

Residual Supply Metrics: Methodology and Preliminary 2009 Results

Department of Market Monitoring

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Overview

The Residual Supply Index (RSI) is a commonly used measure of market competitiveness. A version of this test – referred to as the Three Pivotal Supplier (TPS) test -- is used by at least one other ISO (PJM) to assess the competitiveness of transmission constraints on a constraint-by-constraint basis in order to determine whether bid mitigation is triggered. The California ISO incorporates this general approach in its Competitive Path Assessment (CPA) methodology to determine which constraints are represented as *competitive* vs. *non-competitive* in the ISO's Local Market Power Mitigation (LMPM) procedures. However, the ISO's CPA methodology incorporates several key differences from PJM's TPS test: (1) while the ISO CPA analysis is performed on an annual or seasonal basis based on market scenarios, PJM applies the TPS test based on an hourly and even 5-minute basis based on actual market data; and (2) the PJM TPS test is applied to each individual constraint (in isolation), while the ISO's CPA is applied to all candidate constraints in the network simultaneously.¹

While the Department of Market Monitoring (DMM) believes that the CPA methodology provides a sound basis for assessing the competitiveness of constraints, DMM believes that metrics based on the RSI can provide valuable additional information on the competitiveness of different constraints under a wide range of actual market conditions. For example, one of the advantages of the RSI is that it can be automatically calculated for any hour that congestion is observed based on market data (bid and schedules) and unit shift factors. Such results can be compared to results derived from the CPA studies used to assess the potential “false positives” or “false negatives” under the CPA approach, and to identify additional constraints and combination of residual suppliers that might be included in future CPA studies. DMM discussed the RSI methodology the ISO's Market Surveillance Committee (MSC) and presented preliminary results at the MSC's October 15, 2009 meeting.²

This paper presents updated results of DMM's assessment of the competitiveness of various constraints using the RSI based on actual market conditions over the first nine months of the ISO's new nodal market design. DMM believes that these results may be useful information for the MSC to consider as part of a review of the CPA methodology that the Federal Energy Regulatory Commission (FERC) has directed the MSC to perform and file with the Commission within the first 12 months of the ISO's new nodal market design.

¹ See pp. 5-9 of *Competitive Path Assessment for MRTU: Final Results for MRTU Go-Live*, February 2009, <http://www.caiso.com/2365/23659ca314f0.pdf>

² <http://www.caiso.com/2447/2447affd55010.pdf>
<http://www.caiso.com/2447/24478feb48570.pdf>

Methodology

Figure 1 illustrates the approach for applying the Residual Supply Index (or Pivotal Supplier Test) to a constraint used in this analysis. In this example:

- The total flow on the line during this time interval is 1,000 MW (which is equal to the constraints rated maximum capacity).
- There are three major suppliers (each with 100 MW of supply of potential effective counterflow on the constraint), plus 300 MW of potential effective counterflow on the constraint from other (residual) suppliers.³
- The total demand for counterflow this time period is 380 MW, calculated based on the actual counterflow being provided by all suppliers on the time period.
- Given the 380 MW of demand for counterflow, and a residual supply of 300 MW of total effective supply (after excluding the supply of the 3 major suppliers), the RSI₃ for this constraint this hour would be .79.

Figure 1. RSI Example

	Effective Counterflow (MW x Shift Factor)		
	Dispatched	Total	Undispatched
Supplier 1	60	100	40
Supplier 2	70	100	30
Supplier 3	80	100	20
Other Suppliers	170	300	130
Total	380	600	220
Residual Supply (3PS)		300	130
Line Flow (w/congestion)	1000		
Counterflow Demand	380		
Residual Supply (3PS)	300		
RSI_3	0.79		

³ Effective counterflow calculated by multiplying maximum bid quantity from each resource with a negative shift factor relative to the constraint by the resource's shift factor. This number is then converted to a positive number. PJM excludes resources with shift factors < .03 while MISO excludes units with shift factors < .06 from this calculation on the grounds that these would typically be very expensive to re-dispatch in order to relieve congestion on the constraint.

For the IFM, the RSI is calculated using the supply of bids for all resources that can be committed in the IFM, and the IFM schedules of all units (to calculate the demand for counterflow).

For the RTM, we use an “incremental approach” that reflects the incremental demand and supply of counter in real time that is required and available beyond the amount of energy scheduled in the IFM. This approach reflects the fact that if a supplier seeks to withhold energy already scheduled in the IFM to drive up RTM prices, they would need to pay back this higher price for the difference in their final dispatch and their IFM schedule. Results for the real time market in this report are preliminary and are subject to further review and refinement of how to apply the RSI to the incremental demand and supply for counterflow in the real time market.

2009 Results

Results of this analysis covers all hours of congestion for each constraint during the first nine months of the ISO’s new market design (April – December 2009). The following tables summarize results of this analysis.

Table 1 and 4 Column Descriptions (RSI Results - Avg RSI)

Row #	Row # (ranked by hours of congestion). Corresponds to same Row # in Tables 2 and 4.	
CONSTRAINT	Constraint name from ISO market model	
Cong. Hours	Number of hours congestion occurred (in pre-IFM MPM, IFM, pre-RTM MPM <u>or</u> RTM)	
Avg. Flow	Average market flow during hours of congestion	
IFM	IFM - RSI ₀	Ratio of total effective supply of counterflow to total demand for counterflow.
	IFM - RSI ₁	Avg. RSI with largest supplier removed.
	IFM - RSI ₂	Avg. RSI with two suppliers removed.
	IFM - RSI ₃	Avg. RSI with three largest suppliers removed.
RTM	RTM - RSI ₀	Ratio of total effective supply of counterflow to total demand for counterflow.
	RTM - RSI ₁	Avg. RSI with largest supplier removed.
	RTM - RSI ₂	Avg. RSI with two suppliers removed.
	RTM - RSI ₃	Avg. RSI with three largest suppliers removed.

