


**Emission Reduction Offset  
Transaction Costs  
Summary Report for 2018**



California Environmental Protection Agency  
 Air Resources Board

State of California  
California Environmental Protection Agency

**AIR RESOURCES BOARD**

**Emission Reduction Offset Transaction Costs  
Summary Report for 2018**

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Prepared by

Permit Evaluation Support Section  
Enforcement 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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# EXECUTIVE SUMMARY

## A. Background

Since 1993, Health and Safety Code Sections 40709 and 40709.5 have required local air quality management and air pollution control districts (district) to collect information regarding the cost of offset transactions from stationary source owners who purchase offsets as required by New Source Review (NSR) programs. State law also requires districts to adopt emission reduction credit (ERC) 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 disclosing 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 those that also meet federal air quality standards are exempt from such requirements.

## B. Summary of 2018 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 2018. Districts that submit a plan for attainment of State ambient air quality standards and those that do not meet federal air quality standards are required to report their emission reduction offset transactions if they had or did not have any offset transactions. A total of 240 transactions were reported to have taken place in California in 2018. This report does not include information covering 89 transactions where there were no monetary costs. Of the remaining 151 transactions, one was for carbon monoxide (CO), 69 were for hydrocarbons (HC), 29 were for oxides of nitrogen (NO<sub>x</sub>), 43 were for particulate matter with aerodynamic diameter less than 10 microns (PM<sub>10</sub>), six were for sulfur oxides (SO<sub>x</sub>), and three were for particulate matter with aerodynamic diameter less than 2.5 microns (PM<sub>2.5</sub>). A specific breakdown of all transactions by district is presented in Table V-1 (see page 9). These transactions generally represent trades of offsets that are valid for the lifetime of the permitted source. This is in contrast to other types of credits that are valid for much shorter time frames (e.g., Regional Clean Air Incentives Market (RECLAIM) trading credits that are valid for one year).

## C. Data Trends

ARB has collected and reported statewide data on all offset transactions since 1993. The number of reported transactions has generally increased through the years, but decreased in 2002 through 2004, and in 2009. The number of offset transactions was trending down between 2014 and 2016 for Hydrocarbons, PM<sub>10</sub>, and NO<sub>x</sub>. In 2018, the number of NO<sub>x</sub> emissions offset transactions returned to similar values after a

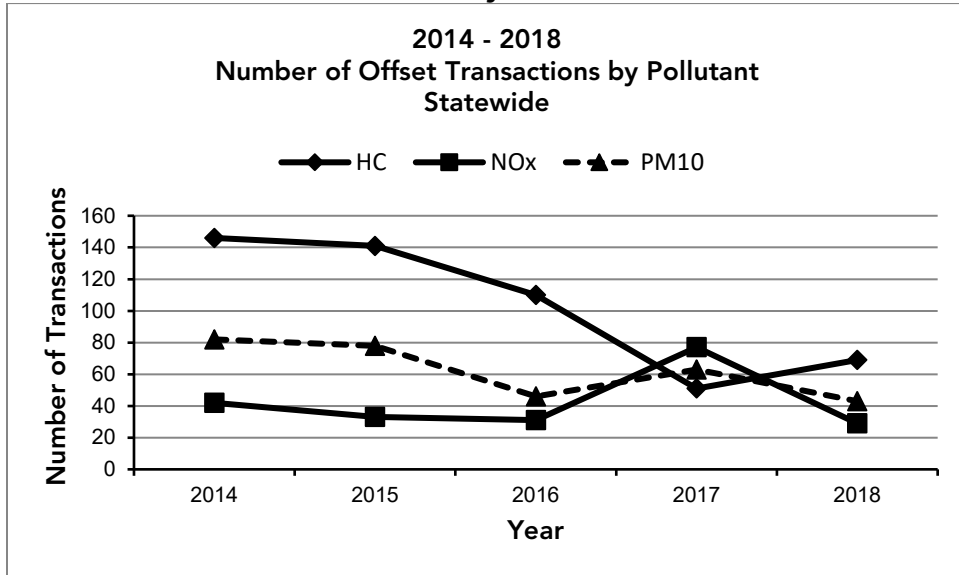
spike in 2017. Additionally, after a steep drop off in the number of Hydrocarbon offset transactions, 2018 saw a slight rebound but still an overall downward trend over the past five years.

The number of transactions does not necessarily directly correlate to the amount of offsets traded. As previously mentioned, there was a slight spike in the number of NOx transactions in 2017, and despite that there was a decrease in the number of tons traded. Additionally, while 2018 saw a decrease in the number of NOx transactions, there was a slight bump in the total number of tons traded.

Charts ES-1 and ES-2 illustrate the trends for the number of transactions and the number of tons traded during the past five years for the three most traded pollutants (HC, NOx, and PM10).

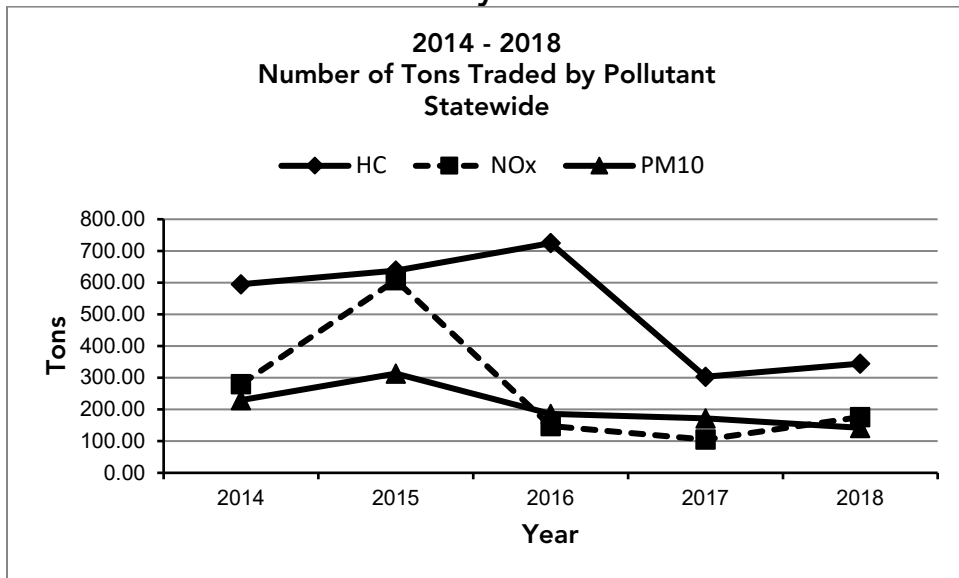
More information on California offset transactions that occurred from 1999 through 2018 can be found at ARB's Emission Reduction Credit Offsets webpage at: [www.arb.ca.gov/nsr/erco/erco.htm](http://www.arb.ca.gov/nsr/erco/erco.htm).

**Chart ES-1\***  
**Number of Offset Transactions by Pollutant Statewide 2014-2018**



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

**Chart ES-2\***  
**Number of Total Tons Traded by Pollutant Statewide 2014-2018**



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



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## I. INTRODUCTION

Section 40709.5(e) of the Health and Safety Code mandates that districts that are not exempt 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, 2018, as provided by the districts.

California's NSR program is designed to accommodate industrial growth while protecting public health and the environment. The use of ERCs 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, and 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 Health and Safety Code Section 40709.5(e), this report does not contain information that identifies the parties involved in the transactions.

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

## II. 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 ERCs. 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.

