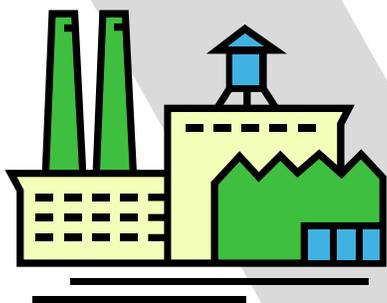


Emission Reduction Offsets Transaction Cost Summary Report for 2007

December 2008



Stationary Source Offsets



ERC Bank



ERC Trading

California Environmental Protection Agency



Air Resources Board

State of California
California Environmental Protection Agency

AIR RESOURCES BOARD

**Emission Reduction Offsets Transaction Cost
Summary Report for 2007**

December, 2008

Prepared by

Project Support Section
Project Assessment Branch
Stationary Source Division

This report has been reviewed by the staff of the California Air Resources Board. Publication does not signify that the contents necessarily reflect the views and policies of the Air Resources Board.

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The data for this report was compiled from information provided by all
Air Pollution Control/Air Quality Management Districts in California

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EXECUTIVE SUMMARY

BACKGROUND

Since 1993, Health and Safety Code Sections 40709 and 40709.5 have required local air quality management districts/air pollution control districts (AQMDs/APCDs or districts) to collect information about the cost of offset transactions from stationary source owners who purchase offsets as required by district New Source Review (NSR) programs. State law also requires districts to adopt emission reduction credit banking programs. Districts are required to collect specific information about offset transactions including the price paid in dollars per ton, the pollutant traded, the amount traded and the year of the transaction. Districts are also required to annually publish this information without revealing the identity of the parties involved with the transaction. Districts that are not required to submit a plan for attainment of state ambient air quality standards and that also meet federal air quality standards are exempt from these requirements.

SUMMARY OF 2007 DATA

The Air Resources Board (ARB) has compiled information regarding NSR offset transactions collected from all 35 districts and assembled it into this report. This report summarizes statewide emission reduction offset transactions in California for the year 2007. All the districts reported to ARB regardless of whether they had any offset transactions or whether the reporting requirements apply. A total of 640 transactions were reported to have taken place in California in 2007. In this report, we are not including information about 50 subsidiary transactions where there were no associated costs. Of the remaining 590 transactions, 107 were for oxides of nitrogen (NO_x), 252 were for hydrocarbons (HC), 100 were for particulate matter with aerodynamic diameter less than 10 microns (PM₁₀), 15 were for carbon monoxide (CO), and 116 were for sulfur oxides (SO_x). These transactions generally represent trades of offsets that are valid for the lifetime of the permitted source using the offsets. This is in contrast to other types of credits that are valid for much shorter time frames (e.g. RECLAIM trading credits that are valid for one year).

Table 1 presents the average, median, high and low costs for NO_x, HC, PM₁₀, CO, and SO_x offset transactions reported in 2007. Mean values in Table 1 represent the statewide average cost of a transaction, where each transaction is weighted equally in the calculation regardless of the number of tons traded per transaction. For a specific breakdown of all transactions by district, see Table 2, page 10.

	NOx	HC	PM₁₀	CO	SOx
Average	\$45,176	25,370	\$97,442	7,188	\$35,091
Median	\$20,000	\$24,829	\$43,000	\$500	\$21,500
High	\$602,740	\$95,616	\$1,293,151	\$35,616	\$356,164
Low	\$49	\$5	\$49	\$1	\$100

The following districts reported offset transactions: Bay Area AQMD, Feather River AQMD, Imperial County APCD, Placer County APCD, Sacramento Metro AQMD, San Diego County APCD, San Joaquin Valley Unified APCD, Santa Barbara County APCD, Shasta County AQMD, South Coast AQMD, and Ventura County APCD.

DATA TRENDS

ARB has collected and reported statewide data on all offset transactions since 1993. The number of districts reporting transactions has relatively stayed between 11-16 districts reporting each year. In 2007, 11 districts reported transactions. Through the years the number of transactions being reported has increased. In 1993, 30 transactions were reported, that number continued to increase to 495 in 2001. Over the next three years, the number of transactions reported proceeded to decrease to 247 in 2004. Since then the number of transactions continued to increase. In 2007, 590 transactions were reported, the largest amount reported so far.

Summary Charts A, B, and C illustrate the trends that have occurred during the past fifteen years for the average transaction cost per ton of the three most actively traded criteria pollutants (NOx, HC, and PM₁₀). Summary Chart A illustrates that the average transaction cost of NOx emissions credits generally remained constant at approximately \$18,000 until 2000. From 2000 to 2003, the cost per transaction steadily increased to approximately \$40,000. From 2004 to 2007, the cost per transaction fluctuated between \$40,000 and \$80,000.

Summary Chart B shows that the average transaction cost of HC emission credits has fluctuated over time. Costs generally fluctuated between 1993 and 2006 at a cost of approximately \$10,000. In 2007, the average cost increase to its highest level at approximately \$25,000.

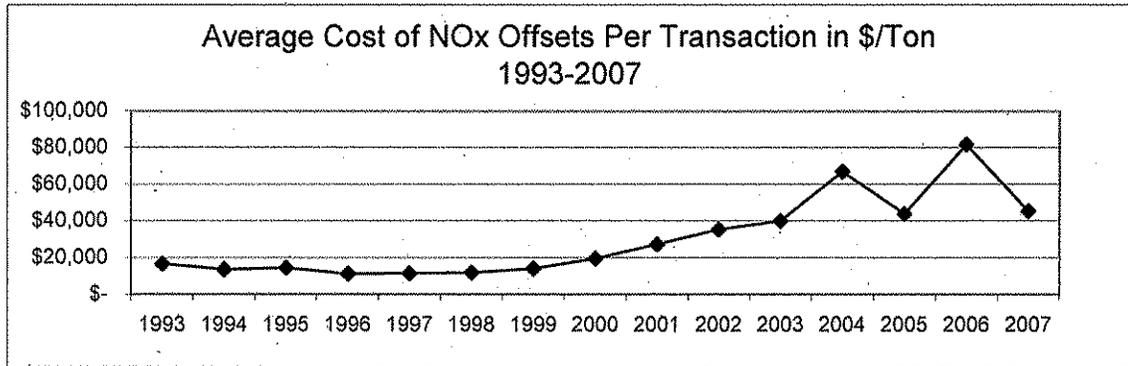
Summary Chart C shows that the average transaction cost of PM₁₀ emission credits was approximately \$20,000 until 2001 when it increased to approximately \$50,000. In 2005, it climbed to approximately \$90,000. In 2006, the cost dropped to below \$40,000 and then again jumped to almost \$100,000 in 2007.

Summary Charts D and E illustrate the trends for the number of transactions and the number of tons traded during the past fifteen years for the three most traded pollutants (NO_x, HC, and PM₁₀). Summary Chart D illustrates that the number of transactions generally increased between 1993 and 2001 for all three pollutants followed by a decreasing trend beginning in 2002. Starting in 2005 for HC and 2006 for PM₁₀ and NO_x, the number of transactions began to increase; however, in 2007, PM₁₀ transactions decreased. Over the years, HC transactions have consistently outnumbered those of other pollutants.

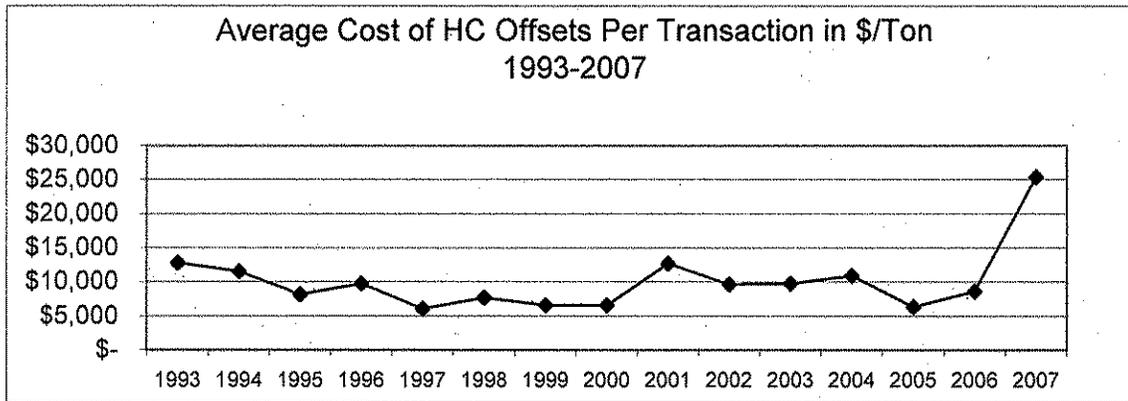
Summary Chart E shows the number of tons traded by pollutant has remained fairly constant over the years with the exception of 2000 and 2001 which showed a sharp increase.

Visit our website "Emission Reduction Credit Offsets" at www.arb.ca.gov/nsr/erco/erco.htm for further information on California offset transactions that occurred from 1999 through 2007.