Table 1 and 4 Column Descriptions (RSI Results – Hours RSI<1)

Row #	Row # (ranked by hours of congestion). Corresponds to same Row # in Tables 2 and 4.	
CONSTRAINT	Constraint name from ISO market model	
Cong. Hours	Number of hours congestion occurred (in pre-IFM MPM, IFM, pre-RTM MPM <u>or</u> RTM)	
Avg. Flow	Average market flow during hours of congestion	
IFM	IFM - RSI ₀	Ratio of total effective supply of counterflow to total demand for counterflow.
	IFM - RSI ₁	Hours RSI1 < 1.
	IFM - RSI ₂	Hours RSI2 < 1
	IFM - RSI ₃	Hours RSI3 < 1
RTM	RTM - RSI ₀	Ratio of total effective supply of counterflow to total demand for counterflow.
	RTM - RSI ₁	Hours RSI1 < 1.
	RTM - RSI ₂	Hours RSI2 < 1
	RTM - RSI ₃	Hours RSI3 < 1

Table 3 and 6 Column Descriptions (Congestion Summary)

Row #	Row # (ranked by hours of congestion). Corresponds to same Row # in Tables 2 and 4.	
CONSTRAINT	Constraint name from ISO market model	
Cong. Hours	Number of hours congestion occurred (in pre-IFM MPM, IFM, pre-RTM MPM <u>or</u> RTM)	
Avg. Flow	Average market flow during hours of congestion	
Cong. Hours	LMPM	Number of hours congestion occurred in pre-IFM MPM (All Constraints Run).
	IFM	Number of hours congestion occurred in IFM.
	LMPM	Number of hours congestion occurred in pre-RTM MPM (HASP All Constraints Run).
	RTD	Number of hours congestion occurred in RTM.
Total Cong. Cost	LMPM	Total congestion costs in pre-IFM MPM (All Constraints Run).
	IFM	Total congestion cost in IFM.
Avg. Shadow Price	LMPM	Avg. shadow price in pre-IFM MPM (All Constraints Run).
	IFM	Avg. shadow price in IFM.
	LMPM	Avg. shadow price in pre-RTM MPM (HASP All Constraints Run).
	RTD	Avg. shadow price in RTM.

Table 1. Summary of RSI Results – Average RSI , Non-Competitive Paths (April-December, 2009)

Row #	CONSTRAINT_NAME	Cong. Hour	Avg. Flow	IFM ----->				RTM ----->			
				RSI0	RSI1	RSI2	RSI3	RSI0	RSI1	RSI2	RSI3
1	24074_LA FRESA_230_24065_HINSON_230_BR_1_1	431	601	5.12	2.70	2.54	2.42	1.16	0.27	0.14	0.12
2	VICTVL_BG	365	2,508	1.15	.92	.84	.79	1.02	0.79	0.72	0.67
3	LOSBANOSNORTH_BG	327	2,027	1.48	1.04	.98	.95	1.10	0.88	0.86	0.84
4	24082_LCIENEGA_230_24074_LA FRESA_230_BR_1_1	269	699	6.72	.16	.16	.16	1.36	0.18	0.18	0.18
5	SCE_PCT_IMP_BG	218	6,577	1.59	1.42	1.35	1.31	1.01	0.96	0.91	0.89
6	32212_E.NICOLS_115_32214_RIO OSO_115_BR_1_1	210	56	1.05	.95	.87	.82	1.01	0.91	0.83	0.81
7	30875_MC CALL_230_30880_HENTAP2_230_BR_1_1	128	380	3.40	3.31	3.24	3.19	3.60	3.51	3.45	3.43
8	31482_PALERMO_115_32280_E.MRY J2_115_BR_1_1	121	78	1.01	.95	.90	.88	1.00	0.95	0.90	0.86
9	30543_ROSSTAP1_230_30550_MORAGA_230_BR_1_1	119	379	1.18	.48	.42	.37	1.01	0.69	0.65	0.63
10	32218_DRUM_115_32222_DTCH2TAP_115_BR_1_1	101	73	1.24	1.01	.96	.93	1.05	0.85	0.81	0.78
11	30250_CARIBOU_230_30261_BELDENTP_230_BR_1_1	91	225	1.14	1.03	.94	.91	1.04	0.94	0.86	0.83
12	30055_GATES1_500_30060_MIDWAY_500_BR_1_3	80	1,885	1.76	1.42	1.27	1.23	1.15	0.87	0.80	0.77
13	30105_COTTNWD_230_30245_ROUND MT_230_BR_3_1	74	257	1.09	.65	.60	.58	1.01	0.69	0.66	0.65
14	958555/958556 Flow Limit #6	63	25	1.05	.73	.58	.58	1.02	0.81	0.64	0.64
15	1051307-SOL3	61	130	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16	BARRE-LEWIS_NG	51	1,470	1.39	1.21	1.08	.95	1.00	0.89	0.80	0.76
17	24114_PARDEE_230_24128_S.CLARA_230_BR_1_1	48	532	2.40	1.52	1.52	1.52	1.06	0.71	0.71	0.71
18	T-165 TABLMT_RIOVACADX_NG_SUM	48	545	1.01	.99	.97	.95	1.00	0.98	0.96	0.95
19	31482_PALERMO_115_31508_HONCJT3_115_BR_1_1	46	80	1.01	.97	.93	.91	1.00	0.99	0.98	0.97
20	32990_MARTINEZ_115_33014_ALHAMTP1_115_BR_1_1	44	95	1.25	.96	.91	.90	1.02	0.81	0.73	0.72
21	VINCNT_BNKS_14_NG	42	1,800	1.60	1.28	1.26	1.24	1.02	0.81	0.79	0.79
22	LUGO_VINCENT_BG	40	3,080	1.56	1.21	1.13	1.08	1.11	0.92	0.87	0.85
23	32290_OLIVH J1_115_32214_RIO OSO_115_BR_1_1	37	95	1.47	.76	.76	.76	1.01	0.66	0.64	0.64
24	32228_PLACER_115_32236_FLINT J1_115_BR_1_1	34	64	1.18	1.04	.99	.96	1.03	0.95	0.93	0.92
25	32200_PEASE_115_31506_HONCJT1_115_BR_1_1	30	86	1.25	1.23	1.23	1.22	1.05	1.04	1.04	1.03
26	32208_GLEAF TP_115_32214_RIO OSO_115_BR_1_1	29	80	1.04	1.03	1.02	1.01	1.02	1.01	1.00	1.00
27	24156_VINCENT_500_24155_VINCENT_230_XF_1_P	27	981	1.26	1.16	1.14	1.13	1.02	0.91	0.90	0.89
28	32228_PLACER_115_32239_FLINT J2_115_BR_2_1	27	64	1.23	1.16	1.13	1.11	1.02	0.94	0.93	0.92
29	30005_ROUND MT_500_30015_TABLE MT_500_BR_1_2	26	1,892	1.13	1.03	1.02	1.00	1.03	0.93	0.91	0.90
30	30900_GATES_230_30970_MIDWAY_230_BR_1_1	25	287	2.27	2.06	1.97	1.90	1.22	1.05	1.01	0.98
31	33310_SANMATEO_115_33315_RAVENSWD_115_BR_1_1	25	64	1.32	.79	.75	.75	1.01	0.55	0.36	0.33
32	24016_BARRE_230_25201_LEWIS_230_BR_1_1	24	1,203	4.71	4.45	4.26	4.10	1.04	0.99	0.96	0.94
33	30525_C.COSTA_230_30543_ROSSTAP1_230_BR_1_1	24	328	1.08	.63	.60	.60	1.01	0.70	0.67	0.64
34	SC-VNCT_OUT_DA_NG	23	475	2.90	2.16	2.16	2.16				
35	22192_DOUBLTTP_138_22300_FRIARS_138_BR_1_1	22	174	3.07	3.03	3.03	3.03	1.21	1.21	1.21	1.21