## A. 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 and Safety Code Section 40709.5). Once created, ERCs 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 ERCs 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 ERCs 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.

## III. REQUIREMENTS TO REPORT COST OF OFFSETS

Sections 40709 and 40709.5 of the Health and Safety Code require districts that are not exempt to establish banking programs for ERCs and establish a mechanism 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 can be found 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.

#### IV. DATA COLLECTION PROCESS

In 1994, a subcommittee of the California Air Pollution Control Officers Association 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. For this year, the reporting form was updated to more easily collect the required information. All the data fields from the original reporting form have been preserved.

The form distinguishes between ERC categories: 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 lifespan.

The lifespan of the credit may significantly affect their price. For transactions involving credits with limited lifespans, the reporting form allows the districts to report the remaining useful life of those credits. Mobile source credits and lease agreement transactions can also be distinguished using this section of the form.

The reporting form records the type of payment agreement, such as a direct sale of the credit, a 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 interested parties wishing to analyze credit market values.

A copy of the reporting form and instructions is in Appendix B. A glossary of terms is located in Appendix C.

## V. DESCRIPTION OF 2018 STATEWIDE DATA

Table V-1 presents the 151 reported cost transactions that took place in California in 2018, listed by individual district. Of the 151 cost transactions, one was for CO, 69 were for HC, 29 were for NO<sub>x</sub>, 43 were for PM<sub>10</sub>, six were for SO<sub>x</sub>, and three were for PM<sub>2.5</sub>. Districts that are required to report their offset transactions, reported to ARB regardless of whether any offset transactions occurred. Table V-2 lists the districts that reported no transactions in 2018.

In 2018, there were 89 non-monetary transactions reported to the Air Resources Board. These were not used to calculate the results shown in Tables A through I and Charts 1 through 15. Staff did not include transactions for which there were no monetary costs in Table V-1. Mojave Desert APCD reported a transfer of ownership that included all assets including offsets. Because there was a set price for all assets, the price per ton for each pollutant could not be determined and thus staff did not include those transactions. A full list of non-monetary transactions can be found in Appendix D.

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 starting on page 39.

In 2018, nine districts reported applicable transactions. Tables A-1, B-1, C-1, D-1, E-1, F-1, G-1, H-1 and I-1 present information, by district, for CO, HC, NO<sub>x</sub>, PM<sub>10</sub> and SO<sub>x</sub> reported by each district. Each table lists the pollutant, cost per ton of pollutant, and the total tons of pollutant traded. The price paid per ton was calculated by dividing the cost of the transaction by the number of tons traded in that transaction. The information is presented individually for each district since offset markets and costs per ton vary from district to district. Transactions are ordered by increasing cost per ton of pollutant.

Tables A-2, B-2, C-2, D-2, E-2, F-2, G-2, H-2 and I-2 provide the total tons traded and the average, median, high and low prices paid per transaction per ton of pollutant. These tables exclude asset transfer, subsidiary, barter, and other non-monetary transactions. Average cost information was obtained by dividing the total cost for all applicable transactions, divided by the total number of tons transferred.

For each district that reported monetary transactions for the three most actively traded criteria pollutants (HC, NO<sub>x</sub>, and PM<sub>10</sub>), Charts 1 - 15 illustrate the average cost of offsets per transaction for the past five years.

**Table V-1**  
**2018 California Emission Reduction Credit Transaction Costs by District**  
**Reported in Total Tons Traded**

District	Pollutant	\$/Ton	Tons	Notes
Bay Area				
Total of 20 Transactions	NOx	\$5,666	3.09	Stationary
	NOx	\$5,666	0.19	Stationary
	NOx	\$15,500	1.60	Stationary
	NOx	\$20,000	1.00	Stationary
	NOx	\$14,000	20.00	Stationary
	SOx	\$6,000	0.02	Stationary
	SOx	\$6,000	0.00	Stationary
	HC	\$4,500	2.14	Stationary
	HC	\$7,000	3.29	Stationary
	HC	\$8,500	0.27	Stationary
	HC	\$8,500	6.21	Stationary
	HC	\$8,500	0.27	Stationary
	HC	\$8,500	2.26	Stationary
	HC	\$8,500	2.14	Stationary
	HC	\$7,500	5.50	Stationary
	HC	\$7,500	1.25	Stationary
	PM10	\$19,125	0.01	Stationary
	PM2.5	\$19,125	0.19	Stationary
	PM2.5	\$25,000	0.57	Stationary
	PM2.5	\$25,000	0.70	Stationary

District	Pollutant	\$/Ton	Tons	Notes
Imperial County				
Total of 62 Transactions	NOx	\$2,500	0.45	Agricultural
	NOx	\$2,500	3.97	Agricultural
	NOx	\$2,500	2.03	Agricultural
	NOx	\$2,625	5.83	Agricultural
	NOx	\$2,000	0.46	Agricultural
	NOx	\$2,000	0.25	Agricultural
	NOx	\$2,000	0.50	Agricultural
	NOx	\$2,000	0.16	Agricultural
	NOx	\$2,000	0.44	Agricultural
	CO	\$1,308	3.27	Agricultural
	HC	\$1,250	1.71	Agricultural
	HC	\$1,000	2.00	Agricultural
	HC	\$2,500	2.93	Agricultural
	HC	\$2,500	0.95	Agricultural
	HC	\$1,500	2.23	Agricultural
	HC	\$1,500	3.00	Agricultural
	HC	\$1,500	0.79	Agricultural
	HC	\$1,500	9.44	Agricultural
	HC	\$1,500	4.84	Agricultural
	HC	\$1,250	13.87	Agricultural
	HC	\$2,500	7.59	Agricultural

District	Pollutant	\$/Ton	Tons	Notes
	HC	\$1,500	2.26	Agricultural
	HC	\$1,500	0.28	Agricultural
	HC	\$1,500	1.06	Agricultural
	HC	\$1,000	1.95	Agricultural
	HC	\$850	2.73	Agricultural
	HC	\$1,000	1.04	Agricultural
	HC	\$2,200	6.65	Agricultural
	HC	\$2,200	1.33	Agricultural
	HC	\$1,500	1.61	Agricultural
	PM10	\$500	0.39	Agricultural
	PM10	\$500	0.25	Agricultural
	PM10	\$500	1.50	Agricultural
	PM10	\$450	8.40	Agricultural
	PM10	\$450	1.10	Agricultural
	PM10	\$413	2.56	Agricultural
	PM10	\$400	6.29	Agricultural
	PM10	\$500	10.02	Agricultural
	PM10	\$500	0.11	Agricultural
	PM10	\$400	1.69	Agricultural
	PM10	\$400	2.88	Agricultural
	PM10	\$500	1.41	Agricultural
	PM10	\$400	1.88	Agricultural
	PM10	\$400	2.38	Agricultural



District	Pollutant	\$/Ton	Tons	Notes
	PM10	\$500	1.64	Agricultural
	PM10	\$500	1.52	Agricultural
	PM10	\$400	1.55	Agricultural
	PM10	\$500	3.27	Agricultural
	PM10	\$500	1.33	Agricultural
	PM10	\$450	20.61	Agricultural
	PM10	\$450	0.25	Agricultural
	PM10	\$430	0.88	Agricultural
	PM10	\$430	1.86	Agricultural
	PM10	\$430	1.17	Agricultural
	PM10	\$430	7.19	Agricultural
	PM10	\$600	1.00	Agricultural
	PM10	\$500	3.64	Agricultural
	PM10	\$500	0.92	Agricultural
	PM10	\$450	14.02	Agricultural
	PM10	\$500	11.28	Agricultural
	PM10	\$450	3.81	Agricultural
	PM10	\$500	2.15	Agricultural
Sacramento				
Total of 1 Transaction	HC	\$13,551	2.85	Stationary
San Joaquin				
Total of 32 transactions	NOx	\$16,000	7.00	Stationary

