2004, congestion costs in 2005 decreased on major branch groups such as Palo Verde, Path 15, Path 26, COI/PACI, NOB, and Mead, but increased on both Eldorado and Blythe. Higher congestion costs for Eldorado are mostly due to frequent and intensive scheduled work on lines and substations related to the two inter-ties that comprise the Eldorado Branch Group. Higher congestion costs for Blythe were caused by dynamic local load conditions in the Blythe area that resulted in frequent adjustments to the transmission limits on the Blythe Branch Group.

Figure 5.1 Active Congestion Zones and Branch Groups



5.1.2 Inter-Zonal Congestion Frequency and Magnitude

This section summarizes the frequency and average congestion price for the major inter-zonal interfaces (branch groups) in 2005. Table 5.2 lists all active inter-zonal interfaces (or branch groups) that the CAISO managed in its forward congestion management market in 2005.

Table 5.2 Summary of Active Branch Groups in the CAISO Market (2005)

BRANCH_GRP	Tie Point	FROM ZONE	TO ZONE	MAX OTC IN IMPORT DIRECTION (MW)	MAX OTC IN EXPORT DIRECTION (MW)	Note
ADLANTOSP_BG	ADELNT_2_SYLMAR, ADLNTO_5_LUGO	LA7	SP15	1036	162	new on 1/1/2005
BLYTHE _BG	BLYTHE_1_WALC	LC2	SP15	218	0	
CASCADE _BG	CASCAD_1_CRAGVW	NW2	NP15	100	0	
CFE _BG	IVALLY_2_23050	MX	SP15	800	0	
COI _BG	MALIN_5_RNDMTN, CAPJAK_5_OLINDA	NW1	NP15	4800	500	expired on 12/1/2005
CTNWDRDMT_BG	CTNWDW_2_RNDMTN	SMD3	NP15	370	0	new on 1/1/2005
CTNWDWAPA_BG	CTNWDW_2_CTTNWD	SMD2	NP15	1594	797	new on 1/1/2005
ELDORADO _BG	ELDORD_5_PSUDO, FCORNR_5_PSUED, MOENKO_5_PSUED	AZ2	SP15	1607	455	
GONDIPPDC_BG	GONDER_5_IPPDC	SR4	LA5	68	25	new on 1/1/2005
IID-SCE _BG	MORAGE_2_COCHLA, DEVERS_2_COCHLA	II1	SP15	600	-50	
IID-SDGE _BG	IVALLY_2_230S	II2	SP15	225	0	
INYO _BG	INYOS_2_LDWP	LA3	SP15	56	0	
IPPDCADLN_BG	IPPDC_5_ADLNTO	LA5	LA7	647	0	new on 1/1/2005
LAUGHLIN _BG	MOHAVE_6_69kV, MOHAVE_5_500kV	NV3	SP15	0	-222	
LLNLTESLA_BG	LLNL_1_TESLA	SMD8	NP15	256	0	new on 1/1/2005
MARBLESUB_BG	MBLSPP_6_MARBLE	SR5	NP15	0	0	new on 12/1/2005
MCCLMKTPC_BG	MCCLUG_5_MKTPLC	LA6	LC4	694	0	new on 1/1/2005
MCCULLGH _BG	ELDORD_5_MCLLGH	LA2	SP15	3600	0	
MEAD _BG	MEAD_2_WALC	LC1	SP15	1460	-1140	
MEADMKTPC_BG	MEAD_5_MKTPLC	LC5	LC4	263	263	new on 1/1/2005
MEADTMEAD_BG	MEADT_5_MEAD	LC6	LC5	182	182	new on 1/1/2005
MERCHANT _BG	MRCHNT_2_ELDORD	NV4	SP15	645	645	
MKTPCADLN_BG	MKTPLC_5_ADLNTO	LC4	LA7	423	0	new on 1/1/2005
MONAIPPDC_BG	MONA_5_IPPDC	PC1	LA5	564	545	new on 1/1/2005
N.GILABK4_BG	NGILA_5_NG4	AZ5	SP15	366	240	
NOB _BG	SYLMAR_2_NOB	NW3	SP15	2091	0	
OAKDALSUB_BG	OAKTID_1_OAKCSF	TDZ1	NP15	266	266	new on 12/1/2005
OLNDAWAPA_BG	OLNDWA_2_OLIND5	SMD1	NP15	1041	850	expired on 12/1/2005
PACI	MALIN_5_RNDMTN	NW1	NP15	2967	1633	new on 12/1/2005
PALOVRDE _BG	PVERDE_5_DEVERS, PVERDE_5_NG-PLV	AZ3	SP15	2823	973	
PARKER _BG	PARKR_2_GENE	LC3	SP15	220	0	
PATH15 _BG		ZP26	NP15	6390	9999	
PATH26 _BG		SP15	ZP26	9999	1034	
RNCHLAKE _BG	RANCHO_2_BELOTA	SMDE	NP15	2004	-797	
SILVERPK _BG	SLVRPK_7_SPP	SR3	SP15	17	0	
STNDFDSTN_BG	STNDFD_1_STNCSF	SMDK	NP15	446	446	new on 12/1/2005
SUMMIT _BG	SUMITM_1_SPP	SR2	NP15	120	0	
SUTTRLOFF_BG	SUTTER_2_LAYOFF	SMDM	SUTR			new on 12/1/2005
SUTTRNP15_BG		SUTR	NP15	1492	1366	new on 12/1/2005
SYLMAR-AC_BG	SYLMAR_2_LDWP	LA1	SP15	1600	-1200	
TRACYCOTP_BG	TRACY5_5_COTP	SMDH	NP15	143	79	new on 12/1/2005
TRACYPGAE_BG	TRACY5_5_PGAE	SMDL	NP15	4388	4352	new on 12/1/2005
TRACYWAPA_BG	TRCYPP_2_TRACY5	SMD4	NP15	1700	850	expired on 12/1/2005
TRCYTESLA_BG	TRCYPP_2_TESLA	SMD5	NP15	1366	0	new on 1/1/2005
TRCYWSTLY_BG	TRCYPP_2_WESTLY	SMD6	NP15	650	650	expired on 12/1/2005
VICTVL _BG	LUGO_5_VICTVL	LA4	SP15	1526	0	
WSLYTESLA_BG	WESTLY_2_TESLA	SMDJ	NP15	233	233	new on 12/1/2005
WSTLYLSBN_BG	WESTLY_2_LOSBNS	TDZ2	NP15	233	233	new on 12/1/2005
WSTWGMEAD_BG	WSTWNG_5_MEAD	AZ6	LC5	126	94	new on 1/1/2005

Table 5.3 shows annual congestion frequencies and average congestion prices by branch group, direction (import and export), and market type (Day Ahead and Hour Ahead). Congestion occurred primarily on five branch groups: Palo Verde (import), Blythe (import), COI/PACI (import), Eldorado (import), and Path 26 (north-to-south). The congestion patterns, categorized by congested branch groups, congestion frequencies, and direction of congestion, were similar to 2004. Most congestion on inter-ties occurred in the import direction. For instance, Palo Verde (import) was the most frequently congested path in 2005, having been congested in 23 percent of hours in the Day Ahead Market. Of the internal paths, Path 26 was frequently congested in the north-to-south direction before its rating was increased on June 27, 2005. Path 15 was much less congested in either direction compared to 2004 due to Path 15 upgrades that became effective on December 7, 2004. In addition, the average congestion prices were lower on COI/PACI and Path 26, higher on Blythe and Eldorado, and similar on Palo Verde as compared to figures from 2004. Consistent with previous years, the frequency of congestion was lower and congestion prices were higher in the hour-ahead markets than in the day-ahead markets primarily due to the fact that most schedules were cleared in the Day Ahead Market and consequently most congestion was managed in the Day Ahead Market. However, fewer available adjustment bids in the Hour Ahead Market often lead to higher congestion prices when congestion did occur in the Hour Ahead Market.