Row #	CONSTRAINT NAME	Cong. Hours	Avg. Flow	IFM ----->				RTM ----->			
				RSI0	RSI1	RSI2	RSI3	RSI0	RSI1	RSI2	RSI3
36	30525 C.COSTA 230 30544 ROSSTAP2 230 BR 2 1	19	329.45	1.30	.68	.65	.65	1.04	0.49	0.45	0.45
37	32225 BRNSWKT1 115 32222 DTCH2TAP 115 BR 1 1	19	73.995	1.28	1.10	1.06	1.03	1.04	0.91	0.89	0.87
38	32231 HORSE J2 115 32235 NEWC J2 115 BR 2 1	17	63.931	1.29	1.25	1.21	1.19	1.02	0.99	0.97	0.95
39	24156 VINCENT 500 24155 VINCENT 230 XF 4 P	16	1103.5	1.45	1.38	1.32	1.28	1.05	0.95	0.90	0.87
40	SONG_SNTG2_OUT_SV_SS-N2_NG	16	1378	1.16	1.14	1.12	1.11				
41	MARTIN 115KV BUS D OUT NG	15	190	1.00	1.00	1.00	1.00				
42	30550 MORAGA 230 30554 CASTROVL 230 BR 1 1	14	318.07	1.41	.81	.46	.39	1.00	0.58	0.47	0.41
43	SONG_SNT1_SV_SS_NG	13	1378	1.18	1.15	1.12	1.10				
44	24807 MIRAGE 115 24819 CONCHO 115 BR 1 1	13	246.84	1.00	.26	.25	.24				
45	32990 MARTINEZ 115 33016 ALHAMTP2 115 BR 1 1	11	90.834	1.19	1.06	1.01	.98	1.01	0.95	0.93	0.91
46	35122 NWARD EF 115 35350 AMES BS 115 BR 2 1	10	93.569	1.11	.53	.50	.50	1.00	0.53	0.50	0.50
47	SOUTHLUGO RV BG	10	4150	1.11	1.08	1.05	1.02	1.01	0.97	0.95	0.92
48	1021973 SONGS_SNTG1_OUT_NG	9	975	1.17	1.13	1.11	1.09	1.19	1.15	1.11	1.10
49	22356 IMPRLVLY 230 22360 IMPRLVLY 500 XF 80	9	591.37	1.20	1.19	1.18	1.17	1.00	0.99	0.98	0.98
50	958555/958556 Flow Limit #5	8	25	1.20	1.15	1.12	1.11				
51	SONGS_SNTG2_OUT_NG	7	975	1.78	1.57	1.53	1.51	1.07	0.94	0.92	0.91
52	30525 C.COSTA 230 30565 BRENTWOD 230 BR 1 1	7	417.25	1.26	1.12	1.09	1.06	1.03	0.88	0.86	0.84
53	1030582 SONG_SNT1_SV_SS_NG	7	1378	1.20	1.13	1.09	1.07				
54	33010 SOBRANTE 115 30540 SOBRANTE 230 XF 1	7	375.41	1.13	1.04	1.03	1.03				
55	1030579 SONG_SNT2_OUT_NG	6	975	4.22	.93	.92	.92				
56	1030582 SONG_SNT1_OUT_NG	6	975	1.25	1.22	1.20	1.19				
57	31962 WDLND BM 115 31970 WOODLD 115 BR 1 1	6	118.39	8.78	8.78	8.78	8.78				
58	99106 SAN-MAR1 230 99104 MAR-SAN1 230 BR 1 3	6	251.44	1.00	1.00	1.00	1.00				
59	30970 MIDWAY 230 30060 MIDWAY 500 XF 13 S	5	873.56	1.61	1.47	1.43	1.40				
60	24155 VINCENT 230 24401 ANTELOPE 230 BR 1 1	5	476.72	1.36	1.16	1.12	1.10	1.02	0.84	0.82	0.82
61	SONG_SNT2_OUT_NG	4	975	1.19	1.16	1.14	1.12				
62	30060 MIDWAY 500 24156 VINCENT 500 BR 3 2	4	1497.2	1.12	1.09	1.06	1.03	1.01	0.99	0.96	0.94
63	1030581 SONG_SNT1_OUT_NG	3	975	3.51	3.29	3.26	3.26				
64	1031184 NG1	3	120	1.24	1.07	1.02	.99				
65	22430 SILVERGT 230 22466 MLMS3TAP 230 BR 1 1	3	587.05	1.51	1.42	1.41	1.40	1.04	1.04	1.04	1.04
66	30790 PANOCHE 230 30900 GATES 230 BR 1 1	3	298.83	1.18	1.06	.95	.88				
67	32950 PITSBURG 115 32970 CLAYTN 115 BR 4 1	3	278.89	1.12	1.11	1.10	1.10	1.02	1.01	1.01	1.01
68	1042543 - NG1	2	80	1.17	1.09	1.08	1.07				
69	30790 PANOCHE 230 30900 GATES 230 BR 2 1	2	317.12	1.60	.97	.89	.83				
70	34713 OGLE TAP 115 34784 CAWELC 115 BR 1 1	2	102.19	1.00	1.00	1.00	1.00				

Table 2. Summary of RSI Results – Hours with RSI <1, Non-Competitive Paths (April-December, 2009)