District	Pollutant	\$/Ton	Tons	Notes
	NOx	\$29,000	3.00	Stationary
	NOx	\$22,000	1.00	Stationary
	NOx	\$15,500	4.20	Stationary
	NOx	\$14,700	10.50	Stationary
	NOx	\$12,500	17.80	Stationary
	NOx	\$12,500	17.80	Stationary
	NOx	\$12,500	1.00	Stationary
	SOx	\$12,850	5.50	Stationary
	SOx	\$10,000	19.74	Stationary
	SOx	\$10,000	14.46	Stationary
	SOx	\$16,000	6.00	Stationary
	HC	\$5,000	5.00	Stationary
	HC	\$3,800	10.00	Stationary
	HC	\$4,500	10.00	Stationary
	HC	\$5,000	0.09	Stationary
	HC	\$5,000	1.60	Stationary
	HC	\$5,000	0.12	Stationary (Q3)
	HC	\$5,000	0.35	Stationary (Q3)
	HC	\$5,000	0.03	Stationary (Q2)
	HC	\$4,000	25.00	Stationary
	HC	\$4,000	1.00	Stationary
	HC	\$4,000	12.00	Stationary
	PM10	\$13,500	4.00	Stationary

District	Pollutant	\$/Ton	Tons	Notes
	PM10	\$15,000	0.16	Stationary
	PM10	\$15,000	0.49	Stationary (Q3)
	PM10	\$15,000	1.61	Stationary (Q3)
	PM10	\$13,500	3.91	Stationary
	PM10	\$14,500	4.11	Stationary (Q4)
	PM10	\$31,005	1.13	Stationary
	PM10	\$31,005	1.13	Stationary
	PM10	\$16,000	6.00	Stationary (Q4)
San Luis Obispo County				
Total of 2 Transactions	HC	\$20,000	12.89	Stationary
	HC	\$20,000	3.41	Stationary
Santa Barbara				
Total of 4 Transactions	NOx	\$120,000	12.55	Stationary
	NOx	\$120,000	12.55	Stationary
	HC	\$115,000	2.45	Stationary
	HC	\$115,000	2.45	Stationary
South Coast				
Total of 24 Transactions	NOx	\$273,973	0.73	Stationary
	NOx	\$241,096	9.67	Stationary
	NOx	\$241,096	1.83	Stationary
	NOx	\$90,411	0.18	Stationary

District	Pollutant	\$/Ton	Tons	Notes
	HC	\$22,274	0.91	Stationary
	HC	\$22,466	0.37	Stationary
	HC	\$27,397	0.18	Stationary
	HC	\$25,753	2.19	Stationary
	HC	\$13,151	18.25	Stationary
	HC	\$23,014	0.55	Stationary
	HC	\$21,918	1.10	Stationary
	HC	\$16,164	91.25	Stationary
	HC	\$24,658	0.18	Stationary
	HC	\$24,110	0.37	Stationary
	HC	\$27,397	0.55	Stationary
	HC	\$30,137	0.37	Stationary
	HC	\$21,918	2.19	Stationary
	HC	\$20,548	4.20	Stationary
	HC	\$30,137	0.55	Stationary
	HC	\$3,288	0.73	Stationary
	HC	\$3,288	4.56	Stationary
	HC	\$3,288	15.51	Stationary
	HC	\$3,288	0.73	Stationary
	PM10	\$526,027	0.55	Stationary
Ventura				
Total of 5 Transactions	HC	\$64,000	1.00	Stationary

District	Pollutant	\$/Ton	Tons	Notes
	HC	\$64,000	1.00	Stationary
	HC	\$70,000	15.00	Stationary
	HC	\$64,000	1.00	Stationary
	HC	\$64,000	1.00	Stationary

**Table V-2  
Districts with No Offset Transactions to Report in 2018**

District	Year of last Reported Offsets
Amador County Air Pollution Control District	N/A*
Antelope Valley Air Pollution Control District	N/A*
Butte County Air Quality Management District	2011
Calaveras County Air Pollution Control District	N/A*
Colusa County Air Pollution Control District	2008
Eastern Kern County Air Pollution Control District	2000
El Dorado County Air Quality Management District	2006
Feather River Air Quality Management District	2016
Glenn County Air Pollution Control District	N/A*
Great Basin Unified Air Pollution Control District	N/A*
Lake County Air Quality Management District	N/A*
Lassen County Air Pollution Control District	N/A*
Mariposa County Air Pollution Control District	N/A*
Mendocino County Air Pollution Control District	N/A*
Modoc County Air Pollution Control District	N/A*
Monterey Bay Air Resources District	2016
North Coast Unified Air Quality Management	N/A**
Northern Sierra Air Quality Management District	N/A*
Northern Sonoma County Air Pollution Control	N/A*
Placer County Air Pollution Control District	2017

District	Year of last Reported Offsets
Shasta County Air Quality Management District	2014
Siskiyou County Air Pollution Control District	N/A*
Tehama County Air Pollution Control District	2010
Tuolumne County Air Pollution Control District	N/A*
Yolo-Solano Air Quality Management District	2017

\* No record of offset transactions reported. Districts that are not required to submit a plan for attainment of State ambient air quality standards and those that also meet federal air quality standards are exempt from the requirement to collect information regarding the cost of offset transactions.

\*\* The North Coast Unified AQMD is not required to submit a plan for attainment with State air quality standards and is not designated non-attainment with any federal ambient air quality standard. However, the District's Board elected to establish an offset program and is required to prepare an annual publication of the costs, in dollars per ton, of emission offsets purchased for new and modified emission sources.

## VI. DESCRIPTION OF 2018 DATA BY DISTRICT

### A. Bay Area Air Quality Management District

The Bay Area Air Quality Management District reported 17 monetary transactions in 2018. Of those 17 cost transactions, 5 were for NO<sub>x</sub>, 2 were for SO<sub>x</sub>, 9 were for HC, 1 was for PM<sub>10</sub>, and 3 were for PM<sub>2.5</sub>.

**Table A-1**  
**2018 Emission Reduction Credit Transaction Costs**  
**Reported in Total Tons Traded**  
**Bay Area**

Pollutant	\$/Ton	Tons
NO <sub>x</sub>	\$5,666	3.09
NO <sub>x</sub>	\$5,666	0.19
NO <sub>x</sub>	\$15,500	1.60
NO <sub>x</sub>	\$20,000	1.00
NO <sub>x</sub>	\$14,000	20.00
SO <sub>x</sub>	\$6,000	0.02
SO <sub>x</sub>	\$6,000	0.00
HC	\$4,500	2.14
HC	\$7,000	3.29
HC	\$8,500	0.27
HC	\$8,500	6.21
HC	\$8,500	0.27
HC	\$8,500	2.26
HC	\$8,500	2.14
HC	\$7,500	5.50
HC	\$7,500	1.25