Table 5.3 Inter-Zonal Congestion Frequencies (2005)

	Day-Ahead Market				Hour-ahead Market			
	Percentage of Hours Being Congested (%)		Average Congestion Price ($/MWh)		Percentage of Hours Being Congested (%)		Average Congestion Price ($/MWh)	
Branch Group	**Import**	**Export**	**Import**	**Export**	**Import**	**Export**	**Import**	**Export**
ADLANTOSP_BG	1	0	$17		0	0	$53	
BLYTHE _BG	5	0	$108		0	0	$96	
CASCADE _BG	4	0	$0		2	0	$0	
COI _BG	18	0	$3		13	0	$9	
ELDORADO _BG	6	0	$9		4	0	$13	
GONDIPPDC_BG	0	0		$20	0	0		
IID-SCE _BG	0	0	$49		0	0	$33	
IPPDCADLN_BG	2	0	$22		2	0	$41	
MEAD _BG	8	0	$2		4	0	$22	$30
MKTPCADLN_BG	0	0	$0		0	0	$0	
N.GILABK4_BG	0	1		$123	0	0		$100
NOB _BG	9	0	$1		6	0	$17	
OLNDAWAPA_BG	0	0		$250	0	0		$43
PACI _BG	0	0			1	1	$3	$0
PALOVRDE _BG	23	0	$6		8	0	$20	
PARKER _BG	1	0	$3		0	0	$0	
PATH15 _BG	1	0	$19		1	0	$10	
PATH26 _BG	0	2		$18	0	1	$65	$18
RNCHLAKE _BG	0	0			0	0		$50
SILVERPK _BG	0	0			0	0	$0	
SUMMIT _BG	0	0	$2		0	0	$0	$26
TRACYWAPA_BG	1	0	$22	$207	0	0	$50	$61
TRCYTESLA_BG	0	0	$1		0	0		
WSTLYLSBN_BG	0	1		$30	0	0		
WSTWGMEAD_BG	5	0	$2		2	0	$3	

* Average congestion price is the simple average price for hours in which the paths were congested.

5.1.3 Inter-Zonal Congestion Usage Charge and Revenues

Table 5.4 shows the annual congestion revenues for the major CAISO branch groups in 2005.[1] The total congestion revenue of $54.6 million in 2005 slightly decreased from $55.8 million in 2004. Of the total $54.6 million in congestion revenue, approximately 82 percent was attributable to five branch groups: $19.8 million to Palo Verde in the east-to-west (import) direction, $8.7 million to Blythe in the east-to-west (import) direction, $6.7 million to COI in the north-to-south direction (import), $4.7 million to Eldorado in the east-to-west (import) direction, and $4.9 million to Path 26 in the north-to-south direction.

Table 5.4 Inter-Zonal Congestion Revenue (2005)

Branch Group	Day-ahead		Hour-ahead		Total Congestion Cost		Total Congestion Cost		Total Congestion Cost	Total Cost Percent
	Import	Export	Import	Export	Import	Export	Day-ahead	Hour-ahead		
ADLANTOSP	$730,982	$0	$13,385	$0	$744,367	$0	$730,982	$13,385	$744,367	1%
BLYTHE	$8,747,667	$0	$757	$0	$8,748,424	$0	$8,747,667	$757	$8,748,424	16%
CASCADE	$0	$0	$2	$0	$2	$0	$0	$2	$2	0%
COI	$6,644,439	$0	$104,791	$0	$6,749,230	$0	$6,644,439	$104,791	$6,749,230	12%
ELDORADO	$4,608,008	$0	$134,467	$0	$4,742,475	$0	$4,608,008	$134,467	$4,742,475	9%
GONDIPPDC	$0	$15,847	$0	-$2	$0	$15,845	$15,847	-$2	$15,845	0%
IID-SCE	$360,623	$0	$8,749	$0	$369,372	$0	$360,623	$8,749	$369,372	1%
IPPDCADLN	$1,704,061	$0	$169,999	$0	$1,874,060	$0	$1,704,061	$169,999	$1,874,060	3%
LAUGHLIN	$0	$0	$0	-$39	$0	-$39	$0	-$39	-$39	0%
MEAD	$1,046,698	$0	$102,866	$18,383	$1,149,564	$18,383	$1,046,698	$121,249	$1,167,947	2%
MKTPCADLN	$0	$0	$0	$0	$0	$0	$0	$0	$0	0%
N.GILABK4	$0	$1,117,802	$0	-$9,466	$0	$1,108,336	$1,117,802	-$9,466	$1,108,336	2%
NOB	$1,668,145	$0	$90,897	$290	$1,759,042	$290	$1,668,145	$91,187	$1,759,332	3%
OAKDALSU	$0	$0	$0	$1	$0	$1	$0	$1	$1	0%
OLNDAWAPA	$0	$20,060	$0	-$3,799	$0	$16,261	$20,060	-$3,799	$16,261	0%
PACI	$0	$0	$31,409	$2,359	$31,409	$2,359	$0	$33,768	$33,768	0%
PALOVRDE	$19,665,658	$0	$105,354	$0	$19,771,013	$0	$19,665,658	$105,354	$19,771,013	36%
PARKER	$28,397	$0	$2	$0	$28,399	$0	$28,397	$2	$28,399	0%
PATH15	$2,060,393	$0	$117,104	$0	$2,177,498	$0	$2,060,393	$117,104	$2,177,498	4%
PATH26	$0	$4,969,073	$28,205	-$133,170	$28,205	$4,835,903	$4,969,073	-$104,965	$4,864,108	9%
RNCHLAKE	$0	$0	$0	$13,003	$0	$13,003	$0	$13,003	$13,003	0%
SUMMIT	$5,930	$0	$1	$4,753	$5,932	$4,753	$5,930	$4,754	$10,685	0%
TRACYWAPA	$278,902	$157,378	$0	-$4,091	$278,902	$153,288	$436,280	-$4,091	$432,190	1%
TRCYTESLA	$2,792	$0	$0	$0	$2,792	$0	$2,792	$0	$2,792	0%
TRCYWSTLY	$0	$0	$17	$0	$17	$0	$0	$17	$17	0%
WSTLYLSBN	$0	$17,644	$0	-$1,084	$0	$16,560	$17,644	-$1,084	$16,560	0%
WSTWGMEAD	$104,749	$0	$7,290	$0	$112,039	$0	$104,749	$7,290	$112,039	0%
Total	**$47,552,695**	**$6,280,161**	**$908,005**	**-$111,778**	**$48,460,700**	**$6,168,383**	**$53,832,856**	**$796,228**	**$54,629,083**	**100%**

In 2005, the Hour Ahead Market generated approximately $0.8 million in congestion revenue. This congestion revenue was minimal compared to day-ahead revenues, mainly due to the fact that hour-ahead congestion typically occurs after SCs have adjusted their day-ahead schedule or if there was a change in line ratings from the Day Ahead Markets to the Hour Ahead Markets. Often, only those SCs who changed their schedules in the Hour Ahead Markets were required to pay the congestion charges in the Hour Ahead Markets. Therefore, the volume of transactions in the Hour Ahead Market was much smaller.

Figure 5.2 compares the congestion revenues between 2004 and 2005 for the selected major paths. For most paths, congestion revenue was significantly lower in 2005 than in 2004,

[1] All SCs who have accepted New Firm Use (NFU) schedules on the congested interfaces would pay the usage charge. The net account of congestion charge collected by the CAISO is paid to transmission owner or the FTR holders.

especially for COI/PACI, Path 15, and NOB. Congestion on Path 15 was down due to the Path 15 upgrade that became effective on December 7, 2004. Congestion on COI/PACI and NOB were down because of limited hydroelectric production in the Pacific Northwest in 2005, compared to 2004. The Pacific Northwest suffered a below-average snow pack in 2005 and had an unusually low supply of hydroelectric power.