Row #	CONSTRAINT_NAME	Cong. Hours	Avg. Flow	IFM ----->				RTM ----->			
				RSI ₀	RSI ₁ <1	RSI ₂ <1	RSI ₃ <1	RSI ₀	RSI ₁ <1	RSI ₂ <1	RSI ₃ <1
1	24074_LA FRESA_230_24065_HINSON_230_BR_1_1	431	601	5.12	63	65	66	1.16	261	261	261
2	VICTVL_BG	365	2,508	1.15	95	108	111	1.02	98	98	98
3	LOSBANOSNORTH_BG	327	2,027	1.48	60	65	67	1.10	179	190	193
4	24082_LCIENEGA_230_24074_LA FRESA_230_BR_1_1	269	699	6.72	90	90	90	1.36	27	27	27
5	SCE_PCT_IMP_BG	218	6,577	1.59	10	26	34	1.01	19	19	19
6	32212_E.NICOLS_115_32214_RIO OSO_115_BR_1_1	210	56	1.05	152	160	161	1.01	18	18	19
7	30875_MC CALL_230_30880_HENTAP2_230_BR_1_1	128	380	3.40	.	.	.	3.60	1	1	1
8	31482_PALERMO_115_32280_E.MRY J2_115_BR_1_1	121	78	1.01	99	100	100	1.00	5	5	5
9	30543_ROSSTAP1_230_30550_MORAGA_230_BR_1_1	119	379	1.18	45	46	46	1.01	64	64	64
10	32218_DRUM_115_32222_DTCH2TAP_115_BR_1_1	101	73	1.24	38	78	91	1.05	29	29	29
11	30250_CARIBOU_230_30261_BELDENTP_230_BR_1_1	91	225	1.14	1	5	5	1.04	15	17	17
12	30055_GATES1_500_30060_MIDWAY_500_BR_1_3	80	1,885	1.76	.	7	10	1.15	7	8	8
13	30105_COTTNWD_230_30245_ROUND MT_230_BR_3_1	74	257	1.09	52	52	52	1.01	14	14	14
14	958555/958556 Flow Limit #6	63	25	1.05	15	15	15	1.02	2	2	2
15	1051307-SOL3	61	130	1.00	0	0	0	1.00	0	0	0
16	BARRE-LEWIS_NG	51	1,470	1.39	.	4	25	1.00	1	1	1
17	24114_PARDEE_230_24128_S.CLARA_230_BR_1_1	48	532	2.40	.	.	.	1.06	28	28	28
18	T-165 TABLMT_RIOVACADX_NG_SUM	48	545	1.01	48	48	48	1.00	2	2	2
19	31482_PALERMO_115_31508_HONCJT3_115_BR_1_1	46	80	1.01	33	35	35	1.00	8	8	8
20	32990_MARTINEZ_115_33014_ALHAMTP1_115_BR_1_1	44	95	1.25	10	10	10	1.02	15	16	16
21	VINCNT_BNKS_14_NG	42	1,800	1.60	.	.	.	1.02	2	2	2
22	LUGO_VINCENT_BG	40	3,080	1.56	1	2	4	1.11	13	13	13
23	32290_OLVH J1_115_32214_RIO OSO_115_BR_1_1	37	95	1.47	4	4	4	1.01	19	19	19
24	32228_PLACER_115_32236_FLINT J1_115_BR_1_1	34	64	1.18	13	18	24	1.03	6	6	6
25	32200_PEASE_115_31506_HONCJT1_115_BR_1_1	30	86	1.25	7	7	7	1.05	8	8	8
26	32208_GLEAF TP_115_32214_RIO OSO_115_BR_1_1	29	80	1.04	.	1	1	1.02	5	5	5
27	24156_VINCENT_500_24155_VINCENT_230_XF_1_P	27	981	1.26	.	.	.	1.02	17	17	17
28	32228_PLACER_115_32239_FLINT J2_115_BR_2_1	27	64	1.23	.	.	.	1.02	5	5	5
29	30005_ROUND MT_500_30015_TABLE MT_500_BR_1_2	26	1,892	1.13	4	6	6	1.03	9	9	9
30	30900_GATES_230_30970_MIDWAY_230_BR_1_1	25	287	2.27	.	.	.	1.22	4	5	5
31	33310_SANMATEO_115_33315_RAVENSWD_115_BR_1_1	25	64	1.32	1	1	1	1.01	15	15	15
32	24016_BARRE_230_25201_LEWIS_230_BR_1_1	24	1,203	4.71	.	.	.	1.04	8	9	9
33	30525_C.COSTA_230_30543_ROSSTAP1_230_BR_1_1	24	328	1.08	3	3	3	1.01	20	20	20
34	SC-VNCT_OUT_DA_NG	23	475	2.90	.	.	.	.	.	.	.
35	22192_DOUBLTTP_138_22300_FRIARS_138_BR_1_1	22	174	3.07	.	.	.	1.21	.	.	.

Row #	CONSTRAINT_NAME	Cong.	Avg.	IFM ----->				RTM ----->			
		Hours	Flow	RSI ₀	RSI ₁ <1	RSI ₂ <1	RSI ₃ <1	RSI ₀	RSI ₁ <1	RSI ₂ <1	RSI ₃ <1
36	30525_C.COSTA_230_30544_ROSSTAP2_230_BR_2_1	19	329	1.30	9	9	9	1.04	2	2	2
37	32225_BRNSWKT1_115_32222_DTCH2TAP_115_BR_1_1	19	74	1.28	.	.	3	1.04	11	11	11
38	32231_HORSE J2_115_32235_NEWC J2_115_BR_2_1	17	64	1.29	.	.	.	1.02	3	3	3
39	24156_VINCENT_500_24155_VINCENT_230_XF_4_P	16	1,104	1.45	.	.	.	1.05	4	4	4
40	SONG_SNTG2_OUT_SV_SS-N2_NG	16	1,378	1.16	.	.	.	.	.	.	.
41	MARTIN_115KV_BUS_D_OUT_NG	15	190	1.00	0	0	0	.	0	0	0
42	30550_MORAGA_230_30554_CASTROVL_230_BR_1_1	14	318	1.41	8	8	8	1.00	5	5	5
43	SONG_SNT1_SV_SS_NG	13	1,378	1.18	.	.	.	.	.	.	.
44	24807_MIRAGE_115_24819_CONCHO_115_BR_1_1	13	247	1.00	6	6	6	.	.	.	.
45	32990_MARTINEZ_115_33016_ALHAMTP2_115_BR_1_1	11	91	1.19	2	2	2	1.01	4	4	4
46	35122_NWARKEF_115_35350_AMES BS_115_BR_2_1	10	94	1.11	8	8	8	1.00	2	2	2
47	SOUTHLUGO_RV_BG	10	4,150	1.11	.	.	.	1.01	6	8	8
48	1021973_SONGS_SNTG1_OUT_NG	9	975	1.17	.	.	.	1.19	.	.	.
49	22356_IMPRLVLY_230_22360_IMPRLVLY_500_XF_80	9	591	1.20	.	.	.	1.00	1	1	1
50	958555/958556 Flow Limit #5	8	25	1.20	.	.	.	.	.	.	.
51	SONGS_SNTG2_OUT_NG	7	975	1.78	.	.	.	1.07	1	1	1
52	30525_C.COSTA_230_30565_BRENTWOD_230_BR_1_1	7	417	1.26	.	.	1	1.03	2	2	2
53	1030582_SONG_SNT1_SV_SS_NG	7	1,378	1.20	.	.	.	.	.	.	.
54	33010_SOBRANTE_115_30540_SOBRANTE_230_XF_1	7	375	1.13	4	5	5	.	.	.	.
55	1030579_SONG_SNT2_OUT_NG	6	975	4.22	6	6	6	.	.	.	.
56	1030582_SONG_SNT1_OUT_NG	6	975	1.25	.	.	.	.	.	.	.
57	31962_WDLND_BM_115_31970_WOODLD_115_BR_1_1	6	118	8.78	.	.	.	.	.	.	.
58	99106_SAN-MAR1_230_99104_MAR-SAN1_230_BR_1_3	6	251	1.00	.	.	.	.	.	.	.
59	30970_MIDWAY_230_30060_MIDWAY_500_XF_13_S	5	874	1.61	.	.	.	.	.	.	.
60	24155_VINCENT_230_24401_ANTELOPE_230_BR_1_1	5	477	1.36	.	.	.	1.02	2	2	2
61	SONG_SNT2_OUT_NG	4	975	1.19	.	.	.	.	.	.	.
62	30060_MIDWAY_500_24156_VINCENT_500_BR_3_2	4	1,497	1.12	.	.	.	1.01	1	1	2
63	1030581_SONG_SNT1_OUT_NG	3	975	3.51	.	.	.	.	.	.	.
64	1031184_NG1	3	120	1.24	.	.	1	.	.	.	.
65	22430_SILVERGT_230_22466_MLMS3TAP_230_BR_1_1	3	587	1.51	.	.	.	1.04	.	.	.
66	30790_PANOCHÉ_230_30900_GATES_230_BR_1_1	3	299	1.18	1	1	2	.	.	.	.
67	32950_PITTSBURG_115_32970_CLAYTN_115_BR_4_1	3	279	1.12	.	.	.	1.02	.	.	.
68	1042543-NG1	2	80	1.17	.	.	.	.	.	.	.
69	30790_PANOCHÉ_230_30900_GATES_230_BR_2_1	2	317	1.60	1	1	1	.	.	.	.
70	34713_OGLE TAP_115_34784_CAWELO C_115_BR_1_1	2	102	1.00	.	.	.	.	.	.	.