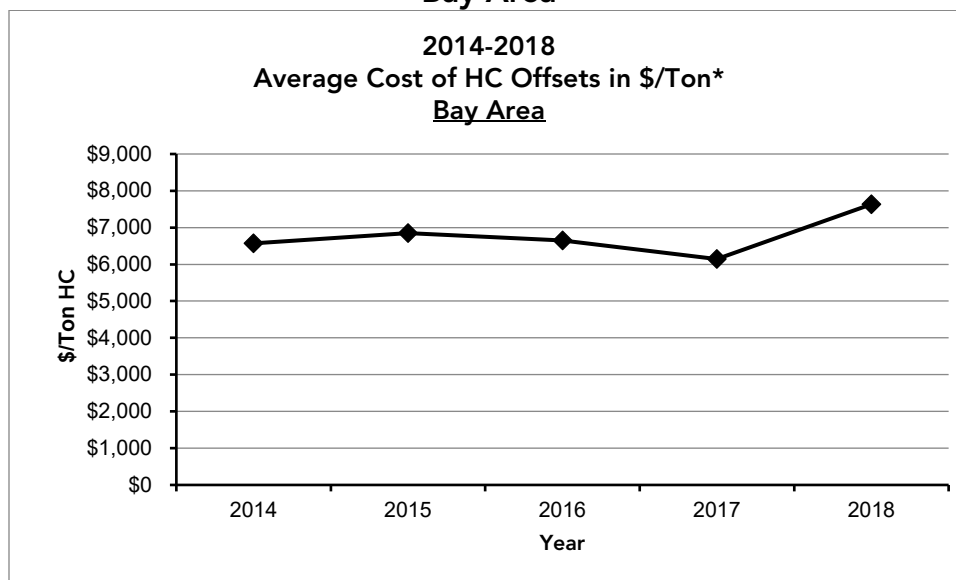
Pollutant	\$/Ton	Tons
PM10	\$19,125	0.01
PM2.5	\$19,125	0.19
PM2.5	\$25,000	0.57
PM2.5	\$25,000	0.70

**Table A-2**  
**2018 Summary Statistics for Emission Reduction Credit Transactions\***  
**Bay Area**

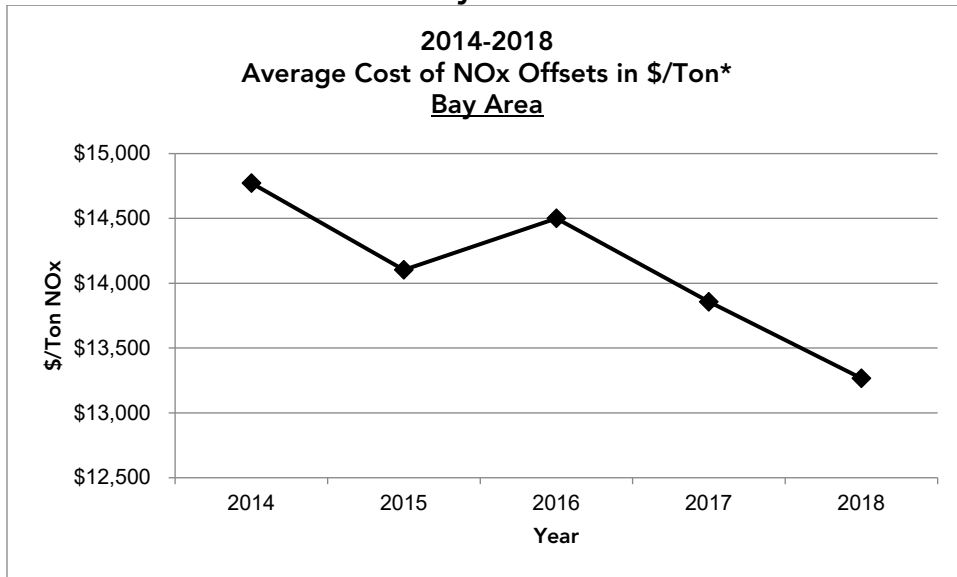
Pollutant	Total Tons Traded	Average (mean) \$/Ton	Median \$/Ton	High \$/Ton	Low \$/Ton
HC	23.33	\$7,632.98	\$8,500.00	\$8,500.00	\$4,500.00
NOx	25.89	\$13,267.04	\$14,000.00	\$20,000.00	\$5,666.00
PM10	0.01	\$19,125.00	\$19,125.00	\$19,125.00	\$19,125.00
SOx	0.02	\$6,000.00	\$6,000.00	\$6,000.00	\$6,000.00

\*There were No CO transactions reported (last CO transaction reported in 2007)

**Chart A-1**  
**Average Cost of Hydrocarbon Offsets from 2014-2018**  
**Bay Area**



**Chart A-2**  
**Average Cost of NOx Offsets from 2014-2018**  
**Bay Area**



## B. Imperial County Air Pollution Control District

The Imperial County Air Pollution Control District reported 62 monetary transactions in 2018. Of those 62 transactions, 9 were for NO<sub>x</sub>, 1 was for CO, 20 were for HC, and 32 were for PM<sub>10</sub>.

**Table B-1  
2018 Emission Reduction Credit Transaction Costs  
Reported in Total Tons Traded  
Imperial County**

Pollutant	\$/Ton	Tons
NO <sub>x</sub>	\$2,500	0.45
NO <sub>x</sub>	\$2,500	3.97
NO <sub>x</sub>	\$2,500	2.03
NO <sub>x</sub>	\$2,625	5.83
NO <sub>x</sub>	\$2,000	0.46
NO <sub>x</sub>	\$2,000	0.25
NO <sub>x</sub>	\$2,000	0.50
NO <sub>x</sub>	\$2,000	0.16
NO <sub>x</sub>	\$2,000	0.44
CO	\$1,308	3.27
HC	\$1,250	1.71
HC	\$1,000	2.00
HC	\$2,500	2.93
HC	\$2,500	0.95
HC	\$1,500	2.23
HC	\$1,500	3.00
HC	\$1,500	0.79
HC	\$1,500	9.44

Pollutant	\$/Ton	Tons
HC	\$1,500	4.84
HC	\$1,250	13.87
HC	\$2,500	7.59
HC	\$1,500	2.26
HC	\$1,500	0.28
HC	\$1,500	1.06
HC	\$1,000	1.95
HC	\$850	2.73
HC	\$1,000	1.04
HC	\$2,200	6.65
HC	\$2,200	1.33
HC	\$1,500	1.61
PM10	\$500	0.39
PM10	\$500	0.25
PM10	\$500	1.50
PM10	\$450	8.40
PM10	\$450	1.10
PM10	\$413	2.56
PM10	\$400	6.29
PM10	\$500	10.02
PM10	\$500	0.11
PM10	\$400	1.69
PM10	\$400	2.88