Figure 5.2 Congestion Revenues on Selected Paths (2004 vs. 2005)

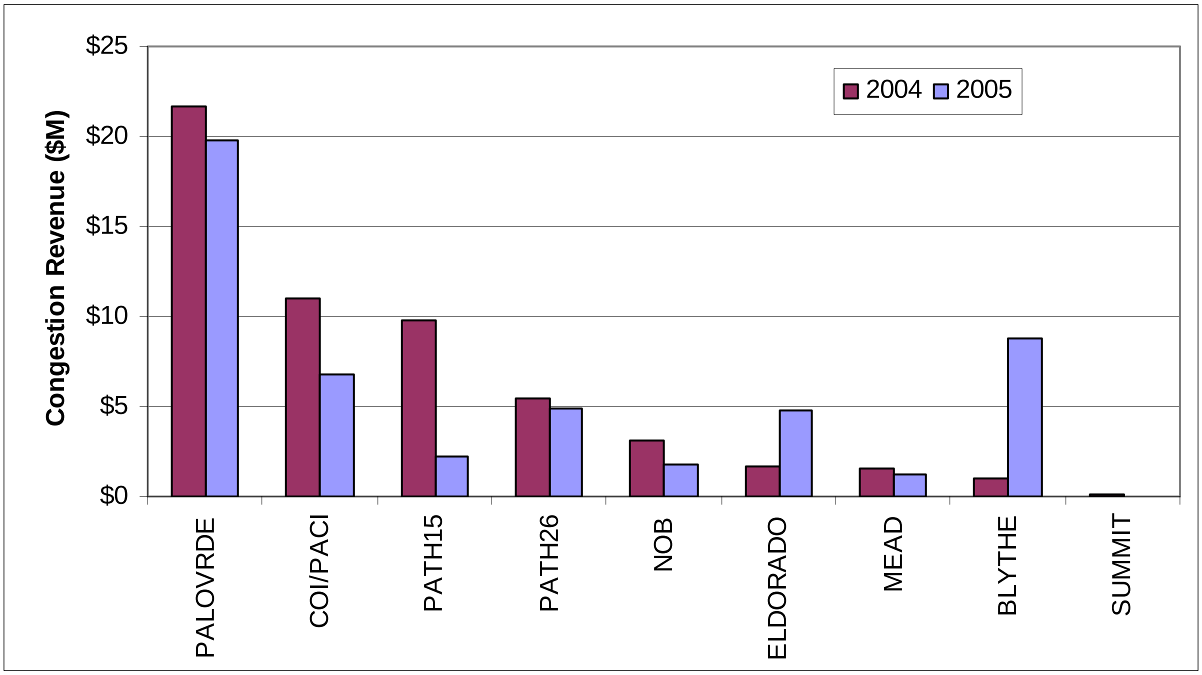
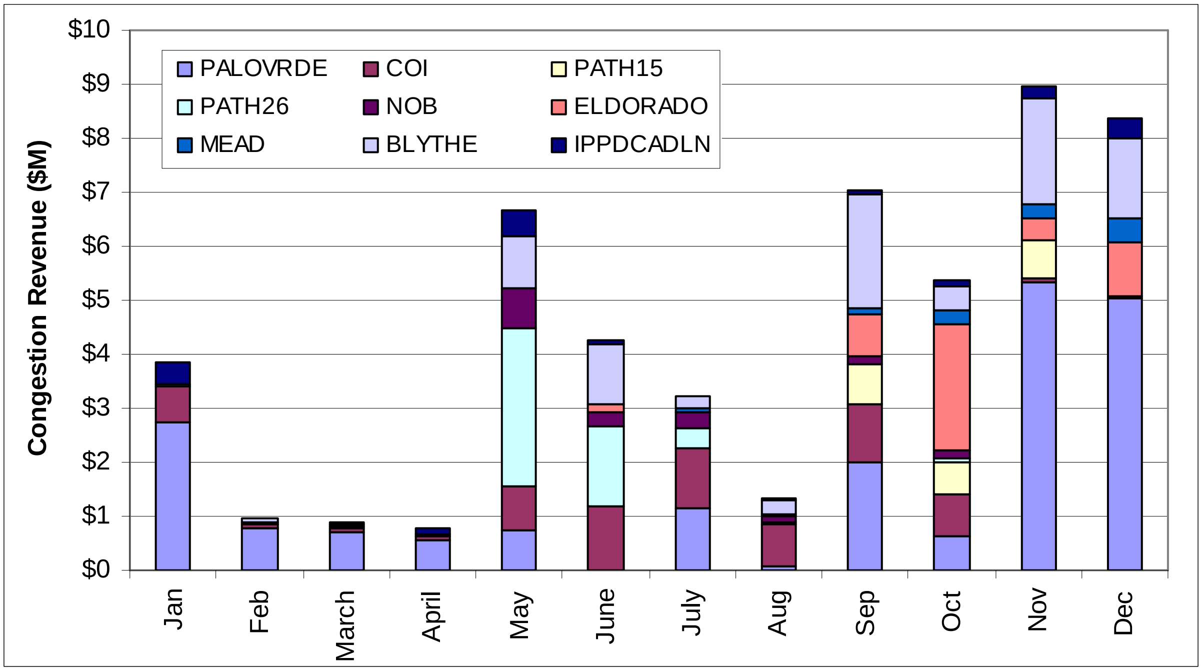


Figure 5.3 further demonstrates the seasonal pattern of congestion revenues on major paths. Similar to previous years' congestion patterns, congestion revenue in 2005 was higher in the second half of the year due to derates resulting from frequent scheduled transmission upgrades and line maintenance. The upgrades and line work caused many deratings on the major paths such as Palo Verde and Eldorado during the second half of the year, especially the last four months. During the first half of the year congestion revenue was moderate in the early months (January-April) but increased in the late spring and mid summer months (May-July). The increase was predominately due to the higher loads in the summer months, which resulted in significant amounts of energy imported into California from the Pacific Northwest in late spring and early summer when more hydro energy was available. Congestion was prevalent on Path 26 for the months of May and June due to this reason, and there was no congestion on Path 26 for the second half of the year due to the Path 26 enhancement that became effective on June 27, 2005. When hydro power was limited in the late summer, California relied more on imports from the Southwest. The higher demand for imports and various derates resulted in higher congestion costs on the major paths between the CAISO and the Southwest for September, October, November, and December (specifically Palo Verde, Blythe, and Eldorado). A more detailed discussion of the seasonal congestion patterns of each of these major paths is provided below.

Figure 5.3 Monthly Congestion Charges of Selected Major Paths (2005)



Palo Verde: The Palo Verde inter-tie had significant congestion costs in January, September, November, and December, all in the import direction and predominantly in the Day Ahead Market. In January, the Palo Verde branch group was congested in the import direction (east-to-west) for 36 percent of all hours in the Day Ahead Market at an average congestion price of $5/MWh, and 14 percent of all hours in the Hour Ahead Market, at an average congestion price of $7/MWh. Congestion on Palo Verde during this month was due in large part to wheeling energy from the Southwest to Northern California where day-ahead bilateral prices were higher. No significant derates were found in this month.

The Palo Verde – Devers 500kV line had a number of planned and forced outages/derates starting in July due to upgrades of series capacitors at Devers and related line/reactor work. For example, a line reactor at Devers was moved for replacement on July 21, and the outage continued through November 15, 2005. Also, since the middle of November 2005 both the Arizona and California series capacitors at Devers were scheduled to be removed from service until June 2006 due to work required for the Devers switching center 500kV revision. Theoretically the series capacitors could be by-passed, leaving the inter-tie transfer capability unaffected. However, in practice due to frequent work required for the capacitor upgrades, the Palo Verde transfer capability in the Day Ahead Market was periodically derated from 800 MW to 200 MW.

Blythe: In contrast to previous years, the Blythe branch group had significant day-ahead import congestion costs in 2005 beginning in April, and especially in the months of June, September, November, and December. The Blythe branch group (Path 59) is defined as the 161 kV tie between Blythe (WALC) in the WAPA lower Colorado region and Blythe (SCE) in the SP15 region. The normal rating of the inter-tie is 168 MW but the daily line limit on the Blythe branch group is based on Blythe area load. Most of the congestion on Blythe was related to Blythe area load fluctuation, which resulted in lower ratings for the Blythe branch group. During the second half of 2005 the CAISO required more imports from the Southeast than in 2004. As a result, the

Blythe tie limit was binding more often than in 2004, resulting in higher congestion costs on Blythe than in 2004. An initial assessment of the cost exposure resulting from a more dynamic line limit revealed a significant amount of hedging through FTRs for schedules across the Blythe branch group.