Table 3. Summary of Congestion - Non-Competitive Paths (April-December, 2009)

Row #	CONSTRAINT_NAME	Cong. Hours	Avg. Flow	<-- Congested Hours -->				Total Cong Cost		<--- Avg. Shadow Price --->			
				LMPM	IFM	LMPM	RTD	LMPM	IFM	LMPM	IFM	LMPM	RTD
1	24074 LA FRESA 230 24065 HINSON 230 BR 1 1	431	601.19	252	157	261	263	\$4,151,820	\$1,365,063	\$32	\$16	\$132	\$64
2	VICTVL_BG	365	2507.9	141	119	193	102	\$3,338,144	\$1,625,610	\$10	\$5	\$263	\$314
3	LOSBANOSNORTH_BG	327	2026.8	99	107	184	206	\$3,718,632	\$2,860,180	\$17	\$12	\$54	\$98
4	24082 LCIENEGA 230 24074 LA FRESA 230 BR 1 1	269	698.88	217	92	13	31	\$8,283,258	\$527,287	\$54	\$8	\$51	\$124
5	SCE_PCT_IMP_BG	218	6576.6	149	153	28	19	\$12,094,815	\$10,662,647	\$12	\$11	\$419	\$141
6	32212 E.NICOLS 115 32214 RIO OSO 115 BR 1 1	210	55.918	163	169	10	20	\$3,094,453	\$2,650,787	\$337	\$279	\$337	\$356
7	30875 MC CALL 230 30880 HENTAP2 230 BR 1 1	128	379.66	91	34	19	15	\$569,946	\$193,971	\$17	\$15	\$57	\$18
8	31482 PALERMO 115 32280 E.MRY J2 115 BR 1 1	121	77.898	89	102	3	5	\$666,082	\$605,169	\$96	\$76	\$354	\$643
9	30543 ROSSTAP1 230 30550 MORAGA 230 BR 1 1	119	379.18	48	47	37	64	\$373,217	\$438,419	\$21	\$25	\$351	\$621
10	32218 DRUM 115 32222 DTCH2TAP 115 BR 1 1	101	72.867	90	93	30	37	\$304,206	\$201,963	\$46	\$30	\$52	\$57
11	30250 CARIBOU 230 30261 BELDENTP 230 BR 1 1	91	225.06	87	5	16	17	\$5,701,091	\$197,263	\$303	\$178	\$63	\$78
12	30055 GATES1 500 30060 MIDWAY 500 BR 1 3	80	1885.3	69	67	5	8	\$994,283	\$858,966	\$8	\$7	\$10	\$34
13	30105 COTTNWD 230 30245 ROUND MT 230 BR 3 1	74	256.96	55	52	3	14	\$2,696,786	\$1,920,476	\$196	\$137	\$187	\$364
14	958555/958556 Flow Limit #6	63	25	8	15	47	2	\$23,322	\$33,909	-\$117	-\$90	-\$642	-\$108
15	1051307-SOL3	61	130	22	24	57	4	\$1,158,769	\$412,593	-\$405	-\$132	-\$378	-\$371
16	BARRE-LEWIS_NG	51	1470	32	37	9	1	\$1,451,289	\$1,317,615	-\$31	-\$24	-\$220	-\$124
17	24114 PARDEE 230 24128 S.CLARA 230 BR 1 1	48	532.36	19	10	18	29	\$274,271	\$132,313	\$29	\$24	\$1,749	\$185
18	T-165 TABLMT_RIOVACADX_NG_SUM	48	545	48	48	36	2	\$0	\$0	\$14	\$23	-\$6	\$27
19	31482 PALERMO 115 31508 HONC JT3 115 BR 1 1	46	79.694	17	35	5	8	\$175,269	\$529,154	\$121	\$173	\$183	\$513
20	32990 MARTINEZ 115 33014 ALHAMTP1 115 BR 1 1	44	94.898	21	12	8	16	\$98,304	\$99,727	\$49	\$88	\$385	\$472
21	VINCNT_BNKS_14_NG	42	1800	6	5	38	2	\$108,110	\$72,381	-\$10	-\$8	-\$136	-\$142
22	LUGO_VINCENT_BG	40	3080	20	15	8	13	\$605,098	\$102,288	\$10	\$2	\$180	\$53
23	32290 OLIVH J1 115 32214 RIO OSO 115 BR 1 1	37	95.409	8	4	15	24	\$565,819	\$292,144	\$737	\$766	\$309	\$393
24	32228 PLACER 115 32236 FLINT J1 115 BR 1 1	34	63.941	11	30	3	6	\$28,857	\$135,955	\$41	\$71	\$500	\$32
25	32200 PEASE 115 31506 HONC JT1 115 BR 1 1	30	86.11	9	9	12	14	\$66,470	\$829,737	\$86	\$1,070	\$218	\$263
26	32208 GLEAF TP 115 32214 RIO OSO 115 BR 1 1	29	80.113	18	12	3	9	\$430,146	\$21,036	\$317	\$22	\$160	\$324
27	24156 VINCENT 500 24155 VINCENT 230 XF 1 P	27	980.7	4	7	8	17	\$218,995	\$79,600	\$56	\$12	\$184	\$175
28	32228 PLACER 115 32239 FLINT J2 115 BR 2 1	27	64.308	21	17	2	5	\$57,572	\$48,311	\$43	\$44	\$358	\$375
29	30005 ROUND MT 500 30015 TABLE MT 500 BR 1 2	26	1891.9	22	9	11	9	\$697,874	\$360,337	\$17	\$21	\$13	\$80
30	30900 GATES 230 30970 MIDWAY 230 BR 1 1	25	286.96	11	7	7	10	\$198,312	\$53,462	\$62	\$27	\$112	\$89
31	33310 SANMATEO 115 33315 RAVENSWD 115 BR 1 1	25	63.502	9	1	10	15	\$120,389	\$1,528	\$169	\$24	\$500	\$478
32	24016 BARRE 230 25201 LEWIS 230 BR 1 1	24	1202.9	8	10	13	13	\$556,182	\$661,501	\$59	\$56	\$81	\$167
33	30525 C.COSTA 230 30543 ROSSTAP1 230 BR 1 1	24	328.25	3	3	11	20	\$15,288	\$21,317	\$16	\$22	\$407	\$466
34	SC-VNCT_OUT_DA_NG	23	475	23	4			\$143,264	\$1,061	-\$13	-\$1		
35	22192 DOUBLTTP 138 22300 FRIARS 138 BR 1 1	22	174.42	11	8	10	14	\$110,446	\$10,502	\$57	\$8	\$61	\$157