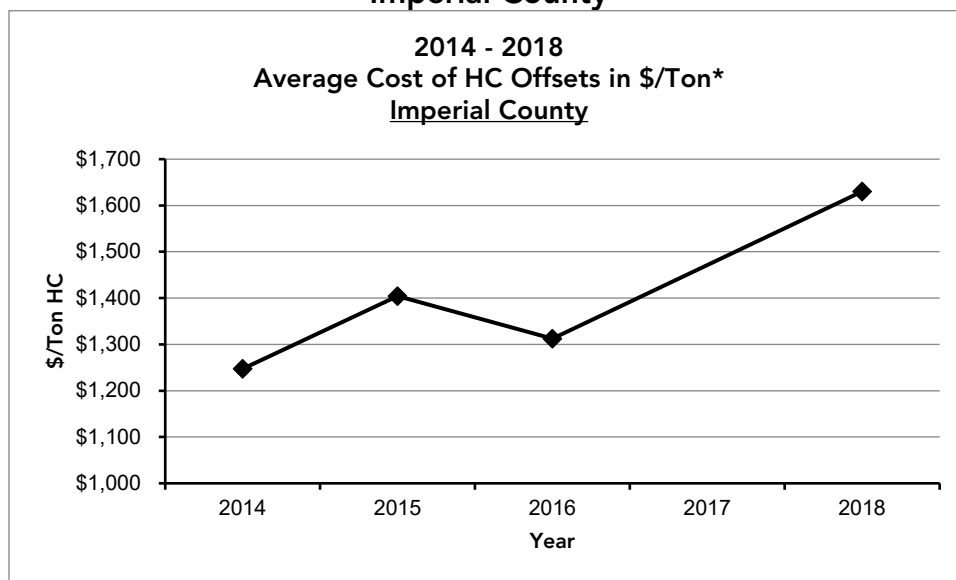
Pollutant	\$/Ton	Tons
PM10	\$500	1.41
PM10	\$400	1.88
PM10	\$400	2.38
PM10	\$500	1.64
PM10	\$500	1.52
PM10	\$400	1.55
PM10	\$500	3.27
PM10	\$500	1.33
PM10	\$450	20.61
PM10	\$450	0.25
PM10	\$430	0.88
PM10	\$430	1.86
PM10	\$430	1.17
PM10	\$430	7.19
PM10	\$600	1.00
PM10	\$500	3.64
PM10	\$500	0.92
PM10	\$450	14.02
PM10	\$500	11.28
PM10	\$450	3.81
PM10	\$500	2.15

**Table B-2**  
**2018 Summary Statistics for Emission Reduction Credit Transactions\***  
**Imperial County**

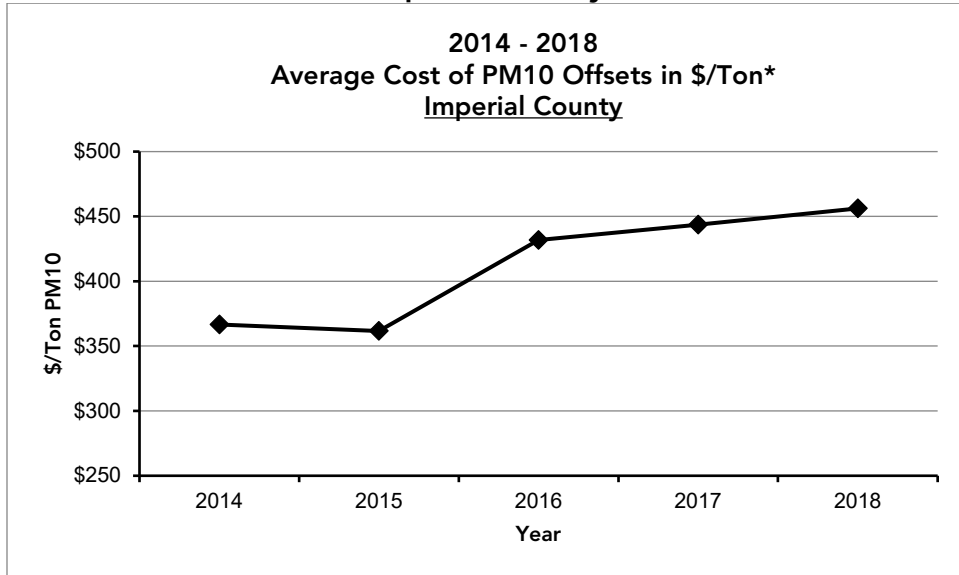
Pollutant	Total Tons Traded	Average (mean) \$/Ton	Median \$/Ton	High \$/Ton	Low \$/Ton
CO	3.27	\$400.00	\$400.00	\$400.00	\$400.00
HC	68.26	\$1,630.26	\$1,500.00	\$2,500.00	\$850.00
NO <sub>x</sub>	14.09	\$2,487.49	\$2,000.00	\$2,625.00	\$2,000.00
PM10	127.95	\$456.17	\$450.00	\$600.00	\$400.00

\*There were no SO<sub>x</sub> transaction reported (last SO<sub>x</sub> transaction in 2008)

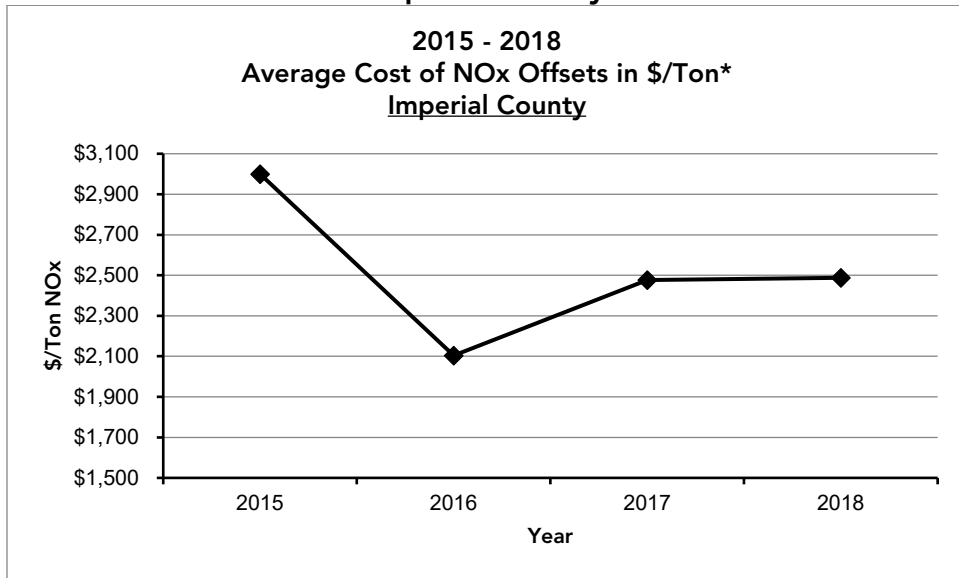
**Chart B-1**  
**Average Cost of Hydrocarbon Offsets from 2014-2018**  
**Imperial County**



**Chart B-2**  
**Average Cost of PM10 Offsets from 2014-2018**  
**Imperial County**



**Chart B-3**  
**Average Cost of NOx Offsets from 2014-2018**  
**Imperial County**



### C. Mojave Desert Air Quality Management District

The Mojave Desert Air Quality Management District reported five transactions in 2018, however none of those transactions were of monetary value and as such are not included in this section of the report.

### D. Sacramento Metropolitan Air Quality Management District

The Sacramento Metropolitan Air Quality Management District reported one HC monetary transaction in 2018.