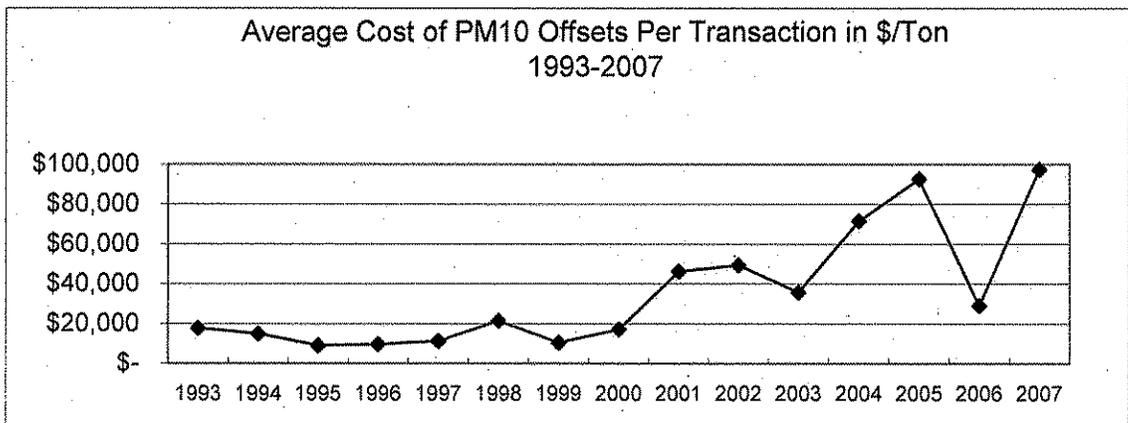
Summary Chart A



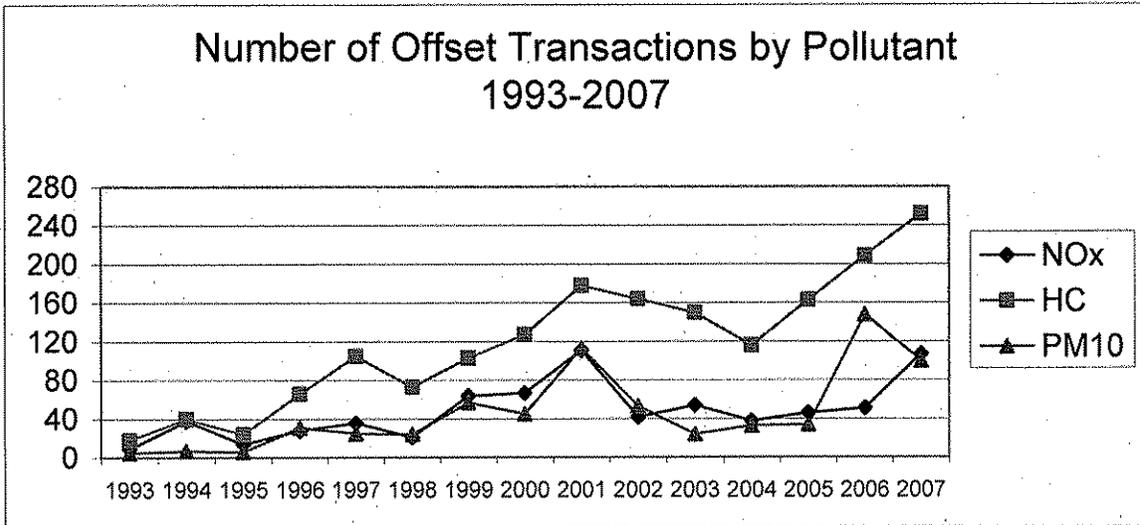
Summary Chart B



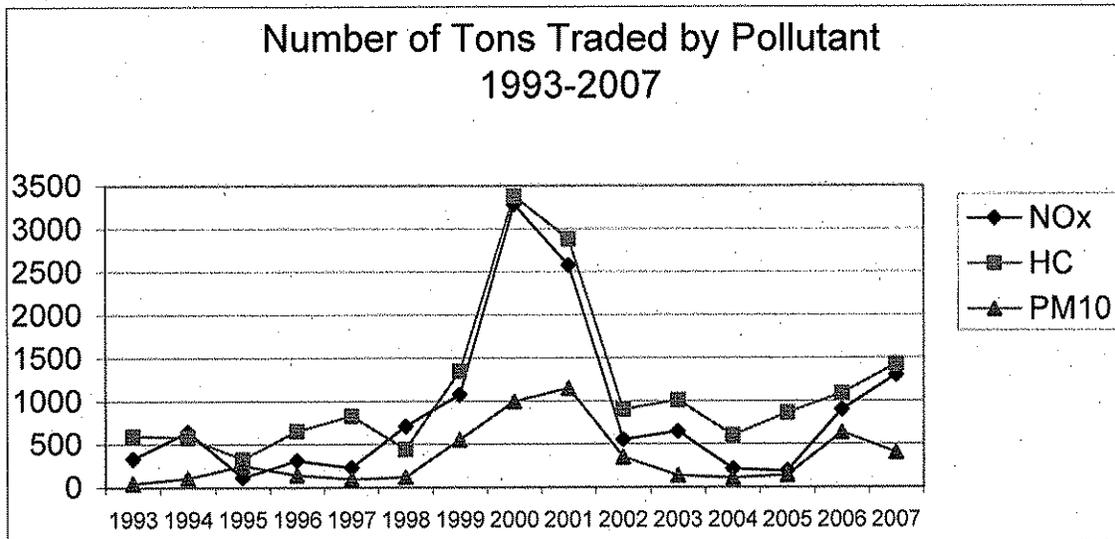
Summary Chart C



Summary Chart D



Summary Chart E



INTRODUCTION

Section 40709.5(e) of the Health and Safety Code mandates that local air quality management and air pollution control districts (districts), that are not exempted under Health and Safety Code Section 40709, collect information regarding the cost of offsets from stationary source owners who purchased offsets as required by district NSR programs. This report presents a compilation of the transactions in California from January 1 through December 31, 2007, as supplied by the districts.

California's NSR program is designed to accommodate industrial growth while protecting public health and the environment. The use of emission reduction credits that are purchased from the open market to offset emissions from new or modified sources gives industry the flexibility to mitigate emissions in the most cost-effective manner.

This report summarizes the prices paid for offsets. The report also gives a sense of the number and type of transactions taking place in California's emission credit market. This report does not attempt to analyze the cost data collected or attempt to predict future prices or offset availability. As required by Section 40709.5(e), this report does not contain information that identifies the parties involved in the transactions.

We have not included trading credits from the South Coast Air Quality Management District's Regional Clean Air Incentives Market (RECLAIM) program because they are not directly comparable to emission reduction credits used to satisfy NSR requirements. Also, our tables and calculations do not include data on the cost of leasing credits from the SEED (Solutions for the Environment and Economic Development) program of the Sacramento Metropolitan Air Quality Management District.

NEW SOURCE REVIEW AND CALIFORNIA'S AIR QUALITY MANAGEMENT PROGRAM

The responsibility for controlling emissions from stationary sources of air pollution rests with California's local districts. The California Clean Air Act requires districts to adopt a NSR program that results in no net increase in emissions from new and modified stationary sources that have the potential to emit over a specified amount of nonattainment pollutants or their precursors. As part of NSR, stationary sources are required to apply the Best Available Control Technology (BACT) to reduce emissions. In some cases, stationary sources must provide emission reduction offsets to mitigate the impact of emissions that remain from the source after the application of BACT. These emission reduction offsets are sometimes called emission reduction credits. To be used as mitigation, offsets must meet certain criteria: the emission reductions must be surplus to any federal, State or local laws or regulations; and must be real, enforceable, quantifiable and permanent. California's offset requirements, reflected in district rules, generally apply to more permitting actions than federal offset requirements and are also triggered at smaller facilities.

EMISSION REDUCTION CREDIT BANKING AND TRADING

Emission reduction credit banking is defined as "a system... by which reductions in emissions may be banked or otherwise credited to offset future increases... or a calculation method which enables internal emission reductions to be credited against increases" (Health & Safety Code Section 40709.5). Once created, emission reduction credits may be banked with the district for future use by the source that generated them, used concurrently to offset new projects, or sold to other sources for use as mitigation.

The most common method of creating emission reduction credits is to control or curtail the emissions from an existing stationary source. Control of emissions is generally from the application of emission control technology beyond that which is required by any regulation or rule. Curtailment could be from a change in operating hours of a source, or through the shutdown of a source. Another method of creating emission reduction credits is to reduce emissions from mobile sources beyond what is required. Additionally, credits may be generated from the reductions in emissions from agricultural operations, for example from curtailing field burning of agricultural wastes or from using agricultural water pumps equipped with cleaner engines. Credits must be generated pursuant to district rules and regulations, and must be reviewed and certified by the district. The legal requirements of credit generating programs are specified in the Health and Safety Code and further defined by rules in place in each district.

REQUIREMENTS TO REPORT COST OF OFFSETS

Sections 40709 and 40709.5 of the Health and Safety Code requires districts that are not exempted to establish banking programs for emission reduction credits and establishes a mechanism for districts to collect data regarding the price paid for offsets. The text of Health and Safety Code Sections 40709 and 40709.5 and Government Code Section 6254.7 is in Appendix A. The following is a summary of the requirements of those sections of the Government Code and the Health and Safety Code:

- Section 6254.7(f) of the Government Code authorizes districts to obtain information on the cost of offsets from applicants.
- Section 40709 of the Health and Safety Code makes an emission reduction banking system mandatory in every district except any district that is not required to submit a plan for attainment of State ambient air quality standards and if
 - The district is not in a federal nonattainment area for any national ambient air quality standard unless the sole reason for nonattainment is air pollutant transport and
 - A source has not petitioned the district to establish a banking system.
- Section 40709(c) of the Health and Safety Code specifies that emission reductions proposed to offset simultaneous emissions increases within the same stationary source need not be banked prior to use as offsets.

- Section 40709.5(e) requires that any district that has established a banking system is required to develop a program that provides the following information as public record:
 - Annual publication of the costs in dollars per ton, of emission offsets purchased for new and modified emission sources, excluding the identity of the parties involved.
 - The annual publication shall specify for each offset purchase transaction:
 - The date of the offset transaction (year only)
 - The amount of offset purchased by pollutant
 - The total cost, by pollutant of the offsets purchased
 - Each application for use of emission reductions banked shall provide sufficient information, as determined by the district, to perform the cost analysis.

DATA COLLECTION PROCESS

In 1994, a subcommittee of the California Air Pollution Control Officers Association (CAPCOA) Engineering Managers worked with ARB to develop a uniform reporting form for collecting data from the districts for this report. The reporting form was designed to transmit information to ARB without disclosing the names of the transaction parties.

The form distinguishes between the methods of generating emission reduction credits. Possible generating methods include stationary, mobile, and agricultural offsets. The prices paid for credits may be affected by the type of source from which reductions are obtained. This is particularly true with mobile sources that have a finite life span.

The lifespan of the credit may significantly affect the price paid for offsets. The form allows the district to identify length of useful life if the credit life is limited. Mobile source credits and lease agreement transactions can be distinguished using this section of the form.

The reporting form records the type of payment agreement, such as direct sale of the credit, barter for services or equipment, a transaction between subsidiary parties, or an assets transfer within a company. In each case, the type of transaction agreement may affect the price of the transaction.

Knowing these facts about each transaction will aid in analysis of market values for credits by interested parties. A copy of the reporting form and instructions is in Appendix B.

DESCRIPTION OF 2007 DATA

Table 1 presents the statewide average, median, high and low costs for NO_x, HC, PM₁₀, CO, and SO_x offsets reported in 2007.

Table 2 presents the 640 reported pollutant transactions that took place in California in 2007 listed by individual districts. There are 50 transactions listed in Table 2 that are not used in calculating the results of Tables 4 through 13, and Charts 1 through 5. These 50 trades were subsidiary transactions for which there are no associated costs.

We also identify in the "Notes" section of Table 2 whether transactions are leased or valid in specific quarters. Leased and quarterly transaction costs are annualized for inclusion in the average cost figures presented throughout the report. The methodology used to annualize transactions can be found on page 52.

The majority of the transactions that are reported are emission reductions from stationary sources. Of the 640 cost transactions, 107 were for NO_x, 252 were for HC, 100 were for PM₁₀, 15 were for CO, and 116 were for SO_x. All the districts reported to ARB regardless of whether they had any offset transactions. Table 3 lists the districts that reported no transactions in 2007.

Tables 4, 6, 8, 10 and 12 present information by district for NO_x, HC, PM₁₀, CO and SO_x, respectively. Each table presents the cost per ton of pollutant, the total tons of pollutant traded, and additional explanatory notes. The price paid per ton was calculated by dividing the cost of the transaction by the number of tons traded in that transaction. The tables were grouped by district since offset markets and costs per ton may vary from district to district. Districts are reported alphabetically and the districts' transactions are ordered by increasing cost per ton of pollutant.

Tables 5, 7, 9, 11 and 13 provide the average, the median, and the high and low of the price paid per transaction per ton of pollutant. These tables exclude asset transfer, subsidiary, barter, and other non-monetary transactions where there were no associated costs.

Table 2
2007 California
Emission Reduction Credit Transaction Costs By District
Reported in Total Tons Traded

District	Pollutant	\$/ton	Tons	Notes
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Bay Area

Total of 69 Transactions

CO	\$0	0.57	Stationary
CO	\$250	3.00	Stationary
CO	\$957	1.56	Stationary
CO	\$3,684	3.80	Stationary
HC	\$957	0.18	Stationary
HC	\$10,000	0.30	Stationary
HC	\$10,000	1.00	Stationary
HC	\$10,000	6.15	Stationary
HC	\$10,000	8.82	Stationary
HC	\$10,000	12.37	Stationary
HC	\$10,350	4.40	Stationary
HC	\$10,350	15.52	Stationary
HC	\$10,350	15.86	Stationary
HC	\$10,350	19.72	Stationary
HC	\$10,350	22.78	Stationary
HC	\$10,350	29.80	Stationary
HC	\$10,350	45.00	Stationary
HC	\$10,350	46.93	Stationary
HC	\$10,500	0.12	Stationary
HC	\$11,000	0.11	Stationary
HC	\$11,000	11.12	Stationary
HC	\$11,250	23.40	Stationary
HC	\$11,500	1.75	Stationary
HC	\$11,500	8.90	Stationary
HC	\$12,000	1.25	Stationary
HC	\$12,000	6.09	Stationary
HC	\$12,000	20.25	Stationary
HC	\$12,000	71.00	Stationary
HC	\$12,500	0.07	Stationary
HC	\$12,500	6.45	Stationary
HC	\$12,500	18.55	Stationary
HC	\$12,500	45.00	Stationary
HC	\$12,500	46.93	Stationary
HC	\$13,000	13.08	Stationary
HC	\$13,000	31.10	Stationary
HC	\$13,500	1.67	Stationary
HC	\$13,500	29.73	Stationary
HC	\$14,000	2.00	Stationary
HC	\$14,000	8.69	Stationary
HC	\$15,000	18.00	Stationary
HC	\$15,750	2.00	Stationary
HC	\$17,175	8.69	Stationary
HC	\$17,175	18.00	Stationary

Bay Area (Cont'd)