Row #	CONSTRAINT_NAME	Cong. Hours	Avg. Flow	<-- Congested Hours -->				Total Cong Cost		<--- Avg. Shadow Price --->			
				LMPM	IFM	LMPM	RTD	LMPM	IFM	LMPM	IFM	LMPM	RTD
36	30525_C.COSTA_230_30544_ROSSTAP2_230_BR_2_1	19	329.45	16	10		2	\$288,717	\$687,139	\$55	\$209		\$17
37	32225_BRNSWKT1_115_32222_DTCH2TAP_115_BR_1_1	19	73.995	6	6	4	13	\$13,368	\$12,525	\$30	\$28	\$114	\$84
38	32231_HORSE_J2_115_32235_NEWC_J2_115_BR_2_1	17	63.931	15	10	1	3	\$40,299	\$28,469	\$42	\$45	\$887	\$663
39	24156_VINCENT_500_24155_VINCENT_230_XF_4_P	16	1103.5	8	2	3	4	\$150,704	\$5,266	\$17	\$2	\$57	\$28
40	SONG_SNTG2_OUT_SV_SS-N2_NG	16	1378	12	10	6		\$237,823	\$181,897	-\$14	-\$13	-\$104	
41	MARTIN_115KV_BUS_D_OUT_NG	15	190	4	6	9	1	\$24,654	\$32,372	-\$32	-\$28	-\$81	-\$500
42	30550_MORAGA_230_30554_CASTROVL_230_BR_1_1	14	318.07	7	8	3	5	\$109,672	\$93,708	\$49	\$37	\$556	\$614
43	SONG_SNT1_SV_SS_NG	13	1378	13	12			\$296,164	\$147,480	-\$17	-\$9		
44	24807_MIRAGE_115_24819_CONCHO_115_BR_1_1	13	246.84	13	6			\$1,444,425	\$1,383,258	\$434	\$923		
45	32990_MARTINEZ_115_33016_ALHAMTP2_115_BR_1_1	11	90.834	7	8	3	4	\$37,447	\$107,790	\$59	\$148	\$50	\$36
46	35122_NWARK_EF_115_35350_AMES_BS_115_BR_2_1	10	93.569	7	8	2	2	\$193,530	\$249,580	\$287	\$325	\$500	\$500
47	SOUTHLUGO_RV_BG	10	4150	2	4	6	8	\$19,155	\$272,784	\$2	\$16	\$601	\$415
48	1021973_SONGS_SNTG1_OUT_NG	9	975	8	6	3	1	\$146,468	\$121,668	-\$19	-\$21	-\$16	-\$11
49	22356_IMPRLVLY_230_22360_IMPRLVLY_500_XF_80	9	591.37	7	9		1	\$54,340	\$81,415	\$13	\$15		\$500
50	958555/958556_Flow_Limit_#5	8	25	2	5	7		\$11,015	\$56,864	-\$220	-\$455	-\$1,041	
51	SONGS_SNTG2_OUT_NG	7	975	1	1	7	1	\$4,883	\$14,512	-\$5	-\$15	-\$15	-\$9
52	30525_C.COSTA_230_30565_BRENTWOD_230_BR_1_1	7	417.25	7	7		2	\$23,866	\$23,403	\$8	\$8		\$11
53	1030582_SONG_SNT1_SV_SS_NG	7	1378	5	3	2		\$49,160	\$7,650	-\$7	-\$2	-\$22	
54	33010_SOBRANTE_115_30540_SOBRANTE_230_XF_1	7	375.41	2	7			\$32,938	\$230,755	\$44	\$88		
55	1030579_SONG_SNT2_OUT_NG	6	975		6	1			\$631,806		-\$108	-\$133	
56	1030582_SONG_SNT1_OUT_NG	6	975	6	1			\$480,556	\$1,266	-\$82	-\$1		
57	31962_WDLND_BM_115_31970_WOODLD_115_BR_1_1	6	118.39	5	2			\$73,670	\$1,985	\$121	\$8		
58	99106_SAN-MAR1_230_99104_MAR-SAN1_230_BR_1_3	6	251.44	5	1			\$3,800	\$591	\$3	\$2		
59	30970_MIDWAY_230_30060_MIDWAY_500_XF_13_S	5	873.56	3	5			\$6,390	\$87,506	\$2	\$20		
60	24155_VINCENT_230_24401_ANTELOPE_230_BR_1_1	5	476.72	1	1	1	2	\$4,709	\$1,229	\$10	\$3	\$213	\$35
61	SONG_SNT2_OUT_NG	4	975	2	2	2		\$115,468	\$15,140	-\$59	-\$8	-\$2	
62	30060_MIDWAY_500_24156_VINCENT_500_BR_3_2	4	1497.2		2		2		\$12,083		\$4		\$724
63	1030581_SONG_SNT1_OUT_NG	3	975	2	1	3		\$26,946	\$64	-\$14	\$0	-\$550	
64	1031184_NG1	3	120	3	1			\$27,091	\$318	-\$75	-\$3		
65	22430_SILVERGT_230_22466_MLMS3TAP_230_BR_1_1	3	587.05	1	1		1	\$214	\$3,403	\$0	\$6		\$367
66	30790_PANOCHÉ_230_30900_GATES_230_BR_1_1	3	298.83	2	2			\$31,294	\$2,739	\$49	\$5		
67	32950_PITSBURG_115_32970_CLAYTN_115_BR_4_1	3	278.89	3	3		1	\$342,756	\$124,836	\$412	\$149		\$500
68	1042543-NG1	2	80	2	2			\$57,890	\$81,154	-\$362	-\$507		
69	30790_PANOCHÉ_230_30900_GATES_230_BR_2_1	2	317.12	2	1			\$22,084	\$32,343	\$35	\$102		
70	34713_OGLE_TAP_115_34784_CAWELO_C_115_BR_1_1	2	102.19	2	2			\$23,679	\$24,713	\$116	\$121		