**Table D-1  
2018 Emission Reduction Credit Transaction Costs  
Reported in Total Tons Traded  
Sacramento Metropolitan**

Pollutant	\$/Ton	Tons
HC	\$13,551	2.85

**Table D-2  
2018 Summary Statistics for Emission Reduction Credit Transactions  
Sacramento Metropolitan**

Pollutant	Total Tons Traded	Average (mean) \$/Ton	Median \$/Ton	High \$/Ton	Low \$/Ton
HC	2.85	2.85	\$13,551	\$13,551	\$13,551

\*No PM10 transaction reported (last PM10 transaction in 2013)

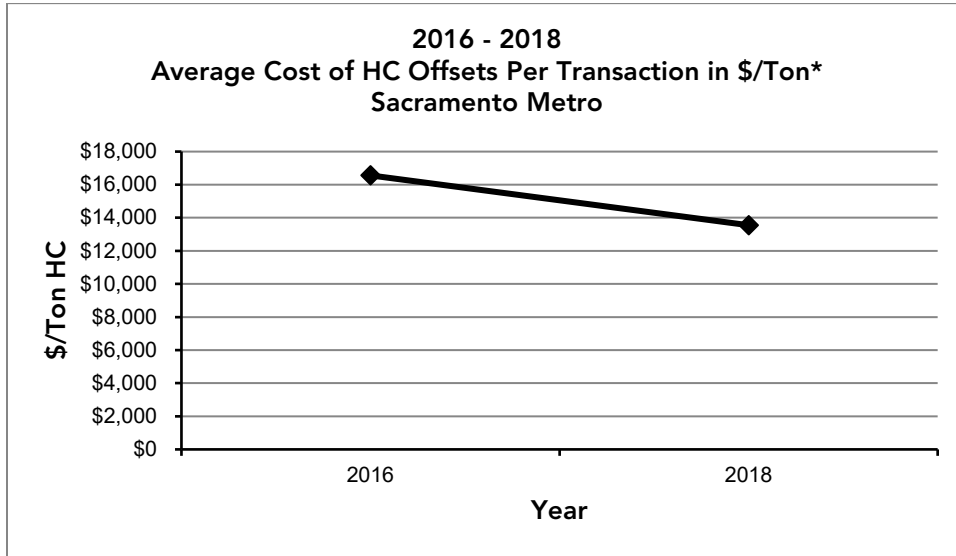
\*No NOx transaction reported (last NOx transaction in 2013)

\*No SOx transaction reported (last SOx transaction in 2010)

\*No CO transaction reported (last CO transaction in 2010)



**Chart D-1  
Average Cost of Hydrocarbon Offsets from 2016-2018  
Sacramento Metro**



**E. San Joaquin Valley Air Pollution Control District**

The San Joaquin Valley Air Pollution Control District reported 32 monetary transactions in 2018. Of the 32 transactions reported, 8 were for NO<sub>x</sub>, 4 were for SO<sub>x</sub>, 11 were for HC, and 9 were for PM<sub>10</sub>.

**Table E-1  
2018 Emission Reduction Credit Transaction Costs  
Reported in Total Tons Traded  
San Joaquin Valley**

Pollutant	\$/Ton	Tons
NOx	\$16,000	7.00
NOx	\$29,000	3.00
NOx	\$22,000	1.00
NOx	\$15,500	4.20
NOx	\$14,700	10.50
NOx	\$12,500	17.80
NOx	\$12,500	17.80
NOx	\$12,500	1.00
Sox	\$12,850	5.50
Sox	\$10,000	19.74
Sox	\$10,000	14.46
Sox	\$16,000	6.00
HC	\$5,000	5.00
HC	\$3,800	10.00
HC	\$4,500	10.00
HC	\$5,000	0.09
HC	\$5,000	1.60
HC	\$5,000	0.12
HC	\$5,000	0.35
HC	\$5,000	0.03
HC	\$4,000	25.00
HC	\$4,000	1.00
HC	\$4,000	12.00

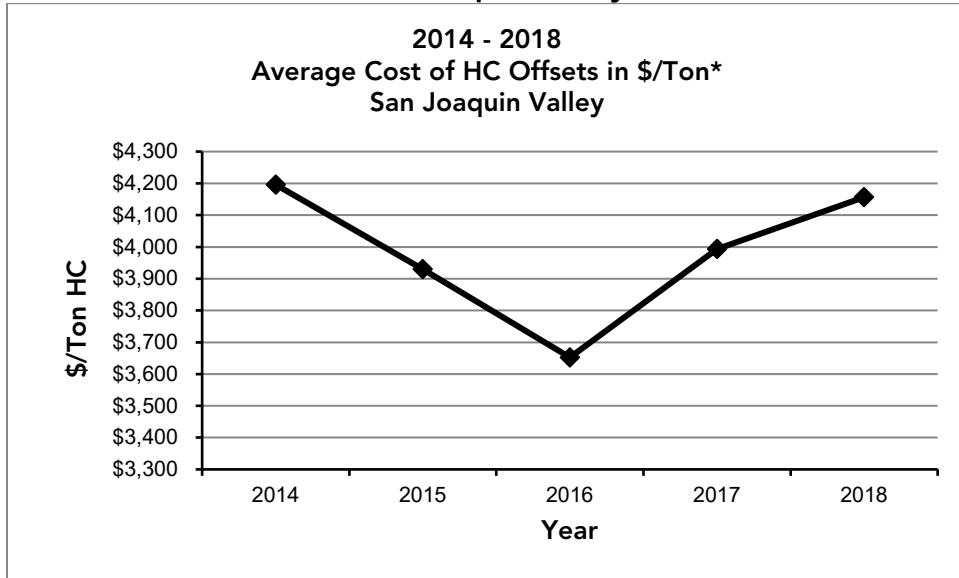
PM10	\$13,500	4.00
PM10	\$15,000	0.16
PM10	\$15,000	0.49
PM10	\$15,000	1.61
PM10	\$13,500	3.91
PM10	\$14,500	4.11
PM10	\$31,005	1.13
PM10	\$31,005	1.13
PM10	\$16,000	6.00

**Table E-2  
2018 Summary Statistics for Emission Reduction Credit Transactions\*  
San Joaquin Valley**

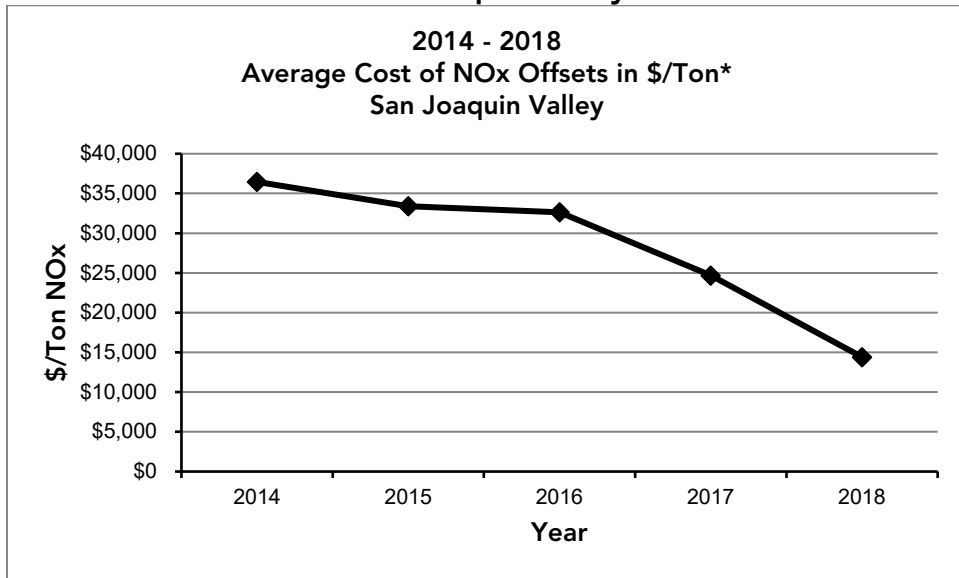
Pollutant	Total Tons Traded	Average (mean)	Median \$/Ton	High \$/Ton	Low \$/Ton
HC	65.20	\$4,156.44	\$5,000.00	\$5,000.00	\$3,800.00
NOx	62.30	\$14,413.32	\$15,100.00	\$29,000.00	\$12,500.00
PM10	22.53	\$16,247.42	\$15,000.00	\$31,005.00	\$13,500.00
SOx	45.70	\$11,130.74	\$11,425.00	\$16,000.00	\$10,000.00