COI/PACI: The COI branch group had significant day-ahead import congestion throughout the year, especially in the months of June, July, and September. COI was congested for 23 percent of all hours in the day-ahead import direction (from Oregon to California) in June at an average congestion price of $5/MWh. However, comparing this figure to 2004, congestion on COI in June 2005 was much lower due to low hydro in the Northwest overall. The congestion on COI in June was mainly caused by frequent line derates resulting from various associated line and area resource limitations and scheduled maintenance outages. For instance, day-ahead congestion cost on June 8 was caused by derates on COI in the import direction from 4,340 MW to 3,000 MW for hours ending 7 to 19 due to limitations on the COI and PDCI 500kV caused by BPA's Grand Coulee-Hanford #1 line scheduled outage.

In July 2005, COI experienced continued derates due to various scheduled or forced line outages and line and area resource related limitations. For example, the COI import rating (north-to-south) was decreased from 4,550 MW to 3,850 MW on July 6 due to forced outages on the Malin shunt capacitors #3 and #4. During this period, COI was congested for 34 percent of all hours in the Day Ahead Market at an average congestion price of $2/MWh.

COI continued experiencing derates due to various scheduled or forced line outages and line and area resource related limitations in August and September. For example, on September 6, COI was derated by 700 MW due to a number of scheduled outages and line work, including the Grizzly-Sand Springs section of Grizzly-Captain Jack #1 500kV line connector work, and the Ashe-Marion #2 500kV scheduled outage. On September 7 and 8, COI was again derated due to the BPA scheduling limit. All day-ahead import congestion for September 7 and 8 occurred during the derating periods. Again on September 12, BPA reported a reduction in the COI OTC north-to-south to 1,600 MW due to lack of area generation resources. This scheduling limit continued until September 13, but gradually increased to 1,900 MW, and down to 1,750 MW on September 14, up to 2,090 MW on September 15, and 2,075 MW on September 16.

Eldorado: The Eldorado branch group had significant day-ahead import congestion cost in a number of months including September, October, and December due to various derates caused by various outages. For example, in October Eldorado was derated due to planned outages of series capacitors at Eldorado and Moenkopi and the planned outages of these series capacitors continued through November.

Path 26: Path 26 had significant day-ahead congestion costs in the north-to-south direction (from zones ZP26 to SP15) in the months of May and June before the Path 26 enhancements went into effect on June 27, 2005. The enhancements increased the north-to-south capacity on Path 26 from 3,400 MW to 3,700 MW. Congestion costs were very high in May due to derates of Path 26 for scheduled tests and line work. Path 26 was again derated from June 15 to June 18 for scheduled work on Midway-Vincent #3 500kV line. All Path 26 congestion occurred during this period. Congestion cost on Path 26 has been minimal since August 2005, indicating that the Path 26 enhancements were very effective in eliminating congestion.

5.1.4 Special Topics

5.1.4.1 Existing Transmission Contracts and Phantom Congestion

An Existing Transmission Contract (ETC) is an encumbrance, established prior to the start-up of the CAISO, in the form of contractual obligation of a CAISO Participating Transmission Owner (PTO) to provide transmission service to another party, in accordance with terms and conditions specified in the contract, utilizing transmission facilities owned by the PTO that have been turned over to the CAISO operation control. There are two main aspects of the CAISO's current treatment of ETCs – a scheduling aspect and a settlement aspect – whereby ETC's schedules are accorded different treatment than the treatment accorded other schedules. With respect to scheduling, since start-up the CAISO has accommodated ETCs by (1) "setting-aside" transmission capacity on inter-ties and inter-zonal interfaces (i.e., Path 15 and Path 26) on a day-ahead basis for the sole use of ETC rights holders, and (2) holding that capacity off the market, irrespective of whether or not it was fully scheduled by the ETC right holders, up until 20 minutes before the start of the operating hour in real-time. With respect to the settlement aspect, ETC schedules are exempt from all transmission Access Charges, the Congestion Management component of the Grid Management Charge (GMC), and any Usage Charges for congestion.

The CAISO's current treatment of ETCs in scheduling has created market inefficiencies. It was noted in the *2002, 2003,* and *2004 Annual Report* that the treatment of ETCs was an issue of concern from a market efficiency perspective. It remained a problem in the congestion market in 2005. Under the current market rules, ETC holders have the full amount of their ETC capacity reserved for them in the Day Ahead and Hour Ahead Markets whether they actually use it or not. The unused capacity is only released 20 minutes before the operating hour. Often this capacity cannot be fully utilized with such short notice due to factors such as ramping limits of generating facilities or that market participants have already made other arrangements to meet their load obligations.

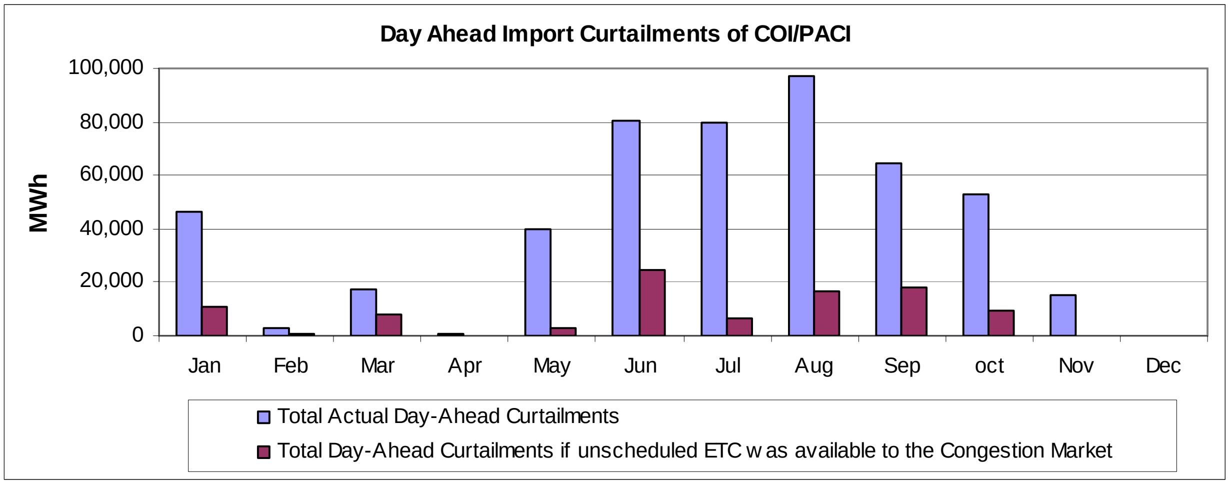
Figure 5.4 demonstrates, for the most congested paths in 2005, the extent to which the observed day-ahead congestion was due to phantom congestion, or the inability to make unscheduled ETC capacity available to the Day Ahead Market[2]. This analysis clearly indicates that releasing unscheduled ETC capacity can significantly reduce the congestion frequencies for all the major paths. For instance, the release of unscheduled ETC capacity and unscheduled capacity on the COTP portion of COI, which is not an ETC but a Transmission Ownership Right (TOR) that is functionally equivalent to an ETC in terms of its treatment and potential for creating phantom congestion, would have significantly reduced the congestion on COI in the import direction. In fact, the CAISO had to curtail about 1,088,984 MW of day-ahead schedules in 2005 (although much less than the 1,947,669 MW in 2004). These curtailments could have been significantly reduced to 421,205 MW if unscheduled ETC capacity would have been released to the market. Phantom congestion compromises market efficiency and can potentially increase the total costs to the final consumers.