NOx	\$5,750	40.02	Stationary
NOx	\$5,750	504.00	Stationary
NOx	\$9,000	3.57	Stationary
NOx	\$9,500	4.60	Stationary
NOx	\$10,000	2.19	Stationary
NOx	\$10,000	3.80	Stationary
NOx	\$10,500	3.60	Stationary
NOx	\$11,000	0.67	Stationary
NOx	\$13,026	38.00	Stationary
NOx	\$30,000	47.50	Stationary
PM ₁₀	\$9,500	0.35	Stationary
PM ₁₀	\$10,000	0.27	Stationary
PM ₁₀	\$10,500	0.28	Stationary
PM ₁₀	\$11,000	0.15	Stationary
PM ₁₀	\$21,000	1.00	Stationary
PM ₁₀	\$27,500	1.22	Stationary
PM ₁₀	\$30,000	0.89	Stationary
PM ₁₀	\$33,750	4.20	Stationary
PM ₁₀	\$56,500	4.20	Stationary
SOx	\$957	0.04	Stationary
SOx	\$7,000	0.02	Stationary
SOx	\$7,000	9.20	Stationary
SOx	\$9,000	20.90	Stationary
SOx	\$9,700	182.90	Stationary
SOx	\$11,000	0.01	Stationary
SOx	\$14,000	5.92	Stationary

Feather River

Total of 14 Transactions

HC	\$4,995	0.59	Agricultural
HC	\$4,995	2.40	Agricultural
HC	\$4,995	2.65	Agricultural
HC	\$4,995	7.00	Agricultural
HC	\$4,995	0.54	Agricultural
HC	\$4,995	2.22	Agricultural
NOx	\$16,000	1.87	Agricultural
NOx	\$16,310	0.45	Agricultural
NOx	\$16,310	0.65	Agricultural
NOx	\$16,310	0.86	Agricultural
NOx	\$29,000	0.45	
NOx	\$29,000	0.65	
NOx	\$29,000	0.86	
NOx	\$29,000	1.87	

Imperial County

Total of 22 Transactions

CO	\$500	4.67	Stationary
HC	\$600	0.25	Agricultural
HC	\$600	0.55	Agricultural
HC	\$1,300	2.56	Agricultural
HC	\$2,000	0.27	Agricultural
HC	\$3,000	0.15	Agricultural
HC	\$3,000	0.95	Agricultural
HC	\$3,000	1.27	Agricultural
HC	\$3,000	1.36	Agricultural
HC	\$3,000	1.43	Agricultural

Imperial County (Cont'd)

HC	\$3,000	1.60	Agricultural
HC	\$3,000	3.10	Agricultural
HC	\$3,000	3.54	Agricultural
HC	\$3,000	4.14	Agricultural
HC	\$3,000	4.57	Agricultural
HC	\$3,000	6.67	Agricultural
HC	\$3,500	7.10	Agricultural
HC	\$13,500	1.55	Agricultural
HC	\$15,000	1.72	Stationary
NOx	\$70,000	21.69	Stationary
PM ₁₀	\$45,000	1.52	Stationary
SOx	\$30,000	1.42	Stationary

Placer County

Total of 6 Transactions

CO	\$1	8.03	Stationary
HC	\$10,000	1.01	Stationary
HC	\$25,000	5.55	Stationary
NOx	\$10,000	35.47	Stationary
PM ₁₀	\$20,000	2.88	Stationary
SOx	\$500	0.60	Stationary

Sacramento Metro

Total of 1 Transaction

HC	\$75,000	0.08	
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San Diego

Total of 23 Transactions

CO	\$0	50.30	
CO	\$100	1.30	
HC	\$3,093	1.86	
HC	\$4,762	0.42	
HC	\$5,000	0.20	
HC	\$27,500	20.70	
HC	\$27,619	2.10	
HC	\$27,619	2.10	
HC	\$40,750	6.00	
HC	\$47,500	12.40	
HC	\$50,000	3.00	
HC	\$52,500	10.80	
HC	\$54,000	1.00	
HC	\$70,000	1.00	
NOx	\$70,000	2.00	
NOx	\$81,500	1.10	
NOx	\$95,000	14.72	
NOx	\$97,500	1.20	
NOx	\$105,000	12.00	
PM ₁₀	\$0	0.85	
PM ₁₀	\$100	0.30	
SOx	\$0	0.10	
SOx	\$100	0.30	

San Joaquin Valley

Total of 317 Transactions

CO	\$100	0.03	
CO	\$100	0.10	
CO	\$800	1.10	
HC	\$10	0.10	
HC	\$5,000	0.05	

San Joaquin Valley (Cont'd)

HC	\$5,000	0.10	
HC	\$5,000	0.40	
HC	\$5,000	0.40	
HC	\$5,000	0.50	
HC	\$9,000	1.30	
HC	\$9,000	1.80	
HC	\$9,000	2.10	
HC	\$9,000	8.50	
HC	\$10,000	0.02	
HC	\$10,000	0.80	
HC	\$10,000	3.40	
HC	\$10,000	5.20	
HC	\$10,000	5.50	
HC	\$10,000	7.80	
HC	\$10,000	9.00	
HC	\$10,000	10.00	
HC	\$10,000	10.00	
HC	\$10,000	96.00	
HC	\$10,000	< 0.01	
HC	\$10,350	0.10	
HC	\$10,350	0.20	
HC	\$10,350	0.20	
HC	\$10,350	0.40	
HC	\$11,315	1.10	
HC	\$11,315	1.50	
HC	\$13,000	4.40	
HC	\$14,000	0.05	
HC	\$14,000	0.40	
HC	\$14,000	1.30	
HC	\$14,000	1.80	
HC	\$14,000	2.10	
HC	\$14,000	4.50	
HC	\$14,735	0.50	
HC	\$15,000	0.20	
HC	\$15,000	0.60	
HC	\$15,000	21.00	
HC	\$15,225	1.50	
HC	\$15,230	1.50	
HC	\$20,000	1.00	
HC	\$20,000	9.10	
HC	\$21,000	0.10	
HC	\$21,000	0.60	
HC	\$21,000	< 0.01	
HC	\$22,500	9.00	
HC	\$23,000	3.50	
HC	\$23,000	7.00	
HC	\$30,000	15.00	
HC	\$30,000	30.00	
HC	\$32,240	4.10	
HC	\$35,000	11.60	
HC	\$35,000	< 0.01	
HC	\$36,400	0.40	

San Joaquin Valley (Cont'd)

HC	\$40,000	0.20	
HC	\$40,000	0.30	
HC	\$40,000	0.70	
HC	\$40,000	0.80	
HC	\$40,000	1.90	
HC	\$40,000	1.90	
HC	\$40,000	3.70	
HC	\$40,000	4.00	
HC	\$40,000	4.20	
HC	\$40,000	6.50	
HC	\$40,000	6.50	
HC	\$40,000	< 0.01	
HC	\$41,000	0.10	
HC	\$50,000	20.00	
HC	\$52,282	0.20	
NOx	\$49	0.10	
NOx	\$5,250	3.80	
NOx	\$8,696	0.10	
NOx	\$8,698	0.02	
NOx	\$10,710	0.02	
NOx	\$10,710	0.04	
NOx	\$12,888	0.50	
NOx	\$14,000	0.03	
NOx	\$14,000	0.30	
NOx	\$14,000	0.70	
NOx	\$14,956	0.70	
NOx	\$14,956	0.70	
NOx	\$14,956	1.50	
NOx	\$14,956	2.30	
NOx	\$14,956	3.80	
NOx	\$14,956	8.60	
NOx	\$14,956	14.40	
NOx	\$14,956	25.40	
NOx	\$14,956	47.60	
NOx	\$15,000	3.20	
NOx	\$17,000	8.10	
NOx	\$17,000	11.00	
NOx	\$17,000	14.30	
NOx	\$17,000	45.40	
NOx	\$17,250	9.50	
NOx	\$18,000	6.10	
NOx	\$18,000	11.00	
NOx	\$19,000	2.30	
NOx	\$19,000	4.10	
NOx	\$19,000	82.50	
NOx	\$20,000	0.20	
NOx	\$20,000	0.40	
NOx	\$20,000	0.70	
NOx	\$20,000	0.90	
NOx	\$20,000	2.90	
NOx	\$20,000	3.10	
NOx	\$20,000	5.20	
NOx	\$20,080	0.10	

San Joaquin Valley (Cont'd)

NOx	\$20,080	0.40	
NOx	\$20,080	0.60	
NOx	\$22,000	0.20	
NOx	\$22,000	0.90	
NOx	\$22,000	0.90	
NOx	\$22,000	2.50	
NOx	\$22,000	42.90	
NOx	\$22,500	5.20	
NOx	\$23,000	0.10	
NOx	\$23,000	0.10	
NOx	\$23,000	1.10	
NOx	\$23,000	1.60	
NOx	\$23,000	2.00	
NOx	\$24,000	0.10	
NOx	\$24,000	0.10	
NOx	\$24,000	1.60	
NOx	\$24,000	2.40	
NOx	\$24,000	3.90	
NOx	\$24,000	4.00	
NOx	\$24,000	4.30	
NOx	\$24,000	5.50	
NOx	\$24,000	13.70	
NOx	\$24,000	38.10	
NOx	\$25,000	0.10	
NOx	\$25,000	0.20	
NOx	\$25,000	0.30	
NOx	\$25,000	0.80	
NOx	\$25,000	2.80	
NOx	\$25,000	7.00	
NOx	\$27,000	1.20	
NOx	\$27,500	5.80	
NOx	\$45,000	0.03	
NOx	\$45,000	0.70	
NOx	\$45,000	1.40	
NOx	\$45,000	2.00	
NOx	\$45,000	3.90	
PM ₁₀	\$49	1.90	
PM ₁₀	\$8,696	0.03	
PM ₁₀	\$8,696	< 0.01	
PM ₁₀	\$10,710	0.01	
PM ₁₀	\$10,710	0.03	
PM ₁₀	\$10,750	1.60	
PM ₁₀	\$20,000	1.10	
PM ₁₀	\$20,000	1.50	
PM ₁₀	\$20,000	1.90	
PM ₁₀	\$20,000	7.00	
PM ₁₀	\$20,000	8.00	
PM ₁₀	\$20,000	16.50	
PM ₁₀	\$24,000	1.20	
PM ₁₀	\$30,000	0.30	
PM ₁₀	\$30,000	0.30	
PM ₁₀	\$30,000	2.00	
PM ₁₀	\$30,000	2.40	

San Joaquin Valley (Cont'd)

PM ₁₀	\$30,000	2.90	
PM ₁₀	\$30,000	3.80	
PM ₁₀	\$30,000	< 0.01	
PM ₁₀	\$34,782	0.10	
PM ₁₀	\$34,782	0.70	
PM ₁₀	\$35,000	0.40	
PM ₁₀	\$35,000	0.60	
PM ₁₀	\$35,000	1.40	
PM ₁₀	\$35,000	2.90	
PM ₁₀	\$36,000	5.90	
PM ₁₀	\$36,167	0.30	
PM ₁₀	\$36,167	29.70	
PM ₁₀	\$39,630	1.90	
PM ₁₀	\$40,000	0.20	
PM ₁₀	\$40,000	0.40	
PM ₁₀	\$40,000	2.70	
PM ₁₀	\$40,000	10.00	
PM ₁₀	\$42,000	2.20	
PM ₁₀	\$42,000	11.20	
PM ₁₀	\$43,000	2.10	
PM ₁₀	\$43,000	6.70	
PM ₁₀	\$44,000	20.00	
PM ₁₀	\$45,000	3.00	
PM ₁₀	\$45,000	6.00	
PM ₁₀	\$46,000	3.70	
PM ₁₀	\$47,500	1.10	
PM ₁₀	\$47,500	1.60	
PM ₁₀	\$47,500	2.10	
PM ₁₀	\$50,000	0.30	
PM ₁₀	\$51,879	0.05	
PM ₁₀	\$51,879	1.10	
PM ₁₀	\$51,879	2.80	
PM ₁₀	\$51,879	3.10	
PM ₁₀	\$51,879	4.40	
PM ₁₀	\$57,500	8.00	
PM ₁₀	\$60,000	0.80	
PM ₁₀	\$60,000	1.70	
PM ₁₀	\$60,000	2.20	
PM ₁₀	\$60,000	3.10	
PM ₁₀	\$65,000	1.10	
PM ₁₀	\$65,000	4.90	
PM ₁₀	\$65,000	6.80	
PM ₁₀	\$65,000	13.40	
PM ₁₀	\$65,000	20.00	
PM ₁₀	\$68,000	10.10	
PM ₁₀	\$68,000	11.70	
PM ₁₀	\$80,000	0.10	
PM ₁₀	\$80,000	0.40	
PM ₁₀	\$80,000	3.90	
PM ₁₀	\$80,000	4.00	
PM ₁₀	\$80,000	7.40	
PM ₁₀	\$80,000	9.50	
PM ₁₀	\$83,000	10.40	