\*No transactions reported (last CO transaction was in 2017)

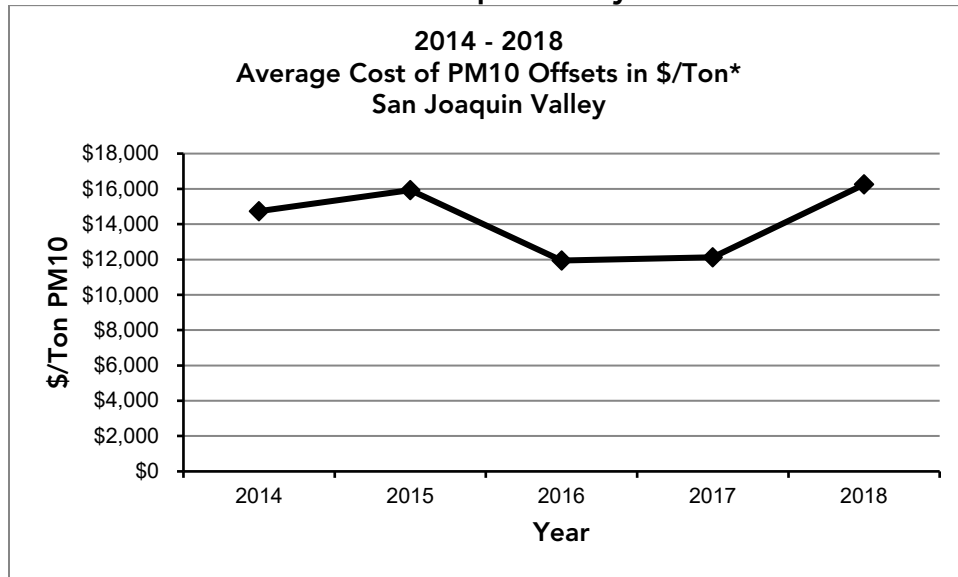
**Chart E-1**  
**Average Cost of Hydrocarbon Offsets from 2014-2018**  
**San Joaquin Valley**



**Chart E-2**  
**Average Cost of NOx Offsets from 2014-2018**  
**San Joaquin Valley**



**Chart E-3**  
**Average Cost of PM10 Offsets from 2014-2018**  
**San Joaquin Valley**



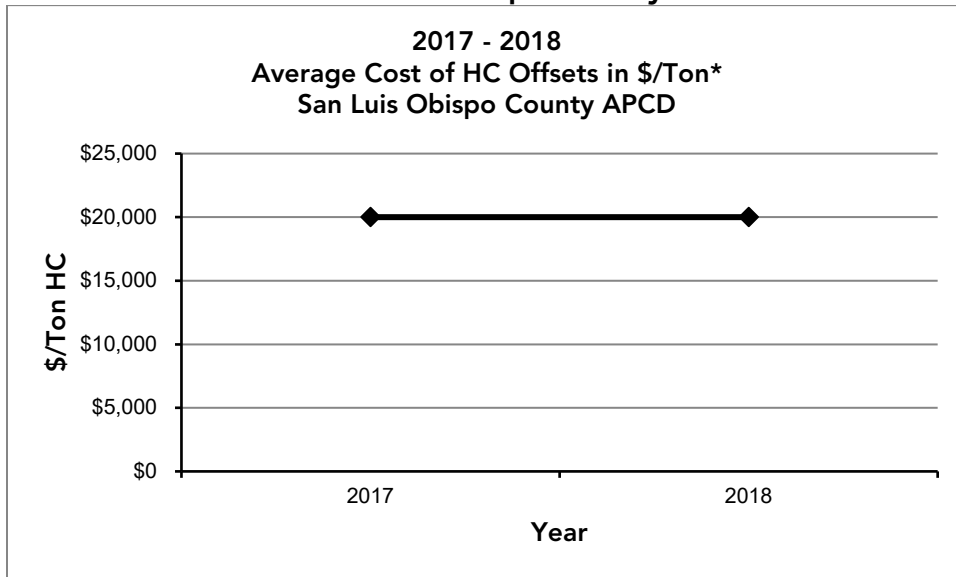
**F. San Luis Obispo County Air Pollution Control District**

The San Luis Obispo Air Pollution Control District reported two monetary transactions in 2018, both of which were HC.

**Table F-1**  
**2018 Emission Reduction Credit Transaction Costs**  
**Reported in Total Tons Traded**  
**San Luis Obispo**

Pollutant	\$/Ton	Tons
HC	\$20,000	12.89
HC	\$20,000	3.41

**Chart F-1**  
**Average Cost of Hydrocarbon Offsets from 2017-2018**  
**San Luis Obispo County**



**G. Santa Barbara County Air Pollution Control District**

The Santa Barbara County APCD reported four monetary transactions in 2018. Two of the transactions were for NOx and two were for HC

**Table G-1**  
**2018 Emissions Reduction Credit Transaction Costs**  
**Reported in Total Tons Traded**  
**Santa Barbara County**

Pollutant	\$/Ton	Tons
NOx	\$120,000	12.55
NOx	\$120,000	12.55
HC	\$115,000	2.45
HC	\$115,000	2.45

**Table G-2  
2018 Summary Statistics for Emission Reduction Credit Transactions\*  
Santa Barbara County**

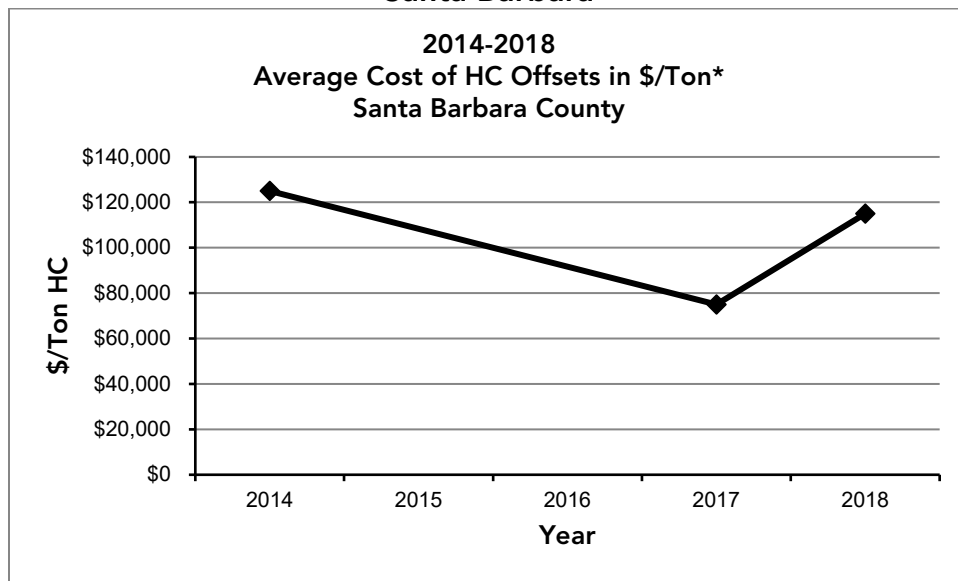
Pollutant	Total Tons Traded	Average (mean)	Median \$/Ton	High \$/Ton	Low \$/Ton
HC	4.90	\$115,000	\$115,000	\$115,000	\$115,000
NOx	25.10	\$120,000	\$120,000	\$120,000	\$120,000