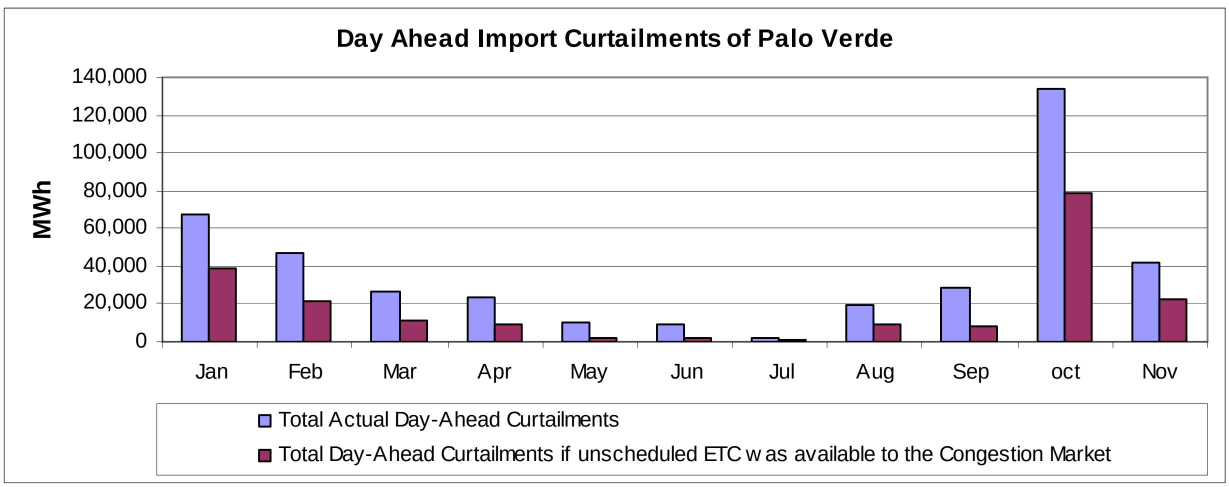
Nevertheless, phantom congestion in 2005 was reduced from the 2004 level due to several ETCs that expired in 2005 and by the end of 2004. For instance, for SCE, 1,568 MW of ETC capacity expired on December 31, 2004, 900 MW expired on January 1, 2005, and 110 MW

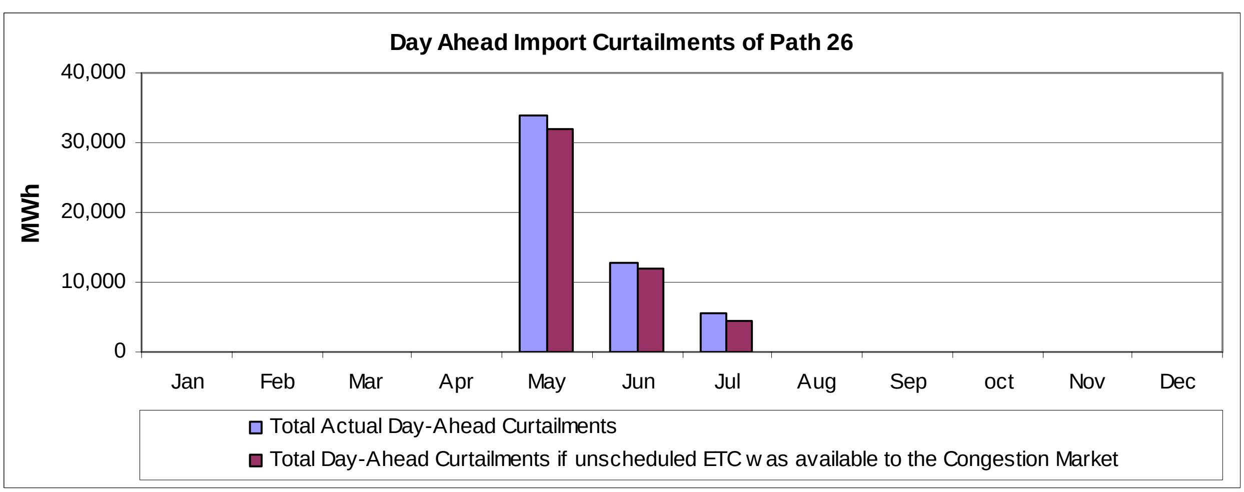
[2] Note: For inter-ties, unscheduled ETC is based on the amount of ETC reserved in the Day Ahead Market that went unscheduled in the real-time market. For internal paths (Path 15 and Path 26), unscheduled ETC is based on the amount of ETC that was reserved in the Day Ahead but went unscheduled through the Hour Ahead Market (the CAISO does not have real-time schedule data for internal paths).

expired on May 14, 2005. PG&E has been involved in ETC matters pending at the FERC involving the termination of 200 MW of ETC.

Figure 5.4 Phantom Congestion on Major Paths (2005)







5.1.4.2 Remaining Issues with the CAISO's ETC Proposal Under MRTU

The CAISO has long recognized the phantom congestion problem created by unscheduled ETCs in the Day Ahead Market and has tried to address this issue in its market re-design effort. Treatment of ETCs under the CAISO's Market Redesign and Technology Upgrade (MRTU) is an especially important issue since ETCs may be in effect upon implementation of MRTU in November of 2007. In sum, these encumbrances represent transmission capacity of approximately 16,000 MW, or capacity sufficient to meet 35 percent of the CAISO's 2005 peak load of 45,431 MW. Following an extensive stakeholder process in 2004, the CAISO filed with the FERC on December 8, 2004, its Proposed Conceptual Treatment of Existing Transmission Contracts under the CAISO's Amended Comprehensive Market Design Proposal. The proposal resolved how ETCs would be scheduled, validated, and settled under LMP. Responding to the CAISO's proposal, the FERC issued a "Guidance Order on Conceptual Proposal for Honoring of Existing Transmission Contracts" on February 10, 2005. In this order, the FERC approved in principle certain elements of the ETC proposal, provided guidance and requested additional information and explanation of other elements. More specifically, the FERC accepted the CAISO's conceptual proposal to set aside capacity associated with an ETC within the CAISO's control area to the extent that it is scheduled in the Day Ahead Market and to fully honor all valid schedule changes in post-day-ahead markets. Also the FERC accepted the CAISO's proposal to continue to set aside unscheduled capacity over the inter-ties, but not for internal interfaces. The FERC agreed that this will make additional capacity available in the Day Ahead and subsequent markets for use by other users of the system, reduce the likelihood and magnitude of phantom congestion, and promote the convergence of day-ahead and real-time prices.

5.2 Overview of FTR Market Performance

A Firm Transmission Right (FTR) is a right that has the attributes of both financial and physical transmission rights. FTRs entitle their owners to share in the distribution of Usage Charge revenues received by the CAISO (in the Day Ahead and Hour Ahead Markets) in connection with inter-zonal congestion during the period for which the FTR is issued. FTRs also entitle registered FTR Holders to certain scheduling priorities (in the Day Ahead Market) for the transmission of energy across a congested inter-zonal interface.

The CAISO does not require that FTR owners be CAISO Scheduling Coordinators (SCs). FTRs may be purchased by any qualified bidder purely as an investment to enable the owner to receive a stream of income from the congestion usage revenues. In order to be used in scheduling, however, an FTR must be assigned to one of the SCs. In addition, an owner may resell the FTR or the scheduling rights may be unbundled from the revenue rights and sold or transferred to another party. All these sales, transfers or assignments are considered "secondary market transactions" and must be recorded in the CAISO Secondary Registration System (SRS).

5.2.1 Concentration of FTR Ownership and Control

The CAISO creates a primary market for FTRs by auctioning them each year for a 12-month period beginning in April and ending in March. However, due to some significant changes to the CAISO transmission grid in January 2005, an interim FTR auction was held in October 2004 for the effective period from January 1, 2005, through March 31, 2005. The primary FTR auction for the 2005/2006 FTR auction year (from April 1, 2005, to March 31, 2006) occurred in February 2005.