San Joaquin Valley (Cont'd)

PM ₁₀	\$85,000	1.40	
PM ₁₀	\$85,000	4.60	
PM ₁₀	\$85,000	7.10	
PM ₁₀	\$90,000	0.40	
PM ₁₀	\$90,000	9.50	
SOx	\$6,000	0.04	
SOx	\$6,000	0.05	
SOx	\$6,000	0.20	
SOx	\$6,000	0.90	
SOx	\$6,000	17.50	
SOx	\$6,000	25.00	
SOx	\$7,000	1.60	
SOx	\$7,000	36.40	
SOx	\$7,000	< 0.01	
SOx	\$7,500	3.00	
SOx	\$7,500	6.00	
SOx	\$8,500	22.70	
SOx	\$8,696	0.10	
SOx	\$8,696	0.50	
SOx	\$9,026	32.40	
SOx	\$9,500	6.60	
SOx	\$10,000	0.05	
SOx	\$10,000	0.05	
SOx	\$10,710	0.30	
SOx	\$10,710	0.70	
SOx	\$10,800	27.00	
SOx	\$12,000	68.00	
SOx	\$12,500	6.90	
SOx	\$13,500	1.90	
SOx	\$13,500	1.90	
SOx	\$13,500	1.90	
SOx	\$13,500	3.80	
SOx	\$13,500	3.80	
SOx	\$15,000	34.00	
SOx	\$15,600	0.04	
SOx	\$15,600	0.10	
SOx	\$15,600	15.00	
SOx	\$17,000	9.70	
SOx	\$17,000	10.30	
SOx	\$17,000	29.10	
SOx	\$17,000	70.60	
SOx	\$19,000	33.80	
SOx	\$20,000	0.80	
SOx	\$20,000	4.90	
SOx	\$20,000	20.00	
SOx	\$20,000	< 0.01	
SOx	\$21,000	0.80	
SOx	\$21,000	1.60	
SOx	\$21,000	45.00	
SOx	\$21,500	0.90	
SOx	\$21,500	1.90	
SOx	\$21,500	3.80	
SOx	\$23,000	2.10	

San Joaquin Valley (Cont'd)

SOx	\$23,000	3.20	
SOx	\$23,000	< 0.01	
SOx	\$25,000	22.00	
SOx	\$25,000	22.50	
SOx	\$25,000	127.50	
SOx	\$26,500	2.90	
SOx	\$26,500	4.80	
SOx	\$27,500	3.50	
SOx	\$28,500	16.40	
SOx	\$28,500	29.00	
SOx	\$28,500	36.70	
SOx	\$30,000	0.04	
SOx	\$30,000	0.04	
SOx	\$30,000	0.20	
SOx	\$30,000	0.20	
SOx	\$30,000	4.10	
SOx	\$30,000	7.80	
SOx	\$30,000	8.70	
SOx	\$30,000	26.80	
SOx	\$30,000	33.20	
SOx	\$30,000	< 0.01	
SOx	\$32,775	0.01	
SOx	\$32,775	0.02	
SOx	\$32,775	0.05	
SOx	\$32,775	0.10	
SOx	\$32,775	0.30	
SOx	\$32,775	0.50	
SOx	\$32,775	0.70	
SOx	\$32,775	8.10	
SOx	\$32,775	< 0.01	
SOx	\$34,000	0.00	
SOx	\$34,000	0.00	
SOx	\$34,000	4.40	
SOx	\$34,000	4.60	
SOx	\$34,000	18.30	
SOx	\$34,000	21.30	
SOx	\$35,000	3.30	
SOx	\$35,000	14.40	
SOx	\$35,000	38.30	
SOx	\$36,300	20.00	
SOx	\$37,047	0.30	
SOx	\$40,000	0.80	
SOx	\$40,000	7.80	
SOx	\$48,000	1.00	
SOx	\$48,000	5.50	
SOx	\$48,500	16.50	
SOx	\$50,000	3.40	
SOx	\$300,000	0.70	

Santa Barbara County

Total of 1 Transition

NOx	\$15,401	12.20	Stationary
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Shasta County

Total of 13 Transactions

CO	\$200	62.70	Stationary
CO	\$200	230.71	Stationary
HC	\$1,200	0.68	Stationary
HC	\$1,200	2.23	Stationary
NOx	\$8,000	26.60	Stationary
NOx	\$8,000	28.40	Stationary
PM ₁₀	\$1,000	3.34	Stationary
PM ₁₀	\$1,000	40.78	Stationary
PM ₁₀	\$1,672	4.40	Stationary
SOx	\$800	0.01	Stationary
SOx	\$800	0.14	Stationary
SOx	\$1,000	40.00	Stationary
SOx	\$1,000	40.00	Stationary

South Coast

Total of 172 Transactions

CO	\$0	0.18	
CO	\$3,131	6.39	
CO	\$31,090	0.18	
CO	\$31,090	4.38	
CO	\$35,616	0.55	
HC	\$0	0.18	
HC	\$0	0.18	
HC	\$0	0.18	
HC	\$0	0.37	
HC	\$0	0.55	
HC	\$0	0.55	
HC	\$0	0.55	
HC	\$0	0.73	
HC	\$0	0.91	
HC	\$0	0.91	
HC	\$0	1.10	
HC	\$0	1.10	
HC	\$0	1.28	
HC	\$0	1.46	
HC	\$0	1.64	
HC	\$0	2.19	
HC	\$0	2.56	
HC	\$0	4.02	
HC	\$0	4.56	
HC	\$0	4.56	
HC	\$0	4.56	
HC	\$0	4.75	
HC	\$0	5.84	
HC	\$0	6.39	
HC	\$0	6.75	
HC	\$0	8.67	
HC	\$0	8.94	
HC	\$0	9.49	

South Coast (Cont'd)

HC	\$0	11.68	
HC	\$0	11.68	
HC	\$0	15.70	
HC	\$0	17.34	
HC	\$0	24.82	
HC	\$0	24.82	
HC	\$0	63.51	
HC	\$0	91.43	
HC	\$0	132.68	
HC	\$0	132.68	
HC	\$5	0.37	
HC	\$5	0.37	
HC	\$5	0.37	
HC	\$16,438	1.83	
HC	\$16,712	18.25	
HC	\$19,178	0.18	
HC	\$21,370	1.10	
HC	\$21,918	0.18	
HC	\$24,658	1.10	
HC	\$27,397	0.18	
HC	\$27,397	0.37	
HC	\$27,397	2.01	
HC	\$27,397	2.19	
HC	\$27,945	18.25	
HC	\$30,137	0.18	
HC	\$30,137	0.91	
HC	\$30,137	0.91	
HC	\$30,137	1.64	
HC	\$30,137	1.83	
HC	\$31,233	2.74	
HC	\$31,507	21.35	
HC	\$32,329	0.37	
HC	\$32,329	2.74	
HC	\$32,329	3.10	
HC	\$32,329	3.47	
HC	\$32,329	4.56	
HC	\$32,329	4.75	
HC	\$32,329	10.04	
HC	\$32,877	0.73	
HC	\$32,877	1.64	
HC	\$32,877	2.19	
HC	\$32,877	5.11	
HC	\$32,877	5.84	
HC	\$33,151	1.83	
HC	\$33,562	5.66	
HC	\$33,562	5.84	
HC	\$33,973	0.91	
HC	\$34,247	0.91	
HC	\$34,247	5.29	
HC	\$35,068	0.91	
HC	\$35,616	0.91	
HC	\$35,616	1.83	

South Coast (Cont'd)

HC	\$35,616	2.56	
HC	\$35,616	3.65	
HC	\$35,616	21.35	
HC	\$38,082	0.18	
HC	\$38,082	0.37	
HC	\$38,082	2.01	
HC	\$38,356	1.83	
HC	\$38,356	2.01	
HC	\$38,356	14.6	
HC	\$38,357	0.37	
HC	\$38,904	1.83	
HC	\$38,904	2.74	
HC	\$39,452	0.55	
HC	\$39,452	0.55	
HC	\$39,452	0.55	
HC	\$39,452	1.10	
HC	\$39,452	2.01	
HC	\$39,452	2.74	
HC	\$39,726	0.91	
HC	\$39,726	1.83	
HC	\$40,000	18.25	
HC	\$40,822	0.91	
HC	\$40,822	4.20	
HC	\$40,822	4.20	
HC	\$40,822	15.7	
HC	\$41,096	0.18	
HC	\$41,096	0.37	
HC	\$41,096	0.37	
HC	\$41,096	0.37	
HC	\$41,096	0.55	
HC	\$41,096	0.73	
HC	\$41,096	0.91	
HC	\$41,096	0.91	
HC	\$41,096	1.10	
HC	\$41,096	1.46	
HC	\$42,192	0.37	
HC	\$43,836	0.55	
HC	\$44,712	9.13	
HC	\$45,753	2.01	
HC	\$46,575	3.65	
HC	\$47,123	0.18	
HC	\$47,123	16.06	
HC	\$48,767	2.01	
HC	\$49,315	2.19	
HC	\$52,055	2.01	

South Coast (Cont'd)

HC	\$54,795	1.83	
HC	\$65,753	3.83	
HC	\$65,753	4.56	
HC	\$82,192	0.55	
HC	\$82,192	1.28	
HC	\$93,151	3.65	
HC	\$95,616	0.18	
NOx	\$186,301	5.66	
NOx	\$547,945	0.18	
NOx	\$547,945	1.28	
NOx	\$547,945	2.37	
NOx	\$602,740	0.55	
PM ₁₀	\$0	0.18	
PM ₁₀	\$0	0.18	
PM ₁₀	\$0	0.18	
PM ₁₀	\$0	2.01	
PM ₁₀	\$0	2.19	
PM ₁₀	\$322,521	2.37	
PM ₁₀	\$372,603	2.19	
PM ₁₀	\$375,940	1.28	
PM ₁₀	\$438,356	0.37	
PM ₁₀	\$547,945	0.73	
PM ₁₀	\$547,945	1.83	
PM ₁₀	\$547,945	1.83	
PM ₁₀	\$717,808	0.73	
PM ₁₀	\$821,918	0.73	
PM ₁₀	\$1,293,151	1.28	
SOx	\$0	0.37	
SOx	\$0	0.73	
SOx	\$167,397	0.73	
SOx	\$186,301	0.37	
SOx	\$186,301	4.38	
SOx	\$273,973	1.46	
SOx	\$328,767	0.91	
SOx	\$356,164	5.66	

Ventura County

Total of 2 Transactions

HC	\$25,000	0.12	Stationary
HC	\$25,000	12.73	Stationary

Table 3

Districts With No Offset Transactions to Report in 2007

Amador County Air Pollution Control District
Antelope Valley Air Pollution Control District
Butte County Air Quality Management District
Calaveras County Air Pollution Control District
Colusa County Air Pollution Control District
El Dorado County Air Quality Management District
Glenn County Air Pollution Control District
Great Basin Unified Air Pollution Control District
Kern County Air Pollution Control District
Lake County Air Quality Management District
Lassen County Air Pollution Control District
Mariposa County Air Pollution Control District
Mendocino County Air Pollution Control District
Modoc County Air Pollution Control District
Mojave Desert Air Quality Management District
Monterey Bay Unified Air Pollution Control District
North Coast Unified Air Quality Management District
Northern Sierra Air Quality Management District
Northern Sonoma County Air Pollution Control District
San Luis Obispo County Air Pollution Control District
Siskiyou County Air Pollution Control District
Tuolumne County Air Pollution Control District