Table 4. Summary of RSI Results- Average RSI, Competitive Paths (April-December, 2009),

Row #	CONSTRAINT_NAME	Cong. Hours	Avg. Flow	IFM ----->				RTM ----->				
				RSI0	RSI1	RSI2	RSI3	RSI0	RSI1	RSI2	RSI3	
1	IPPCADLN_BG	1650	610									
2	IVALLYBANK_XFBG	483	900	1.27	1.10	1.01	0.98	1.02	0.91	0.88	0.86	
3	HUMBOLDT_BG	468	43	1.42	1.42	1.42	1.42	1.18	1.18	1.18	1.18	
4	SDGE_CFEIMP_BG	349	2,321	2.25	1.91	1.86	1.85	1.10	1.09	1.08	1.08	
5	IPP-IPPGEN_MSL	339	470									
6	WSTWGMEAD_MSL	321	174									
7	SDGEIMP_BG	205	2,106	1.82	1.80	1.78	1.78	1.05	1.05	1.05	1.05	
8	MKTPCADLN_MSL	179	589									
9	33206_BAYSHOR1_115_33208_MARTIN_C_115_BR_1_1	142	136	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
10	ADLANTOSP_MSL	136	1,213									
11	33205_HNTRS_PT_115_33208_MARTIN_C_115_BR_3_1	89	124	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
12	FCORNER5_MSL	86	816									
13	33252_POTRERO3_20.0_33204_POTRERO_115_XF_G3	43	195									
14	33203_MISSON_115_33204_POTRERO_115_BR_1_1	34	125	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
15	MIGUEL_IMP_BG	31	1,900	1.45	1.38	1.36	1.33					
16	SSONGS_BG	22	1,520	1.89	1.81	1.74	1.74	1.07	1.06	1.06	1.06	
17	SUTTEROBANION_BG	19	525									
18	31000_HUMBOLDT_115_31001_HMBLT_TM_1.0_XF_1	17	46	1.64	1.57	1.54	1.52	1.03	0.98	0.97	0.95	
19	T-133_RAVENSWDSANMAT_NG_SUM	13	115	1.09	1.05	1.02	1.01					
20	33204_POTRERO_115_33206_BAYSHOR1_115_BR_1_1	13	87	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
21	33205_HNTRS_PT_115_33208_MARTIN_C_115_BR_1_1	5	110									
22	33207_BAYSHOR2_115_33208_MARTIN_C_115_BR_2_1	5	125									
23	33253_POTRERO4_13.8_33204_POTRERO_115_XF_14	1	59									
24	33255_POTRERO6_13.8_33204_POTRERO_115_XF_16	1	59									
25	33254_POTRERO5_13.8_33204_POTRERO_115_XF_15	1	52									
26	99100_PIT-ESH1_230_30527_PITSBRG_230_BR_1_1	1	456									
27	33208_MARTIN_C_115_33310_SANMATEO_115_BR_3_1	1	196									
28	33204_POTRERO_115_33207_BAYSHOR2_115_BR_2_1	1	129									
29	MIGUEL_BKs_MXFLW_NG	1	1,800									
30	NEWMELONP_BG	1	384									

Table 5. Summary of RSI Results- Hours RSI < 1, Competitive Paths (April-December, 2009),