There were several reasons for holding an interim auction for the period from January 1 through March 31, 2005. First, in the 2004 primary FTR Auction held in February 2004 for the 2004/2005 FTR auction (from April 1, 2004, to March 31, 2005), the CAISO released FTRs on COI for only a nine-month duration due to the uncertainty associated with the December 31, 2004, termination of Contract 2947A between PG&E and WAPA. This contract directly impacts the CAISO's rights, through PG&E, for capacity on COI and the associated FTR release. Secondly, when the initial 2004 FTR Auction was held in February 2004, the CAISO was aware that several ETCs were set to terminate effective January 1, 2005. The expiration of these ETCs could free up additional capacity on COI, Path 26, and Path 15, which the CAISO could make available through an additional FTR Auction. Finally, the CAISO has been working with SCE to determine a rating methodology for the outbound direction of the Blythe Branch Group. When the final methodology was approved, the CAISO released incremental capacity in the interim 2004 FTR Auction. Table 5.5 shows the 2004 Interim FTR auction final results for the period from January 1, 2005, to March 31, 2005.

Table 5.5 Summary of 2004 Interim FTR Auction Results

(Effective January 1, 2005 – March 31, 2005)

Branch Group	Direction	Total FTRs Sold (MW)	Auction Clearing Price ($/MW)	Auction Revenue ($)
BLYTHE BG	Export	43	$28	$1,204
COI BG	Export	940	$28	$26,320
COI BG	Import	950	$2,978	$2,829,100
Path 15 BG	South-to-North (ZP26-NP15)	908	$1,826	$1,658,008
Path 26 BG	North-to-South (ZP26-SP15)	173	$995	$172,135
Total		**3,014**		**$4,686,767**

For the 2005/2006 FTR cycle, the primary auction was held and completed in February 2005. The FTR Auction is a simultaneous, multi-round clearing price auction conducted separately and independently across specified CAISO inter-zonal interfaces. Owners of FTRs can use their FTRs as a hedge against congestion costs. Their FTRs also entitle the owners to share in the distribution of Usage Charge revenues received by the CAISO (in the Day Ahead and Hour Ahead Markets) in connection with inter-zonal congestion during the period for which the FTR is issued. FTRs will also entitle the registered FTR Holder to certain priorities (in the Day Ahead Market) for the scheduling of energy across a congested inter-zonal interface. As noted above, the FTRs released in the primary auction are valid from April 1, 2005, through March 31, 2006. Total revenue earned was approximately $94 million, slightly lower than the 2004 primary auction revenue. The FTR Auction proceeds are distributed to Participating Transmission Owners (PTOs), based upon their respective ownership interest in each auctioned path.

In this primary auction, FTRs on 23 directional branch groups were auctioned. In total, the CAISO successfully auctioned 12,063 MW of FTRs, slightly higher than the 11,491 MW of FTRs auctioned in 2004 primary FTR auction. On the branch group level, the revenue on Palo Verde in the import direction increased slightly from $24 million in 2004 to $25 million in 2005. Revenues from FTRs on other frequently congested paths, such as COI (import), NOB (import), and Path 26 (north-to-south), all decreased in 2005. FTR revenue on Path 26 in the north-to-south direction decreased from $22 million in 2004 to $10 million in 2005. The changes in FTR auction revenues on different paths reflected the patterns of congestion in the past year.

As in the previous auction, one discernible pattern in the FTR auction results was that investor owned utilities acquired most FTRs on branch groups that are likely to be congested. For instance, Pacific Gas & Electric won 93 percent of FTRs on COI in the import direction, while Southern California Edison won 100, 84, 60, 100, and 68 percent of FTRs on El Dorado (import), Mead (import), Palo Verde (import), Silver Peak (import), and Path 26 (north-to-south), respectively. As the principal transmission owners of these paths, the utilities are also the recipients of the auction revenues. This allows them to bid very aggressively to ensure they acquire the quantity of FTRs they require to serve their retail customers without significant exposure to the spot congestion markets. This may have an inflationary effect on FTR auction clearing prices.

Table 5.6 Summary of 2005-2006 FTR Auction Results

Branch Group	Direction	Total FTRs Sold (MW)	Auction Clearing Price ($/MW)	Auction Revenue ($)
BLYTHE BG	Import (LC2-SP15)	177	$6,714	$1,188,452
BLYTHE BG	Export (SP15-LC2)	38	$100	$3,800
CFE BG	Import (MX-SP15)	200	$265	$53,000
COI BG	Import (NW1-NP15)	890	$18,609	$16,562,330
COI BG	Export (NP15-NW1)	573	$240	$137,520
ELDORADO BG	Import (AZ2-SP15)	743	$27,701	$20,581,962
ELDORADO BG	Export (SP15-AZ2)	445	$100	$44,500
IID - SCE BG	Import (II1-SP15)	600	$295	$177,000
IID - SDGE BG	Import (II2-SP15)	62	$190	$11,780
IID - SDGE BG	Export (SP15-II2)	62	$145	$8,990
MEAD BG	Import (LC1-SP15)	597	$18,174	$10,850,093
MEAD BG	Export (SP15-LC1)	637	$210	$133,770
NOB BG	Import (NW3-SP15)	169	$20,790	$3,513,483
NOB BG	Export (SP15-NW3)	173	$1,840	$318,320
PALOVRDE BG	Import (AZ3-SP15)	910	$27,425	$24,957,041
PALOVRDE BG	Export (SP15-AZ3)	683	$100	$68,300
PARKER BG	Import (LC3-SP15)	130	$705	$91,650
PATH 15 BG	Import (ZP26-NP15)	1807	$3,056	$5,522,626
PATH 26 BG	Export (ZP26-SP15)	1,464	$6,637	$9,716,641
SLVRPK BG	Import (SR3-SP15)	10	$540	$5,400
SLVRPK BG	Export (SP15-SR3)	10	$180	$1,800
VICTRVL BG	Export (SP15-LA4)	439	$100	$43,900
VICTRVL BG	Import (LA4-SP15)	1244	$100	$124,400
Total		**12,063**		**$94,116,759**

Table Column Definition:
Auction Clearing Price: This is the market-clearing price in $/MW per year. For the paths with seed price > $100/MW per year, the comparison of the Auction Clearing Price and Seed Price* 5 indicates the extent to which the bidders value the FTRs on the particular path and direction compared to the congestion revenues generated last year.
Total FTR Sold: This is the final MW clearing the auction. The difference between Total FTR Auctioned and Final MW sold can be either due to some FTRs not sold or the residual FTR allocation option exercised in the auction.
Auction Revenue: This is equal to the product of Auction Clearing Price and Final MW Sold.