Table 4
2007 California
NOx Emission Reduction Credit Transaction Costs
Reported in Total Tons Traded

District	\$/ton	Tons	Notes
Bay Area	\$5,750	40.02	
	\$5,750	504.00	
	\$9,000	3.57	
	\$9,500	4.60	
	\$10,000	2.19	
	\$10,000	3.80	
	\$10,500	3.60	
	\$11,000	0.67	
	\$13,026	38.00	
	\$30,000	47.50	
Feather River	\$16,000	1.87	
	\$16,310	0.45	
	\$16,310	0.65	
	\$16,310	0.86	
	\$29,000	0.45	
	\$29,000	0.65	
	\$29,000	0.86	
	\$29,000	1.87	
Imperial County	\$70,000	21.69	
Placer County	\$10,000	35.47	
San Diego	\$70,000	2.00	
	\$81,500	1.10	
	\$95,000	14.72	
	\$97,500	1.20	
	\$105,000	12.00	
San Joaquin Valley	\$49	0.10	
	\$5,250	3.80	
	\$8,696	0.10	
	\$8,698	0.02	
	\$10,710	0.02	
	\$10,710	0.04	
	\$12,888	0.50	
	\$14,000	0.03	
	\$14,000	0.30	
	\$14,000	0.70	
	\$14,956	0.70	
	\$14,956	0.70	
	\$14,956	1.50	

San Joaquin Valley (Cont'd)

\$14,956	2.30	
\$14,956	3.80	
\$14,956	8.60	
\$14,956	14.40	
\$14,956	25.40	
\$14,956	47.60	
\$15,000	3.20	
\$17,000	8.10	
\$17,000	11.00	
\$17,000	14.30	
\$17,000	45.40	
\$17,250	9.50	
\$18,000	6.10	
\$18,000	11.00	
\$19,000	2.30	
\$19,000	4.10	
\$19,000	82.50	
\$20,000	0.20	
\$20,000	0.40	
\$20,000	0.70	
\$20,000	0.90	
\$20,000	2.90	
\$20,000	3.10	
\$20,000	5.20	
\$20,080	0.10	
\$20,080	0.40	
\$20,080	0.60	
\$22,000	0.20	
\$22,000	0.90	
\$22,000	0.90	
\$22,000	2.50	
\$22,000	42.90	
\$22,500	5.20	
\$23,000	0.10	
\$23,000	0.10	
\$23,000	1.10	
\$23,000	1.60	
\$23,000	2.00	
\$24,000	0.10	
\$24,000	0.10	
\$24,000	1.60	
\$24,000	2.40	
\$24,000	3.90	
\$24,000	4.00	
\$24,000	4.30	
\$24,000	5.50	
\$24,000	13.70	
\$24,000	38.10	
\$25,000	0.10	
\$25,000	0.20	
\$25,000	0.30	
\$25,000	0.80	

San Joaquin Valley (Cont'd)

\$25,000	2.80	
\$25,000	7.00	
\$27,000	1.20	
\$27,500	5.80	
\$45,000	0.03	
\$45,000	0.70	
\$45,000	1.40	
\$45,000	2.00	
\$45,000	3.90	

Santa Barbara

\$15,401	12.20	
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Shasta County

\$8,000	26.60	
\$8,000	28.40	

South Coast

\$186,301	5.66	
\$547,945	0.18	
\$547,945	1.28	
\$547,945	2.37	
\$602,740	0.55	

Imperial County (Cont'd)

HC	\$3,000	1.60	Agricultural
HC	\$3,000	3.10	Agricultural
HC	\$3,000	3.54	Agricultural
HC	\$3,000	4.14	Agricultural
HC	\$3,000	4.57	Agricultural
HC	\$3,000	6.67	Agricultural
HC	\$3,500	7.10	Agricultural
HC	\$13,500	1.55	Agricultural
HC	\$15,000	1.72	Stationary
NOx	\$70,000	21.69	Stationary
PM ₁₀	\$45,000	1.52	Stationary
SOx	\$30,000	1.42	Stationary

Placer County

Total of 6 Transactions

CO	\$1	8.03	Stationary
HC	\$10,000	1.01	Stationary
HC	\$25,000	5.55	Stationary
NOx	\$10,000	35.47	Stationary
PM ₁₀	\$20,000	2.88	Stationary
SOx	\$500	0.60	Stationary

Sacramento Metro

Total of 1 Transaction

HC	\$75,000	0.08	
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San Diego

Total of 23 Transactions

CO	\$0	50.30	
CO	\$100	1.30	
HC	\$3,093	1.86	
HC	\$4,762	0.42	
HC	\$5,000	0.20	
HC	\$27,500	20.70	
HC	\$27,619	2.10	
HC	\$27,619	2.10	
HC	\$40,750	6.00	
HC	\$47,500	12.40	
HC	\$50,000	3.00	
HC	\$52,500	10.80	
HC	\$54,000	1.00	
HC	\$70,000	1.00	
NOx	\$70,000	2.00	
NOx	\$81,500	1.10	
NOx	\$95,000	14.72	
NOx	\$97,500	1.20	
NOx	\$105,000	12.00	
PM ₁₀	\$0	0.85	
PM ₁₀	\$100	0.30	
SOx	\$0	0.10	
SOx	\$100	0.30	

San Joaquin Valley

Total of 317 Transactions

CO	\$100	0.03	
CO	\$100	0.10	
CO	\$800	1.10	
HC	\$10	0.10	
HC	\$5,000	0.05	

Table 5

2007 Summary Statistics For a Total of 107 NOx Transactions*

	\$/ton	Tons
Total Tons Traded		1301.07
Average (mean)	\$45,167	
Median	\$20,000	
High	\$602,740	
Low	\$49	

* Excludes asset transfer, subsidiary, barter, and other non-monetary transactions with no cost data.

Chart 1

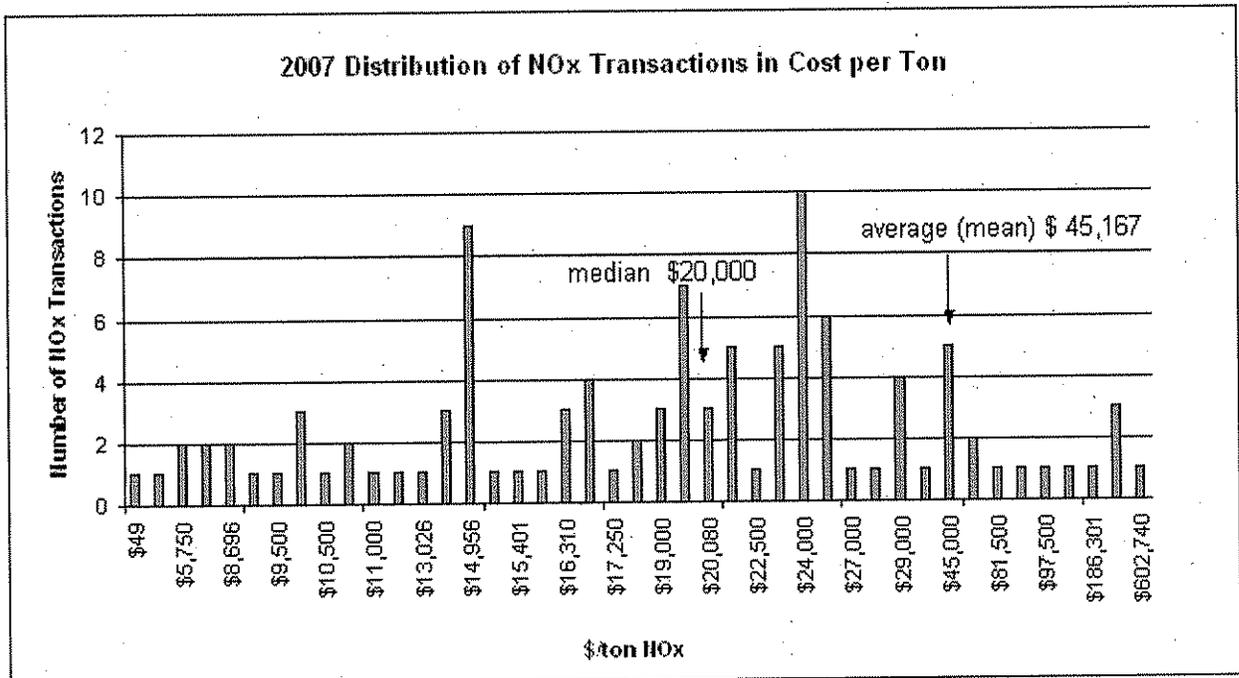


Table 6
2007 California
HC Emission Reduction Credit Transaction Costs
Reported in Total Tons Traded

District	\$/ton	Tons	Notes
Bay Area	\$957	0.18	
	\$10,000	0.30	
	\$10,000	1.00	
	\$10,000	6.15	
	\$10,000	8.82	
	\$10,000	12.37	
	\$10,350	4.40	
	\$10,350	15.52	
	\$10,350	15.86	
	\$10,350	19.72	
	\$10,350	22.78	
	\$10,350	29.80	
	\$10,350	45.00	
	\$10,350	46.93	
	\$10,500	0.12	
	\$11,000	0.11	
	\$11,000	11.12	
	\$11,250	23.40	
	\$11,500	1.75	
	\$11,500	8.90	
	\$12,000	1.25	
	\$12,000	6.09	
	\$12,000	20.25	
	\$12,000	71.00	
	\$12,500	0.07	
	\$12,500	6.45	
	\$12,500	18.55	
	\$12,500	45.00	
	\$12,500	46.93	
	\$13,000	13.08	
	\$13,000	31.10	
	\$13,500	1.67	
	\$13,500	29.73	
	\$14,000	2.00	
\$14,000	8.69		
\$15,000	18.00		
\$15,750	2.00		
\$17,175	8.69		
\$17,175	18.00		
Feather River	\$4,995	0.59	
	\$4,995	2.40	
	\$4,995	2.65	

Feather River (Cont'd)

\$4,995	7.00	
\$4,995	0.54	
\$4,995	2.22	

Imperial County

\$600	0.25	
\$600	0.55	
\$1,300	2.56	
\$2,000	0.27	
\$3,000	0.15	
\$3,000	0.95	
\$3,000	1.27	
\$3,000	1.36	
\$3,000	1.43	
\$3,000	1.60	
\$3,000	3.10	
\$3,000	3.54	
\$3,000	4.14	
\$3,000	4.57	
\$3,000	6.67	
\$3,500	7.10	
\$13,500	1.55	
\$15,000	1.72	

Placer County

\$10,000	1.01	
\$25,000	5.55	

Sacramento County

\$75,000	0.08	
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San Diego

\$3,093	1.86	
\$4,762	0.42	
\$5,000	0.20	
\$27,500	20.70	
\$27,619	2.10	
\$27,619	2.10	
\$40,750	6.00	
\$47,500	12.40	
\$50,000	3.00	
\$52,500	10.80	
\$54,000	1.00	
\$70,000	1.00	

San Joaquin Valley

\$10	0.10	
\$5,000	0.05	
\$5,000	0.10	
\$5,000	0.40	
\$5,000	0.40	
\$5,000	0.50	
\$9,000	1.30	
\$9,000	1.80	
\$9,000	2.10	
\$9,000	8.50	
\$10,000	0.02	

San Joaquin Valley (Cont'd)

\$10,000	0.80	
\$10,000	3.40	
\$10,000	5.20	
\$10,000	5.50	
\$10,000	7.80	
\$10,000	9.00	
\$10,000	10.00	
\$10,000	10.00	
\$10,000	96.00	
\$10,000	< 0.01	
\$10,350	0.10	
\$10,350	0.20	
\$10,350	0.20	
\$10,350	0.40	
\$11,315	1.10	
\$11,315	1.50	
\$13,000	4.40	
\$14,000	0.05	
\$14,000	0.40	
\$14,000	1.30	
\$14,000	1.80	
\$14,000	2.10	
\$14,000	4.50	
\$14,735	0.50	
\$15,000	0.20	
\$15,000	0.60	
\$15,000	21.00	
\$15,225	1.50	
\$15,230	1.50	
\$20,000	1.00	
\$20,000	9.10	
\$21,000	0.10	
\$21,000	0.60	
\$21,000	< 0.01	
\$22,500	9.00	
\$23,000	3.50	
\$23,000	7.00	
\$30,000	15.00	
\$30,000	30.00	
\$32,240	4.10	
\$35,000	11.60	
\$35,000	< 0.01	
\$36,400	0.40	
\$40,000	0.20	
\$40,000	0.30	
\$40,000	0.70	
\$40,000	0.80	
\$40,000	1.90	
\$40,000	1.90	
\$40,000	3.70	
\$40,000	4.00	
\$40,000	4.20	