Row #	CONSTRAINT_NAME	Cong. Hours	Avg. Flow	IFM ----->				RTM ----->				Congestec LMPM
				RSI ₀	RSI ₁ <1	RSI ₂ <1	RSI ₃ <1	RSI ₀	RSI ₁ <1	RSI ₂ <1	RSI ₃ <1	
1	IPPCADLN_BG	1650	610	.	.	.	.	.	.	.	.	837
2	IVALLYBANK_XFBG	483	900	1.27	.	24	57	1.02	403	403	403	85
3	HUMBOLDT_BG	468	43	1.42	.	.	.	1.18	.	.	.	149
4	SDGE_CFEIMP_BG	349	2,321	2.25	1	4	4	1.10	28	32	32	65
5	IPP-IPPGEN_MSL	339	470	.	.	.	.	.	.	.	.	53
6	WSTWGMEAD_MSL	321	174	.	.	.	.	.	.	.	.	258
7	SDGEIMP_BG	205	2,106	1.82	.	.	.	1.05	9	9	9	85
8	MKTPCADLN_MSL	179	589	.	.	.	.	.	.	.	.	147
9	33206_BAYSHOR1_115_33208_MARTIN C_115_BR_1_1	142	136	1.00	0	0	0	1.00	0	0	0	102
10	ADLANTOSP_MSL	136	1,213	.	.	.	.	.	.	.	.	121
11	33205_HNTRS PT_115_33208_MARTIN C_115_BR_3_1	89	124	1.00	0	0	0	1.00	0	0	0	65
12	FCORNER5_MSL	86	816	.	0	0	0	.	0	0	0	64
13	33252_POTRERO3_20.0_33204_POTRERO_115_XF_G3	43	195	.	.	.	.	.	.	.	.	19
14	33203_MISSON_115_33204_POTRERO_115_BR_1_1	34	125	1.00	0	0	0	1.00	.	.	.	17
15	MIGUEL_IMP_BG	31	1,900	1.45	.	.	.	.	.	.	.	22
16	SSONGS_BG	22	1,520	1.89	.	.	.	1.07	1	1	1	6
17	SUTTEROBANION_BG	19	525	.	0	0	0	.	0	0	0	.
18	31000_HUMBOLDT_115_31001_HMBLT TM_1.0_XF_1	17	46	1.64	.	.	.	1.03	6	6	6	6
19	T-133RAVENSWDSANMAT_NG_SUM	13	115	1.09	.	.	1	.	.	.	.	6
20	33204_POTRERO_115_33206_BAYSHOR1_115_BR_1_1	13	87	1.00	.	.	.	1.00	0	0	0	2
21	33205_HNTRS PT_115_33208_MARTIN C_115_BR_1_1	5	110	.	.	.	.	.	.	.	.	1
22	33207_BAYSHOR2_115_33208_MARTIN C_115_BR_2_1	5	125	.	0	0	0	.	0	0	0	3
23	33253_POTRERO4_13.8_33204_POTRERO_115_XF_14	1	59	.	.	.	.	.	.	.	.	.
24	33255_POTRERO6_13.8_33204_POTRERO_115_XF_16	1	59	.	.	.	.	.	.	.	.	.
25	33254_POTRERO5_13.8_33204_POTRERO_115_XF_15	1	52	.	.	.	.	.	.	.	.	.
26	99100_PIT-ESH1_230_30527_PITSBRG_230_BR_1_1	1	456	.	.	.	.	.	.	.	.	.
27	33208_MARTIN C_115_33310_SANMATEO_115_BR_3_1	1	196	.	.	.	.	.	.	.	.	.
28	33204_POTRERO_115_33207_BAYSHOR2_115_BR_2_1	1	129	.	.	.	.	.	.	.	.	.
29	MIGUEL_Bks_MXFLW_NG	1	1,800	.	.	.	.	.	.	.	.	.
30	NEWMELONP_BG	1	384	.	.	.	.	.	.	.	.	.

Table 6. Summary of Congestion - Competitive Paths (April-December, 2009)

Row #	CONSTRAINT_NAME	Cong. Hours	Avg. Flow	<-- Congested Hours -->				Total Cong Cost		<--- Avg. Shadow Price --->			
				LMPM	IFM	LMPM	RTD	LMPM	IFM	LMPM	IFM	LMPM	RTD
1	IPPCADLN_BG	1650	610	837	1283	445	422	\$2,423,012	\$3,812,912	\$5	\$5	\$25	\$63
2	IVALLYBANK_XFBG	483	900	85	95	335	443	\$541,171	\$567,148	\$7	\$7	\$28	\$37
3	HUMBOLDT_BG	468	43	149	166	216	228	\$514,113	\$496,123	\$79	\$69	\$191	\$202
4	SDGE_CFEIMP_BG	349	2,321	65	121	187	270	\$585,326	\$3,494,554	\$4	\$12	\$33	\$148
5	IPP-IPPGEN_MSL	339	470	53	18	11	281	\$6,035,483	\$165,419	\$242	\$20	\$53	\$68
6	WSTWGMEAD_MSL	321	174	258	112	49	69	\$322,148	\$157,490	\$7	\$8	\$80	\$57
7	SDGEIMP_BG	205	2,106	85	98	68	92	\$753,105	\$702,950	\$5	\$4	\$218	\$388
8	MKTPCADLN_MSL	179	589	147	70	35	11	\$720,274	\$233,253	\$8	\$6	\$53	\$81
9	33206_BAYSHOR1_115_33208_MARTIN_C_115_BR_1_1	142	136	102	61	15	12	\$690,111	\$93,891	\$51	\$11	\$354	\$467
10	ADLANTOSP_MSL	136	1,213	121	67	1	1	\$513,075	\$327,494	\$3	\$4	\$13	\$51
11	33205_HNTRS_PT_115_33208_MARTIN_C_115_BR_3_1	89	124	65	72	2	8	\$245,548	\$241,878	\$31	\$27	\$252	\$500
12	FCORNER5_MSL	86	816	64	69	24	19	\$2,720,414	\$2,032,191	\$53	\$36	\$86	\$71
13	33252_POTRERO3_20.0_33204_POTRERO_115_XF_G3	43	195	19	37	3	1	\$27,940	\$82,334	\$8	\$12	\$52	\$71
14	33203_MISSON_115_33204_POTRERO_115_BR_1_1	34	125	17	3	14	11	\$1,902,645	\$192,586	\$676	\$381	\$397	\$456
15	MIGUEL_IMP_BG	31	1,900	22	28			\$292,160	\$420,922	\$7	\$8		
16	SSONGS_BG	22	1,520	6	3	15	20	\$32,273	\$2,144	\$4	\$0	\$11	\$102
17	SUTTEROBANION_BG	19	525		2	10	8		\$1,400		\$1	\$5	\$309
18	31000_HUMBOLDT_115_31001_HMBLT_TM_1.0_XF_1	17	46	6	3	7	9	\$118,091	\$49,400	\$437	\$371	\$478	\$462
19	T-133_RAVENSWDSANMAT_NG_SUM	13	115	6	2	1		\$1,604,050	\$131,363	-\$2,129	-\$571	-\$500	
20	33204_POTRERO_115_33206_BAYSHOR1_115_BR_1_1	13	87	2	1	6	6	\$230,790	\$1,199	\$500	\$14	\$103	\$298
21	33205_HNTRS_PT_115_33208_MARTIN_C_115_BR_1_1	5	110	1		1	3	\$55,862		\$500		\$500	\$500
22	33207_BAYSHOR2_115_33208_MARTIN_C_115_BR_2_1	5	125	3	3	1	1	\$3,290	\$3,335	\$9	\$9	\$500	\$500
23	33253_POTRERO4_13.8_33204_POTRERO_115_XF_14	1	59				1						\$18
24	33255_POTRERO6_13.8_33204_POTRERO_115_XF_16	1	59				1						\$500
25	33254_POTRERO5_13.8_33204_POTRERO_115_XF_15	1	52			1						\$500	
26	99100_PIT-ESH1_230_30527_PITSBRG_230_BR_1_1	1	456			1	1					\$918	\$450
27	33208_MARTIN_C_115_33310_SANMATEO_115_BR_3_1	1	196				1						\$500
28	33204_POTRERO_115_33207_BAYSHOR2_115_BR_2_1	1	129			1	1					\$500	\$500
29	MIGUEL_BKs_MXFLW_NG	1	1,800										
30	NEWMELONP_BG	1	384				1						\$0