Table 5.7 FTR Concentration as of April 2005 *

Direction	Branch Group	Owner ID	Owner Name	% Conc.	Max FTRs Owned	Total FTRs quantity
EXP	BLYTHE	MSCG	Morgan Stanley Capital Group, Inc.	100	38	38
EXP	COI	MSCG	Morgan Stanley Capital Group, Inc.	22	124	573
EXP	COI	BPEC	BP Energy Company	9	50	573
EXP	COI	CAL1	Cargill Power Markets	2	14	573
EXP	COI	CPSC	Constellation Energy Commodities	9	50	573
EXP	COI	NEI1	Constellation NewEnergy	2	10	573
EXP	COI	PCPM	PPM Energy Inc.	4	25	573
EXP	COI	PSCO	Public Service Company of Colorado	9	50	573
EXP	COI	PWRX	Powerex Corporation	35	200	573
EXP	COI	TEMU	TransAlta Energy Marketing	9	50	573
EXP	ELDORADO	MSCG	Morgan Stanley Capital Group, Inc.	55	245	445
EXP	ELDORADO	PSCO	Public Service Company of Colorado	34	150	445
EXP	ELDORADO	TEMU	TransAlta Energy Marketing	11	50	445
EXP	IID-SDGE	SETC	Sempra Energy Trading Corp.	81	50	62
EXP	IID-SDGE	MSCG	Morgan Stanley Capital Group, Inc.	19	12	62
EXP	MEAD	MSCG	Morgan Stanley Capital Group, Inc.	10	62	637
EXP	MEAD	PSCO	Public Service Company of Colorado	78	500	637
EXP	MEAD	SETC	Sempra Energy Trading Corp.	4	25	637
EXP	MEAD	TEMU	TransAlta Energy Marketing	8	50	637
EXP	NOB (PAC. DC INTER-TIE)	CPSC	Constellation Energy Commodities	29	50	173
EXP	NOB (PAC. DC INTER-TIE)	PSCO	Public Service Company of Colorado	55	96	173
EXP	NOB (PAC. DC INTER-TIE)	RVSD	City of Riverside	16	27	173
EXP	PALO VERDE	MSCG	Morgan Stanley Capital Group, Inc.	41	283	683
EXP	PALO VERDE	SETC	Sempra Energy Trading Corp.	22	150	683
EXP	PALO VERDE	TEMU	TransAlta Energy Marketing	7	50	683
EXP	PALO VERDE	WESC	Williams Power Company	29	200	683
EXP	PATH 26	MSCG	Morgan Stanley Capital Group, Inc.	3	41	1464
EXP	PATH 26	PCG2	Pacific Gas & Electric	7	108	1464
EXP	PATH 26	PWRX	Powerex Corporation	15	217	1464
EXP	PATH 26	SCE1	Southern California Edison	23	342	1464
EXP	PATH 26	SDG3	San Diego Gas & Electric	38	560	1464
EXP	PATH 26	SETC	Sempra Energy Trading Corp.	5	75	1464
EXP	PATH 26	TEMU	TransAlta Energy Marketing	8	121	1464
EXP	SILVER PEAK	MSCG	Morgan Stanley Capital Group, Inc.	20	2	10
EXP	SILVER PEAK	CEPL	Citadel Energy Products LLC	80	8	10
EXP	VICTORVILLE	MSCG	Morgan Stanley Capital Group, Inc.	33	144	439
EXP	VICTORVILLE	WESC	Williams Power Company	45	196	439
EXP	VICTORVILLE	SETC	Sempra Energy Trading Corp.	23	99	439

* Only FTR ownership concentrations at or more than 25 percent are reported in this table.

Direction	Branch Group	Owner ID	Owner Name	% Conc.	Max FTRs Owned	Total FTRs quantity
IMP	BLYTHE	FPPM	FPL Energy Power Marketing, Inc.	100	177	177
IMP	CFE	MSCG	Morgan Stanley Capital Group, Inc.	4	8	200
IMP	CFE	NEI1	Constellation NewEnergy	13	25	200
IMP	CFE	PWRX	Powerex Corporation	46	91	200
IMP	CFE	SETC	Sempra Energy Trading Corp.	38	76	200
IMP	COI	PCG2	Pacific Gas & Electric	28	252	890
IMP	COI	PWRX	Powerex Corporation	27	240	890
IMP	COI	SCE1	Southern California Edison	33	298	890
IMP	COI	TEMU	TransAlta Energy Marketing	11	100	890
IMP	ELDORADO	SCE1	Southern California Edison	100	743	743
IMP	IID-SCE	CAL1	Cargill Power Markets	4	25	600
IMP	IID-SCE	MSCG	Morgan Stanley Capital Group, Inc.	7	40	600
IMP	IID-SCE	RVSD	City of Riverside	3	20	600
IMP	IID-SCE	SCE1	Southern California Edison	77	460	600
IMP	IID-SCE	SETC	Sempra Energy Trading Corp.	3	19	600
IMP	IID-SCE	TEMU	TransAlta Energy Marketing	6	36	600
IMP	IID-SDGE	MSCG	Morgan Stanley Capital Group, Inc.	19	12	62
IMP	IID-SDGE	SETC	Sempra Energy Trading Corp.	81	50	62
IMP	MEAD	FPPM	FPL Energy Power Marketing, Inc.	10	57	597
IMP	MEAD	PSCO	Public Service Company of Colorado	61	365	597
IMP	MEAD	SCE1	Southern California Edison	29	175	597
IMP	NOB (PAC. DC INTER-TIE)	CPSC	Constellation Energy Commodities	15	25	169
IMP	NOB (PAC. DC INTER-TIE)	PSCO	Public Service Company of Colorado	51	86	169
IMP	NOB (PAC. DC INTER-TIE)	RVSD	City of Riverside	34	58	169
IMP	PALO VERDE	BAN1	City of Banning	0	4	910
IMP	PALO VERDE	CPSC	Constellation Energy Commodities	5	50	910
IMP	PALO VERDE	MSCG	Morgan Stanley Capital Group, Inc.	3	27	910
IMP	PALO VERDE	OPSI	Occidental Power Services, Inc.	8	71	910
IMP	PALO VERDE	PWRX	Powerex Corporation	5	45	910
IMP	PALO VERDE	SCE1	Southern California Edison	67	613	910
IMP	PALO VERDE	SETC	Sempra Energy Trading Corp.	11	100	910
IMP	PARKER	FPPM	FPL Energy Power Marketing, Inc.	100	130	130
IMP	PATH 15	PCG2	Pacific Gas & Electric	94	1700	1807
IMP	PATH 15	PWRX	Powerex Corporation	1	25	1807
IMP	PATH 15	SETC	Sempra Energy Trading Corp.	5	82	1807
IMP	SILVER PEAK	SCE1	Southern California Edison Company	100	10	10
IMP	VICTORVILLE	BPEC	BPEnergy Company	8	100	1244
IMP	VICTORVILLE	CAL1	Cargill Power Markets	4	50	1244
IMP	VICTORVILLE	MRNT	Mirant Americas Energy Marketing	5	60	1244
IMP	VICTORVILLE	MSCG	Morgan Stanley Capital Group, Inc.	29	362	1244
IMP	VICTORVILLE	PWRX	Powerex Corporation	24	301	1244
IMP	VICTORVILLE	SETC	Sempra Energy Trading Corp.	16	200	1244
IMP	VICTORVILLE	TEMU	TransAlta Energy Marketing	4	50	1244
IMP	VICTORVILLE	WESC	Williams Power Company	10	121	1244

5.2.2 2005 FTR Market Performance

5.2.2.1 FTR Scheduling

FTRs can be used to hedge against high congestion prices and establish scheduling priority in the Day Ahead Market. As shown in Table 5.8, a high percentage of FTRs were scheduled on a few paths (83 percent on Eldorado, 73 percent on IID-SCE, 51 percent on Palo Verde, 80 percent on Silver Peak, 80 percent on IPPDCADLN, and 30 percent on Path 26). SCE and municipals primarily own the FTRs on these paths. In the 2005 FTR cycle, the average amount of FTRs scheduled was low. On average, only 24.3 percent of the total FTRs were scheduled in the Day Ahead Market, lower than the 38 percent in the 2004 FTR cycle. However, on some paths, FTR scheduling percentages were high and FTRs were used to establish the scheduling priority in the Day Ahead Market.

Table 5.8 FTR Scheduling Statistics, April 1 – December 31, 2005*

		MW FTR Auctioned	Avg MW FTR Sch	Max MW FTR Sch	Max Single SC FTR Scheduled	% FTR Schedule - Dir
IMP	BLYTHE _BG	177	34	177	177	19%
IMP	COI _BG	890	142	252	252	16%
IMP	ELDORADO _BG	743	616	720	720	83%
IMP	IID-SCE _BG	600	439	469	449	73%
IMP	IPPDCADLN_BG	647	470	569	314	73%
IMP	MEAD _BG	667	52	451	350	8%
IMP	MEADTMEAD_BG	182	12	57	38	6%
IMP	MKTPCADLN_BG	423	13	105	90	3%
IMP	MONAIPPDC_BG	658	54	88	52	8%
IMP	NOB _BG	358	63	299	81	17%
IMP	PALOVRDE _BG	935	474	745	600	51%
IMP	PARKER _BG	130	26	130	130	20%
IMP	SILVERPK _BG	10	8	10	10	80%
IMP	VICTVL _BG	1244	27	100	100	2%
IMP	WSTWGMEAD_BG	126	37	61	28	29%
EXP	ELDORADO _BG	445	7	150	150	2%
EXP	GONDIPPDC_BG	21	6	15	15	27%
EXP	MEAD _BG	671	9	300	300	1%
EXP	MEADMKTPC_BG	263	0	60	60	0%
EXP	MEADTMEAD_BG	182	0	25	25	0%
EXP	MKTPCADLN_BG	423	2	28	25	1%
EXP	MONAIPPDC_BG	558	4	152	137	1%
EXP	NOB _BG	351	23	89	50	6%
N->S	PATH26 _BG	1464	443	662	560	30%

* Only those paths on which 1 percent or more of FTRs were attached are listed.