San Joaquin Valley (Cont'd)

\$40,000	6.50	
\$40,000	6.50	
\$40,000	< 0.01	
\$41,000	0.10	
\$50,000	20.00	
\$52,282	0.20	

Shasta County

\$1,200	0.68	
\$1,200	2.23	

South Coast

\$5	0.37	
\$5	0.37	
\$5	0.37	
\$16,438	1.83	
\$16,712	18.25	
\$19,178	0.18	
\$21,370	1.10	
\$21,918	0.18	
\$24,658	1.10	
\$27,397	0.18	
\$27,397	0.37	
\$27,397	2.01	
\$27,397	2.19	
\$27,945	18.25	
\$30,137	0.18	
\$30,137	0.91	
\$30,137	0.91	
\$30,137	1.64	
\$30,137	1.83	
\$31,233	2.74	
\$31,507	21.35	
\$32,329	0.37	
\$32,329	2.74	
\$32,329	3.10	
\$32,329	3.47	
\$32,329	4.56	
\$32,329	4.75	
\$32,329	10.04	
\$32,877	0.73	
\$32,877	1.64	
\$32,877	2.19	
\$32,877	5.11	
\$32,877	5.84	
\$33,151	1.83	
\$33,562	5.66	
\$33,562	5.84	
\$33,973	0.91	
\$34,247	0.91	
\$34,247	5.29	
\$35,068	0.91	
\$35,616	0.91	
\$35,616	1.83	

South Coast (Cont'd)

\$35,616	2.56	
\$35,616	3.65	
\$35,616	21.35	
\$38,082	0.18	
\$38,082	0.37	
\$38,082	2.01	
\$38,356	1.83	
\$38,356	2.01	
\$38,356	14.6	
\$38,357	0.37	
\$38,904	1.83	
\$38,904	2.74	
\$39,452	0.55	
\$39,452	0.55	
\$39,452	0.55	
\$39,452	1.10	
\$39,452	2.01	
\$39,452	2.74	
\$39,726	0.91	
\$39,726	1.83	
\$40,000	18.25	
\$40,822	0.91	
\$40,822	4.20	
\$40,822	4.20	
\$40,822	15.70	
\$41,096	0.18	
\$41,096	0.18	
\$41,096	0.18	
\$41,096	0.18	
\$41,096	0.18	
\$41,096	0.18	
\$41,096	0.18	
\$41,096	0.18	
\$41,096	0.37	
\$41,096	0.37	
\$41,096	0.37	
\$41,096	0.55	
\$41,096	0.73	
\$41,096	0.91	
\$41,096	0.91	
\$41,096	1.10	
\$41,096	1.46	
\$42,192	0.37	
\$43,836	0.55	
\$44,712	9.13	
\$45,753	2.01	
\$46,575	3.65	
\$47,123	0.18	
\$47,123	16.06	
\$48,767	2.01	
\$49,315	2.19	
\$52,055	2.01	
\$54,795	1.83	

South Coast (Cont'd)

\$65,753	3.83	
\$65,753	4.56	
\$82,192	0.55	
\$82,192	1.28	
\$93,151	3.65	
\$95,616	0.18	

Ventura County

\$25,000	0.12	
\$25,000	12.73	

TABLE 7

2007 Summary Statistics For a Total of 252 HC Transactions*

	\$/ton	Tons
Total Tons Traded		1,427.83
Average (mean)	\$25,370	
Median	\$24,829	
High	\$95,616	
Low	\$5	

* Excludes asset transfer, subsidiary, barter, and other non-monetary transactions with no cost data.

Chart 2

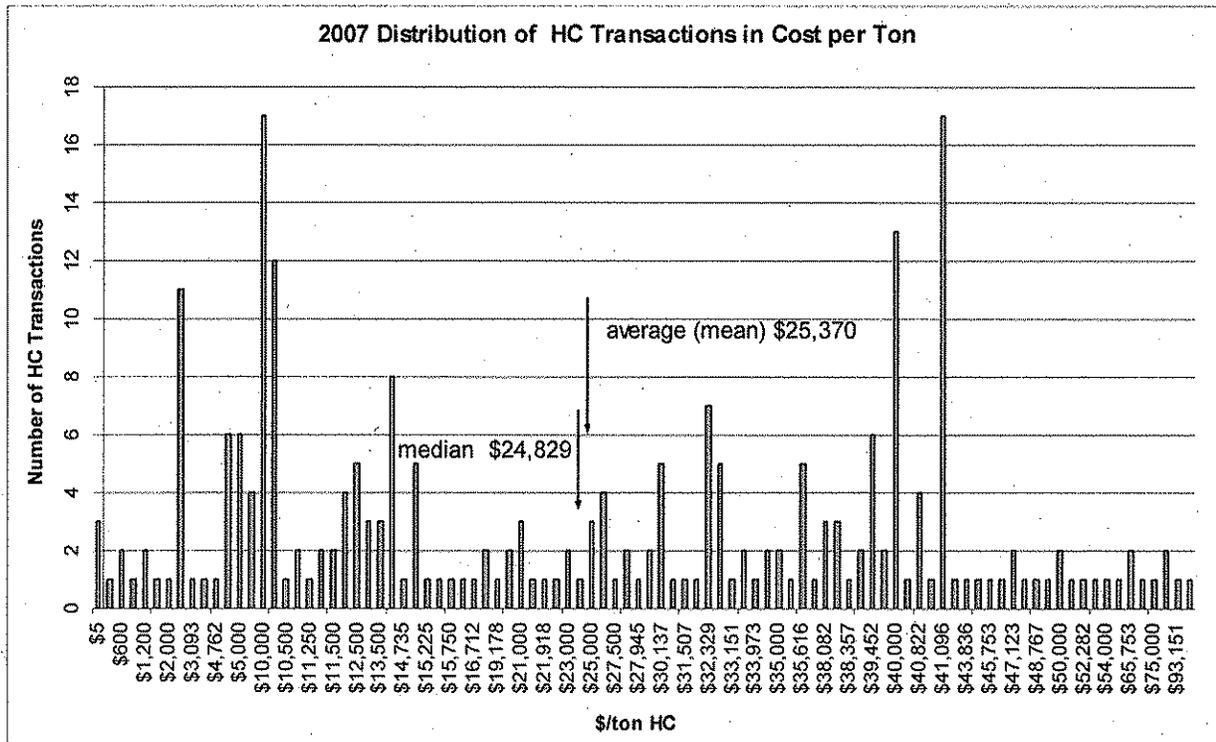


Table 8
2007 California
PM₁₀ Emission Reduction Credit Transaction Costs
Reported in Total Tons Traded

District	\$/ton	Tons	Notes
Bay Area	\$9,500	0.35	
	\$10,000	0.27	
	\$10,500	0.28	
	\$11,000	0.15	
	\$21,000	1.00	
	\$27,500	1.22	
	\$30,000	0.89	
	\$33,750	4.20	
	\$56,500	4.20	
Imperial County	\$45,000	1.52	
Placer County	\$20,000	2.88	
San Diego	\$100	0.30	
San Joaquin Valley	\$49	1.90	
	\$8,696	< 0.01	
	\$8,696	0.03	
	\$10,710	0.01	
	\$10,710	0.03	
	\$10,750	1.60	
	\$20,000	1.10	
	\$20,000	1.50	
	\$20,000	1.90	
	\$20,000	7.00	
	\$20,000	8.00	
	\$20,000	16.50	
	\$24,000	1.20	
	\$30,000	< 0.01	
	\$30,000	0.30	
	\$30,000	0.30	
	\$30,000	2.00	
	\$30,000	2.40	
	\$30,000	2.90	
	\$30,000	3.80	
	\$34,782	0.10	
	\$34,782	0.70	
	\$35,000	0.40	
	\$35,000	0.60	
\$35,000	1.40		
\$35,000	2.90		

San Joaquin Valley (Cont'd)

\$36,000	5.90	
\$36,167	0.30	
\$36,167	29.70	
\$39,630	1.90	
\$40,000	0.20	
\$40,000	0.40	
\$40,000	2.70	
\$40,000	10.00	
\$42,000	2.20	
\$42,000	11.20	
\$43,000	2.10	
\$43,000	6.70	
\$44,000	20.00	
\$45,000	3.00	
\$45,000	6.00	
\$46,000	3.70	
\$47,500	1.10	
\$47,500	1.60	
\$47,500	2.10	
\$50,000	0.30	
\$51,879	0.05	
\$51,879	1.10	
\$51,879	2.80	
\$51,879	3.10	
\$51,879	4.40	
\$57,500	8.00	
\$60,000	0.80	
\$60,000	1.70	
\$60,000	2.20	
\$60,000	3.10	
\$65,000	1.10	
\$65,000	4.90	
\$65,000	6.80	
\$65,000	13.40	
\$65,000	20.00	
\$68,000	10.10	
\$68,000	11.70	
\$80,000	0.10	
\$80,000	0.40	
\$80,000	3.90	
\$80,000	4.00	
\$80,000	7.40	
\$80,000	9.50	
\$83,000	10.40	
\$85,000	1.40	
\$85,000	4.60	
\$85,000	7.10	
\$90,000	0.40	
\$90,000	9.50	

Shasta County

\$1,000	3.34	
\$1,000	40.78	
\$1,672	4.40	

South Coast

\$322,521	2.37	
\$372,603	2.19	
\$375,940	1.28	
\$438,356	0.37	
\$547,945	0.73	
\$547,945	1.83	
\$547,945	1.83	
\$717,808	0.73	
\$821,918	0.73	
\$1,293,151	1.28	

TABLE 9

2007 Summary Statistics For a Total of 100 PM₁₀ Transactions*

	\$/ton	Tons
Total Tons Traded		402.73
Average (mean)	\$97,442	
Median	\$43,000	
High	\$1,293,151	
Low	\$49	

* Excludes asset transfer, subsidiary, barter, and other non-monetary transactions with no cost data.

CHART 3

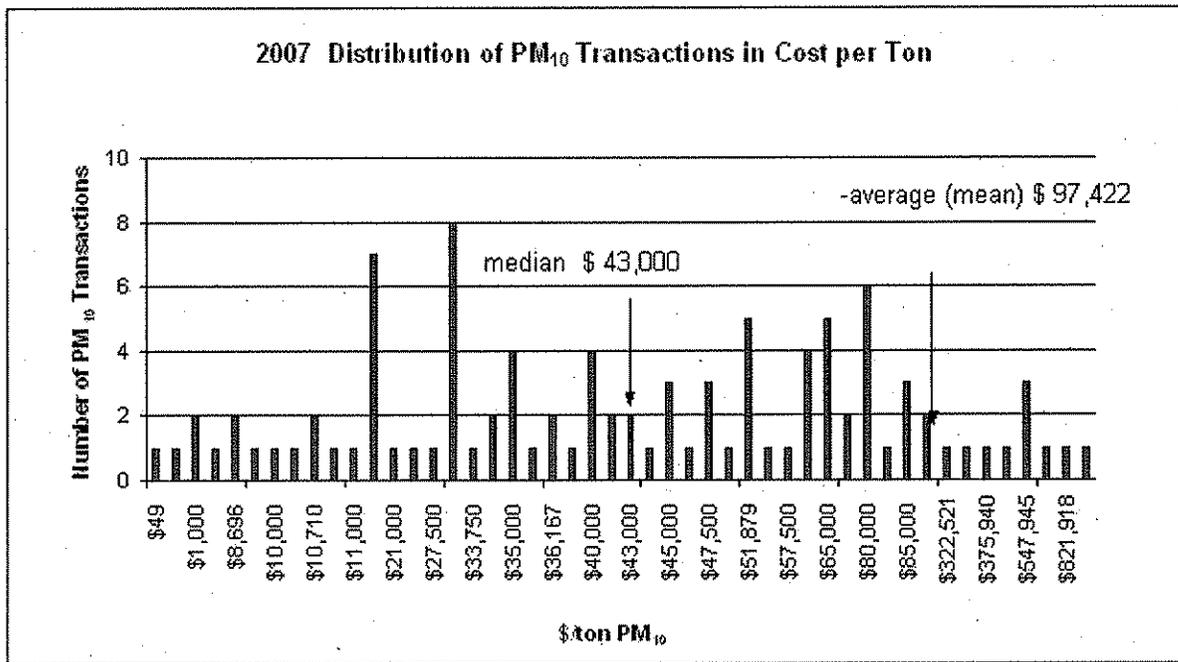


Table 10
2007 California
CO Emission Reduction Credit Transaction Costs
Reported in Total Tons Traded

District	\$/ton	Tons	Notes
Bay Area	\$250	3.00	
	\$957	1.56	
	\$3,684	3.80	
Imperial County	\$500	4.67	
Placer County	\$1	8.03	
San Diego County	\$100	1.30	
San Joaquin Valley	\$100	0.03	
	\$100	0.10	
	\$800	1.10	
Shasta County	\$200	62.70	
	\$200	230.71	
South Coast	\$3,131	6.39	
	\$31,090	0.18	
	\$31,090	4.38	
	\$35,616	0.55	

TABLE 11

2007 Summary Statistics For a Total of 20 CO Transactions*

	\$/ton	Tons
Total Tons Traded		328.5
Average (mean)	\$7,188	
Median	\$500	
High	\$35,616	
Low	\$1	

* Excludes asset transfer, subsidiary, barter, and other non-monetary transactions with no cost data.

CHART 4

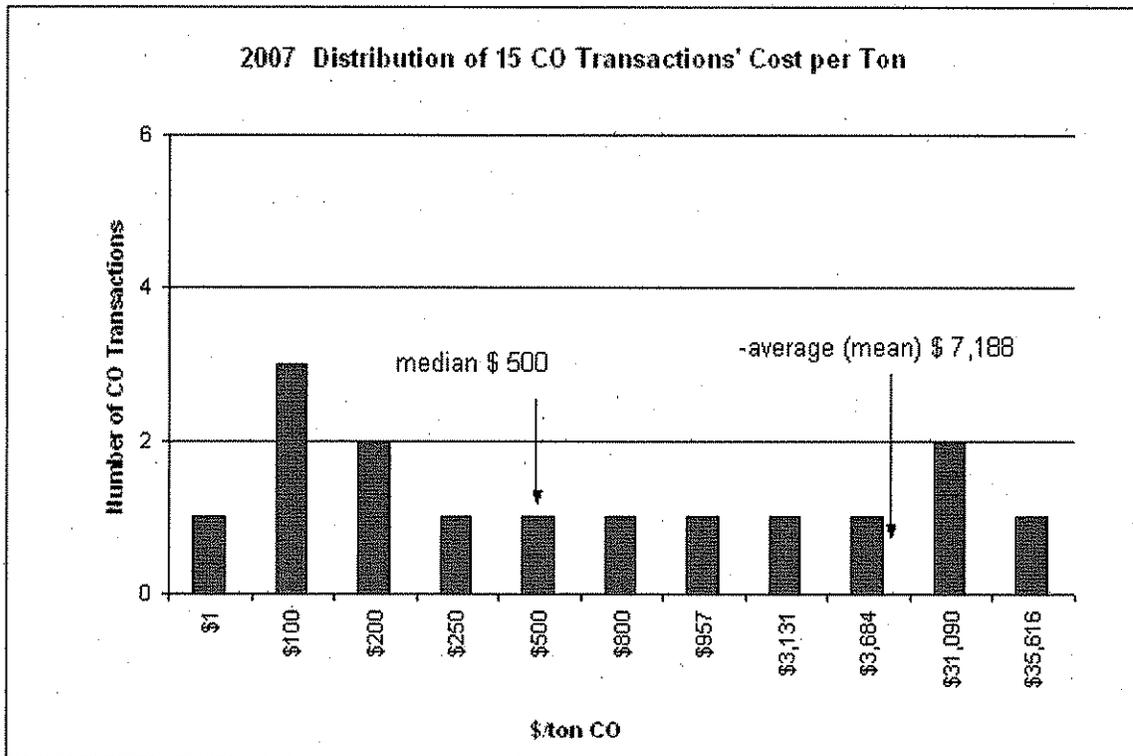


Table 12
2007 California
SOx Emission Reduction Credit Transaction Costs By District
Reported in Total Tons Traded

District	\$/ton	Tons	Notes
Bay Area	\$957	0.04	
	\$7,000	0.02	
	\$7,000	9.20	
	\$9,000	20.90	
	\$9,700	182.90	
	\$11,000	0.01	
	\$14,000	5.92	
Imperial County	\$30,000	1.42	
Placer County	\$500	0.60	
San Diego County	\$100	0.30	
San Joaquin Valley	\$6,000	0.04	
	\$6,000	0.05	
	\$6,000	0.20	
	\$6,000	0.90	
	\$6,000	17.50	
	\$6,000	25.00	
	\$7,000	< 0.01	
	\$7,000	1.60	
	\$7,000	36.40	
	\$7,500	3.00	
	\$7,500	6.00	
	\$8,500	22.70	
	\$8,696	0.10	
	\$8,696	0.50	
	\$9,026	32.40	
	\$9,500	6.60	
	\$10,000	0.05	
	\$10,000	0.05	
	\$10,710	0.30	
	\$10,710	0.70	
\$10,800	27.00		
\$12,000	68.00		
\$12,500	6.90		
\$13,500	1.90		
\$13,500	1.90		

San Joaquin Valley (Cont'd)

\$13,500	1.90	
\$13,500	3.80	
\$13,500	3.80	
\$15,000	34.00	
\$15,600	0.04	
\$15,600	0.10	
\$15,600	15.00	
\$17,000	9.70	
\$17,000	10.30	
\$17,000	29.10	
\$17,000	70.60	
\$19,000	33.80	
\$20,000	< 0.01	
\$20,000	0.80	
\$20,000	4.90	
\$20,000	20.00	
\$21,000	0.80	
\$21,000	1.60	
\$21,000	45.00	
\$21,500	0.90	
\$21,500	1.90	
\$21,500	3.80	
\$23,000	< 0.01	
\$23,000	2.10	
\$23,000	3.20	
\$25,000	22.00	
\$25,000	22.50	
\$25,000	127.50	
\$26,500	2.90	
\$26,500	4.80	
\$27,500	3.50	
\$28,500	16.40	
\$28,500	29.00	
\$28,500	36.70	
\$30,000	< 0.01	
\$30,000	0.04	
\$30,000	0.04	
\$30,000	0.20	
\$30,000	0.20	
\$30,000	4.10	
\$30,000	7.80	
\$30,000	8.70	
\$30,000	26.80	
\$30,000	33.20	
\$32,775	< 0.01	
\$32,775	0.01	
\$32,775	0.02	
\$32,775	0.05	
\$32,775	0.10	
\$32,775	0.30	
\$32,775	0.50	
\$32,775	0.70	
\$32,775	8.10	

San Joaquin Valley (Cont'd)

\$34,000	0.01	
\$34,000	0.01	
\$34,000	4.40	
\$34,000	4.60	
\$34,000	18.30	
\$34,000	21.30	
\$35,000	3.30	
\$35,000	14.40	
\$35,000	38.30	
\$36,300	20.00	
\$37,047	0.30	
\$40,000	0.80	
\$40,000	7.80	
\$48,000	1.00	
\$48,000	5.50	
\$48,500	16.50	
\$50,000	3.40	
\$300,000	0.70	

Shasta County

\$800	0.01	
\$800	0.14	
\$1,000	40.00	
\$1,000	40.00	

South Coast

\$167,397	0.73	
\$186,301	0.37	
\$186,301	4.38	
\$273,973	1.46	
\$328,767	0.91	
\$356,164	5.66	

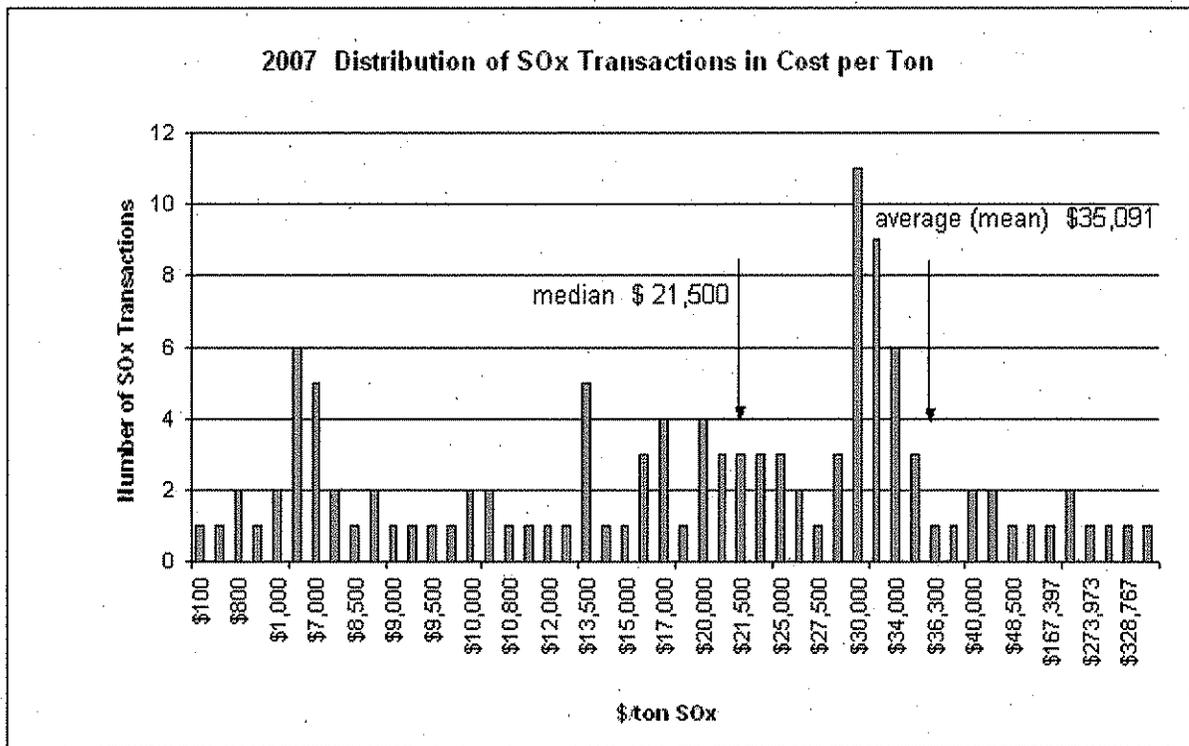
TABLE 13

2007 Summary Statistics for a Total of 116 SOx Transactions*

	\$/ton	Tons
Total Tons Traded		1388.66
Average (mean)	\$35,091	
Median	\$21,500	
High	\$356,164	
Low	\$100	

* Excludes asset transfer, subsidiary, barter, and other non-monetary transactions with no cost data.

Chart 5



APPENDIX A

**HEALTH & SAFETY CODE SECTIONS 40709 & 40709.5,
AND GOVERNMENT CODE SECTION 6254.7**

H&SC; 40709 DISTRICT BANKING AND OFFSET SYSTEM

(a) Every district board shall establish by regulation a system by which all reductions in the emission of air contaminants that are to be used to offset certain future increases in the emission of air contaminants shall be banked prior to use to offset future increases in emissions. The system shall provide that only those reductions in the emission of air contaminants that are not otherwise required by any federal, state, or district law, rule, order, permit, or regulation shall be registered, certified, or otherwise approved by the district air pollution control officer before they may be banked and used to offset future increases in the emission of air contaminants. The system shall be subject to disapproval by the state board pursuant to Chapter 1 (commencing with Section 41500) of Part 4 within 60 days after adoption by the district.

(b) The system is not intended to recognize any preexisting right to emit air contaminants, but to provide a mechanism for districts to recognize the existence of reductions of air contaminants that can be used as offsets, and to provide greater certainty that the offsets shall be available for emitting industries.