5.2.2.2 FTR Revenue Per MW

The current FTR market cycle begins on April 1, 2005, and ends on March 31, 2006. Table 5.9 summarizes the FTR revenues from April 1, 2005, to December 31, 2005.

During the current FTR cycle, only four paths (Blythe in the import direction, COI/PACI in the import direction, IID-SCE in the import direction, Palo Verde in the import direction) had total pro-rated FTR revenue greater than their auction prices. One straightforward conclusion is that some FTR holders did not financially benefit from their investment in the FTR market. This is not surprising. As mentioned earlier, the FTR holders of major paths are also transmission owners. The FTR auction revenues are used to reduce the transmission revenue requirement (TRR). As a result, the FTR purchase costs for these entities is to a large extent offset by a corresponding reduction in the TRR. Also, besides the FTR revenue, the FTR provides additional benefits to the holders. Schedules with FTR rights are entitled to scheduling priority in the Day Ahead Market and FTRs can serve as insurance to hedge against possible high congestion charges.

Finally, consistent with the congestion patterns, the FTR revenues were significant on a few of the most congested paths (see Table 5.9). FTR revenue on Blythe (import), COI (import), Palo Verde (import), and Path 26 (north-to-south) all exceeded $10,000 per MW as of December 31, 2005.

Table 5.9 FTR Revenue Statistics ($/MW) (April 2005 - December 2005)

		Net $/MW FTR Revenue									Cumm Net $/MW FTR Rev	Pro-Rated Net $/MW FTR Rev	Pa Auc Price ($/MW)
Branch Group	Directn	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
ADLANTOSP	IMPORT	$0	$0	$0	$0	$0	$3,516	$599	$190	$6	$4,311	$5,748	$0
BLYTHE	IMPORT	$0	$5,143	$5,957	$1,198	$1,381	$11,164	$2,366	$10,819	$8,202	$46,229	$61,639	$6,714
COI	IMPORT	$159	$2,081	$3,413	$2,199	$1,460	$3,664	$1,504	$251	$0	$14,730	$19,640	$18,609
ELDORADO	IMPORT	$61	$0	$187	$0	$4	$655	$2,412	$471	$1,159	$4,948	$6,598	$27,701
IID-SCE	IMPORT	$0	$0	$0	$823	$0	$0	$706	$1,960	$80	$3,568	$4,758	$295
IPPDCADLN	IMPORT	$399	$2,241	$263	$0	$258	$234	$588	$1,040	$1,706	$6,727	$8,970	$0
MEAD	IMPORT	$0	$0	$0	$491	$110	$903	$2,319	$2,156	$3,043	$9,022	$6,015	$18,174
NOB	IMPORT	$35	$3,674	$1,453	$1,318	$565	$1,019	$1,701	$40	$0	$9,805	$6,537	$20,790
PALOVRDE	IMPORT	$3,936	$3,963	$10	$6,770	$338	$8,721	$2,686	$29,869	$33,564	$89,856	$59,904	$27,425
PARKER	IMPORT	$0	$0	$0	$0	$0	$6	$14	$160	$0	$180	$240	$705
PATH15	IMPORT	$4	$0	$0	$0	$0	$906	$722	$906	$17	$2,555	$3,406	$3,056
WSTWGMEAD	IMPORT	$193	$47	$0	$1	$1,685	$832	$173	$1,324	$354	$4,607	$6,143	$0
GONDIPPDC	EXPORT	$0	$0	$0	$480	$0	$0	$0	$0	$0	$480	$640	$0
MEAD	EXPORT	$0	$0	$0	$138	$0	$0	$0	$0	$0	$138	$92	$210
PATH26	N->S	$0	$13,096	$5,288	$810	$50	$0	$119	$0	$0	$19,364	$25,819	$6,637

5.2.2.3 FTR Trades in the Secondary Markets

In California, the successful bidders in the FTR primary auctions are allowed to conduct further FTR trades in the secondary markets. However, as shown in Table 5.10, the FTR transactions in the secondary markets have been minimal during the past FTR cycle. There were a total of 18 cases of changes in ownership of FTRs in the 2005 cycle (determined by different SC_ID association over time). However, all of these exchanges occurred between the four Southern

Participating Transmission Owners (SPTOs) (i.e., the City of Pasadena, the City of Anaheim, the City of Banning, and the City of Riverside) and the CAISO, due to either the transfer of FTRs owned by SPTOs to the CAISO, or the revision of the SPTOs' entitlements. For example, 14 cases of changes in ownership of FTRs were due to the transfer of FTRs owned by three of the SPTOs (i.e., City of Pasadena, City of Anaheim, City of Riverside) to the CAISO. For the most part, the secondary FTR market was rarely used during the three most recent FTR cycles. One possible explanation might be that FTR revenues only exceeded their prices in a few paths in 2005 and most of the investments in FTRs did not generate positive financial profits. Therefore, there was little incentive for market participants to purchase additional FTRs in the secondary market.

Table 5.10 FTR Trades in the Secondary Market (April 2005 - December 2005)

Branch Grp	Trade Day	Direction	Buyer	Seller	Quantity Sold (MW)	Operation Day Minimum	Operation Day Maximum	Minimum Operation Hour	Maximum Operation Hour
GONDIPPDC_BG	30-Mar-05	IMPORT	CISO	ANHM	2	1-Apr-05	31-Mar-06	1	25
GONDIPPDC_BG	31-Mar-05	IMPORT	CISO	RVSD	1	2-Apr-05	31-Mar-06	1	25
MONAIPPDC_BG	30-Mar-05	IMPORT	CISO	ANHM	17	1-Apr-05	31-Dec-05	1	25
MONAIPPDC_BG	30-Mar-05	IMPORT	CISO	ANHM	17	1-Jan-06	31-Mar-06	1	24
MONAIPPDC_BG	31-Mar-05	IMPORT	CISO	PASA	5	2-Apr-05	31-Mar-06	1	24
MONAIPPDC_BG	31-Mar-05	IMPORT	CISO	PASA	5	1-Apr-05	1-Apr-05	1	25
MONAIPPDC_BG	31-Mar-05	IMPORT	CISO	RVSD	10	1-Apr-05	31-Mar-06	1	25
NOB _BG	14-Mar-05	IMPORT	RVSD	CISO	23	1-Apr-05	31-Mar-06	1	25
PALOVRDE _BG	18-Mar-05	IMPORT	BAN1	CISO	15	1-Apr-05	31-Mar-06	1	25
GONDIPPDC_BG	30-Mar-05	EXPORT	CISO	ANHM	2	1-Apr-05	31-Mar-06	1	25
GONDIPPDC_BG	31-Mar-05	EXPORT	CISO	PASA	1	14-May-05	31-Mar-06	1	24
GONDIPPDC_BG	31-Mar-05	EXPORT	CISO	PASA	1	1-Apr-05	1-Apr-05	1	25
IPPDCADLN_BG	12-May-05	EXPORT	PASA	CISO	33	1-Apr-05	31-Mar-06	1	25
MONAIPPDC_BG	30-Mar-05	EXPORT	CISO	ANHM	10	1-Apr-05	31-Dec-05	1	25
MONAIPPDC_BG	30-Mar-05	EXPORT	CISO	ANHM	10	1-Jan-06	31-Mar-06	1	24
MONAIPPDC_BG	31-Mar-05	EXPORT	CISO	PASA	3	2-Apr-05	31-Mar-06	1	25
MONAIPPDC_BG	31-Mar-05	EXPORT	CISO	RVSD	6	1-Apr-05	31-Mar-06	1	25
NOB _BG	14-Mar-05	EXPORT	RVSD	CISO	23	1-Apr-05	31-Mar-06	1	25