(c) Notwithstanding subdivision (a), emissions reductions proposed to offset simultaneous emissions increases within the same stationary source need not be banked prior to use as offsets, if those reductions satisfy all criteria established by regulation pursuant to subdivision (a).

(d) This section does not apply to any district that is not required to prepare and submit a plan for attainment of state ambient air quality standards pursuant to Section 40911 if both of the following apply to the district:

(1) The district is not in a federal nonattainment area for any national ambient air quality standard unless the sole reason for the nonattainment is due to air pollutant transport.

(2) An owner or operator of a source or proposed source has not petitioned the district to establish a banking system.

(Amended by Stats. 2000, Ch. 729, Sec. 5.)

H&SC; 40709.5 REVIEW OF EMISSION CREDIT SYSTEMS

40709.5. Any district which has established a system pursuant to Section 40709 by which reductions in emissions may be banked or otherwise credited to offset future increases in the emissions of air contaminants, or which utilize a calculation method which enables internal emission reductions to be credited against increases in emissions, and as of January 1, 1988, is within a federally designated nonattainment area for one or more air pollutants, shall develop and implement a program which, at a minimum, provides for all of the following:

- (a) Identification and tracking of sources possessing emission credit balances accruing from the elimination or replacement of older, higher emitting equipment.
- (b) Periodic analysis of the increases or decreases in emissions which occur when credits are used to bring new or modified emission sources into operation.
- (c) Procedures for verifying the emission reductions credited to the bank or accruing to internal accounts and for adjusting of credited emissions based on current district requirements.
- (d) Periodic evaluation of the extent to which the system has contributed or detracted from the goal of allowing economic growth and modification of existing facilities, and has contributed to or detracted from the district's progress toward attainment of ambient air quality standards.
- (e) Annual publication of the costs, in dollars per ton, of emission offsets purchased for new or modified emission sources, excluding information on the identity of any party involved in the offset transactions. This publication shall specify, for each offset purchase transaction, the year the offset transaction occurred, the amount of offsets purchased, by pollutant, and the total cost, by pollutant, of the offsets purchased. Each application to use emissions reductions banked in a system established pursuant to Section 40709 shall provide sufficient information, as determined by the district, to perform the cost analysis. The information shall be a public record.

(Amended by Stats. 1992, Ch. 612, Sec. 3. Effective January 1, 1993.)

GOVERNMENT CODE SECTION 6254.7

- (a) All information, analyses, plans, or specifications that disclose the nature, extent, quantity, or degree of air contaminants or other pollution which any article, machine, equipment, or other contrivance will produce, which any air pollution control district or air quality management district, or any other state or local agency or district, requires any applicant to provide before the applicant builds, erects, alters, replaces, operates, sells, rents, or uses the article, machine, equipment, or other contrivance, are public records.
- (b) All air or other pollution monitoring data, including data compiled from stationary sources, are public records.
- (c) All records of notices and orders directed to the owner of any building of violations of housing or building codes, ordinances, statutes, or regulations which constitute violations of standards provided in Section 1941.1 of the Civil Code, and records of subsequent action with respect to those notices and orders, are public records.
- (d) Except as otherwise provided in subdivision (e) and Chapter 3 (commencing with Section 99150) of Part 65 of the Education Code, trade secrets are not public records under this section. "Trade secrets," as used in this section, may include, but are not limited to, any formula, plan, pattern, process, tool, mechanism, compound, procedure, production data, or compilation of information which is not patented, which is known only to certain individuals within a commercial concern who are using it to fabricate, produce, or compound an article of trade or a service having commercial value and which gives its user an opportunity to obtain a business advantage over competitors who do not know or use it.
- (e) Notwithstanding any other provision of law, all air pollution emission data, including those emission data which constitute trade secrets as defined in subdivision (d), are public records. Data used to calculate emission data are not emission data for the purposes of this subdivision and data which constitute trade secrets and which are used to calculate emission data are not public records.
- (f) Data used to calculate the costs of obtaining emissions offsets are not public records. At the time that an air pollution control district or air quality management district issues a permit to construct to an applicant who is required to obtain offsets pursuant to district rules and regulations, data obtained from the applicant consisting of the year the offset transaction occurred, the amount of offsets purchased, by pollutant, and the total cost, by pollutant, of the offsets purchased is a public record. If an application is denied, the data shall not be a public record.

APPENDIX B
REPORTING FORM AND INSTRUCTIONS

ANNUAL EMISSION REDUCTION CREDIT TRANSACTION REPORT INSTRUCTIONS

General:

One transaction record per pollutant should be filled out for each transaction that takes place in the district between two or more parties.

Transactions should be reported in the year in which the final transaction occurs and money, or barter agreements, are exchanged.

The annual report should be submitted to ARB no later than January 15 of each year. The ARB will compile all data from the districts and publish a statewide report on the cost of offsets.

For cases of offset transactions that occur across district boundaries, transactions should be reported in the district in which the offsets are credited. This is the district that will most likely have access to the transaction cost information necessary for reporting.

ANNUAL EMISSION REDUCTION CREDIT TRANSACTION REPORT FOR 2007 TRANSACTIONS

		DISTRICT ID# _____	
<u>POLLUTANT</u> _____ NOx _____ SOx _____ CO _____ HC _____ PM10 _____ Other	<u>CREDIT SOURCE</u> _____ STATIONARY _____ MOBILE _____ AGRICULTURAL _____ OTHER	QUANTITY of POLLUTANT (TONS/YEAR) _____	
		PRICE PAID (\$/TON) _____	
<u>ANNUAL or QUARTER?</u> <u>Q1</u> <u>Q2</u> <u>Q3</u> <u>Q4</u> _____		BARTER TRANSACTION? _____ SUBSIDIARY TRANSACTION? _____ LENGTH OF LIFE/LEASE _____	

DISTRICT ID# _____

<u>POLLUTANT</u> _____ NOx _____ SOx _____ CO _____ HC _____ PM10 _____ Other	<u>CREDIT SOURCE</u> _____ STATIONARY _____ MOBILE _____ AGRICULTURAL _____ OTHER	QUANTITY of POLLUTANT (TONS/YEAR) _____
		PRICE PAID (\$/TON) _____
<u>ANNUAL or QUARTER?</u> _____ <u>Q1</u> _____ <u>Q2</u> _____ <u>Q3</u> _____ <u>Q4</u>		BARTER TRANSACTION? _____ SUBSIDIARY TRANSACTION? _____ LENGTH OF LIFE/LEASE _____

DISTRICT ID# _____

<u>POLLUTANT</u> _____ NOx _____ SOx _____ CO _____ HC _____ PM10 _____ Other	<u>CREDIT SOURCE</u> _____ STATIONARY _____ MOBILE _____ AGRICULTURAL _____ OTHER	QUANTITY of POLLUTANT (TONS/YEAR) _____
		PRICE PAID (\$/TON) _____
<u>ANNUAL or QUARTER?</u> _____ <u>Q1</u> _____ <u>Q2</u> _____ <u>Q3</u> _____ <u>Q4</u>		BARTER TRANSACTION? _____ SUBSIDIARY TRANSACTION? _____ LENGTH OF LIFE/LEASE _____

1. **District ID #:** The district ID # should be in the format:

AAYYXXX

Where AA is a two letter district code (a list of district codes is attached), YY is a two digit year (in which the transaction occurs) identifier (e.g. 07 for 2007), and XXX is a three-digit transaction number from 001 to 999. This ID number will only be used to track the origin of data and for data validation. The assignment of a transaction number will ensure quality control of data transfer between the district and the Air Resources Board. Individual transactions will not be identified in Air Resources Board summary reports.

2. **Pollutant:** Please check one pollutant per transaction. If trade involved more than one pollutant, use separate transaction records for each pollutant traded. HC is equivalent to other acronyms used for hydrocarbons such as POC, ROC, ROG and VOC.
3. **Credit Source:** Please indicate the source of emission reduction credits (ERC). This information will aid in the analysis of ERC prices paid. Stationary source credits typically do not have a finite useful life, whereas mobile and agricultural source ERCs have specific limiting conditions that limit useful life. It is important that a distinction be made between these kinds of offsets when analyzing the cost of offsets.
4. **Annual/Quarter:** Please indicate if credits are valid on an annual basis or quarterly. Additionally, if credits are valid quarterly, indicate in which quarter they can be used. This applies to seasonal credits or credits that are only valid in a specific quarter.
5. **Quantity of Pollutant:** Regardless of district recording practices or the transaction agreement, please provide the quantity of pollutant in tons/year.

Example 1: For Data Given as a Single Quarter Transactions

$$1 \frac{lb}{quarter} = 1 \frac{lb}{quarter} \times 4 \frac{quarters}{year} \times \frac{1 ton}{2000 lbs} = 0.0020 \frac{tons}{year}$$

Example 2: For Data Provided as an Annual Transactions

$$1 \frac{lb}{day} = 1 \frac{lb}{day} \times 365 \frac{days}{year} \times \frac{1 ton}{2000 lbs} = 0.1825 \frac{tons}{year}$$

Example 3: For Quarterly Credits Used to Offset Annual Sources

$$(Q_1 + Q_2 + Q_3 + Q_4) = \frac{lbs}{year} \quad \text{Convert to tons per year}$$

6. **Price Paid:** This is the bottom line price paid by the purchaser to the owner of the credit. Government Code Section 6254.7 authorizes the district to obtain this information from applicants. Net present value should not be calculated for lease transactions. If price is given in dollars per pound, please convert to dollars per ton by multiplying by 2000 lb/ton.

7. **Barter and Subsidiary Transactions:** If barter was involved and/or no money was exchanged for the offsets, the district should request the applicant to calculate a dollars/ton value for the credit transaction. Barter can include one company (A) placing controls on another (B) to generate credits. The price paid should then reflect what company A paid to install equipment at company B and any additional fees paid to company B as part of the agreement. The price paid for offsets should be the value of the offset at the time of the transaction.

If a transaction occurred between two subsidiaries of the same parent company, check the subsidiary transaction box. This also applies to transactions that occur between agencies of the same governmental system for example between two agencies of the county. Since the price charged in barter and subsidiary transactions may not reflect the market value of credits, this information will be helpful in analyzing prices paid for credits.

8. **Length of Use/Lease:** Please indicate the valid length of credit life for this transaction. This applies to stationary source credits that are sold as a limited life lease agreement, or to other types of credit that have a finite useful life. If no limit is placed on the useful life, leave this box blank.

APPENDIX C

GLOSSARY OF TERMS

Agricultural Source: Source of air pollution used in the production of crops, or the raising of fowl or animals located on contiguous property under common ownership.

Barter: To trade without using money.

Mobile sources: Sources of air pollution such as automobiles, motorcycles, trucks, off-road vehicles, boats and airplanes.

Stationary sources: Non-mobile sources such as power plants, refineries and manufacturing facilities which emit air pollutants.

Subsidiary: Serving to assist or supplement.

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DISTRICT TWO-LETTER CODES

AM	Amador County APCD
AV	Antelope Valley APCD
BA	Bay Area AQMD
BT	Butte County APCD
CA	Calaveras County APCD
CO	Colusa County APCD
ED	El Dorado County APCD
FR	Feather River AQMD
GL	Glenn County APCD
GB	Great Basin Unified APCD
IM	Imperial County APCD
KE	Kern County APCD
LA	Lake County AQMD
LS	Lassen County APCD
MA	Mariposa County APCD
ME	Mendocino County AQMD
MO	Modoc County APCD
MD	Mojave Desert AQMD
MB	Monterey Bay Unified APCD
NC	North Coast Unified AQMD
NO	Northern Sierra AQMD
NS	Northern Sonoma County APCD

DISTRICT TWO-LETTER CODES (cont'd.)

PL	Placer County APCD
SM	Sacramento Metropolitan AQMD
SD	San Diego County APCD
SJ	San Joaquin Valley Unified APCD
SL	San Luis Obispo County APCD
SB	Santa Barbara County APCD
SH	Shasta County AQMD
SI	Siskiyou County APCD
SC	South Coast AQMD
TE	Tehama County APCD
TU	Tuolumne County APCD
VE	Ventura County APCD
YS	Yolo-Solano AQMD