\*NoSOx transactions reported (last SOx transaction reported in 2006)

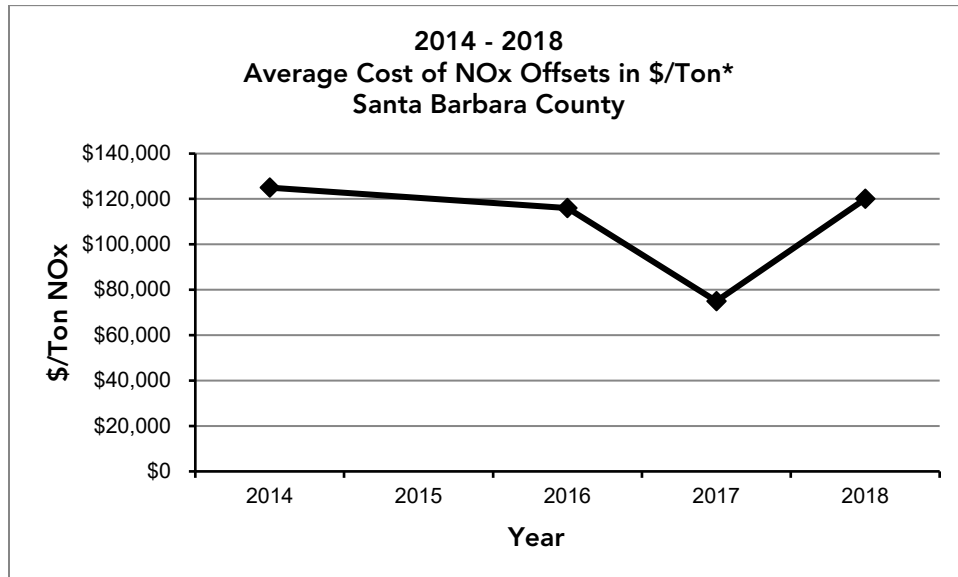
\*No PM10 transactions reported (last PM10 transaction reported in 2011)

\*No CO transaction reported (last CO transaction in 2014)

**Chart G-1  
Average Cost of Hydrocarbon Offsets from 2014-2018  
Santa Barbara**



**Chart G-2  
Average Cost of NOx Offsets from 2014-2018  
Santa Barbara**



### H. South Coast Air Quality Management District

The South Coast Air Quality Management District reported 24 monetary transactions in 2018. Of the 24 transactions reported, 4 were for NOx, 19 were for HC, and 1 was for PM10.

**Table H-1  
2018 Emission Reduction Credit Transaction Costs  
Reported in Total Tons Traded  
South Coast**

Pollutant	\$/Ton	Tons
NOx	\$273,973	0.73
NOx	\$241,096	9.67
NOx	\$241,096	1.83
NOx	\$90,411	0.18
HC	\$22,274	0.91
HC	\$22,466	0.37
HC	\$27,397	0.18



Pollutant	\$/Ton	Tons
HC	\$25,753	2.19
HC	\$13,151	18.25
HC	\$23,014	0.55
HC	\$21,918	1.10
HC	\$16,164	91.25
HC	\$24,658	0.18
HC	\$24,110	0.37
HC	\$27,397	0.55
HC	\$30,137	0.37
HC	\$21,918	2.19
HC	\$20,548	4.20
HC	\$30,137	0.55
HC	\$3,288	0.73
HC	\$3,288	4.56
HC	\$3,288	15.51
HC	\$3,288	0.73
PM10	\$526,027	0.55

**Table H-2  
2018 Summary Statistics for Emission Reduction Credit Transactions\*  
South Coast**

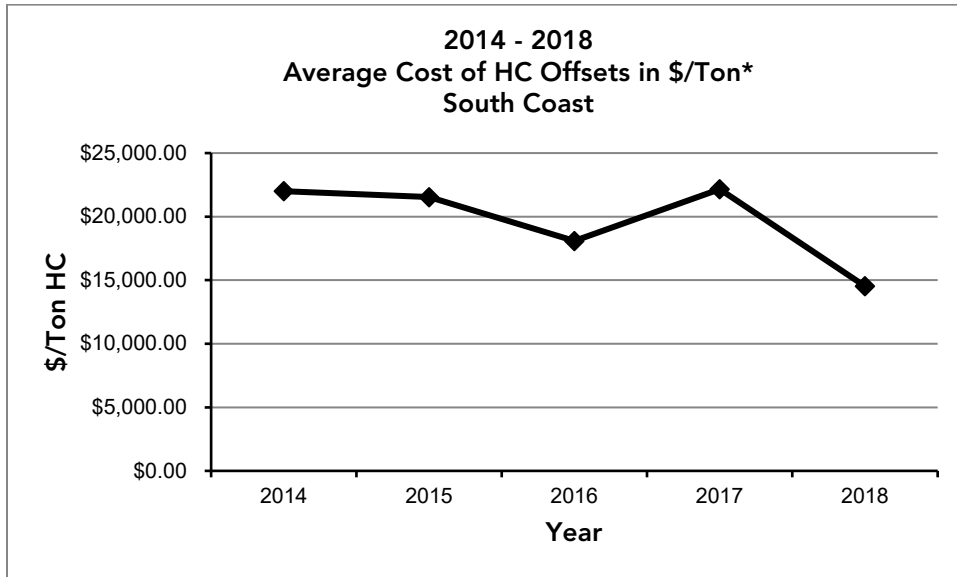
Pollutant	Total Tons Traded	Average (mean)	Median \$/Ton	High \$/Ton	Low \$/Ton
HC	144.74	\$14,528.94	\$22,273.97	\$30,136.99	\$3,287.67
NOx	12.41	\$240,844.21	\$241,095.89	\$273,972.60	\$90,410.96

Pollutant	Total Tons Traded	Average (mean)	Median \$/Ton	High \$/Ton	Low \$/Ton
PM10	0.55	\$526,027.40	\$526,027.40	\$526,027.40	\$526,027.40

\*No SOx transaction reported (last SOx transaction in 2016)

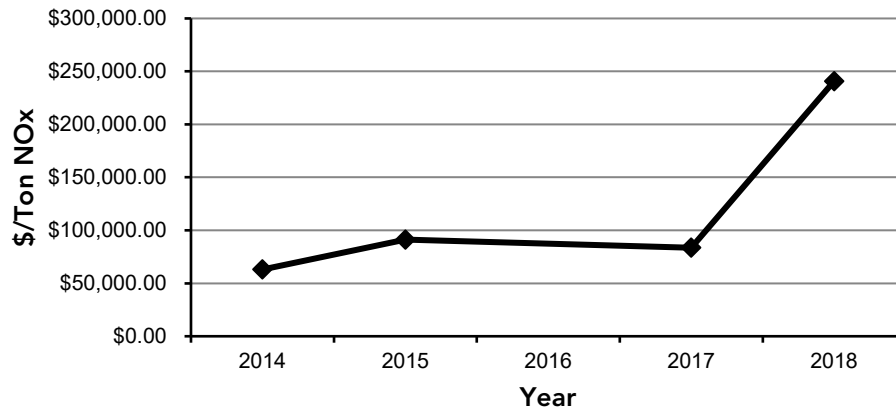
\*No CO transaction reported (last CO transaction in 2016)

**Chart H-1**  
**Average Cost of Hydrocarbon Offsets from 2014-2018**  
**South Coast**

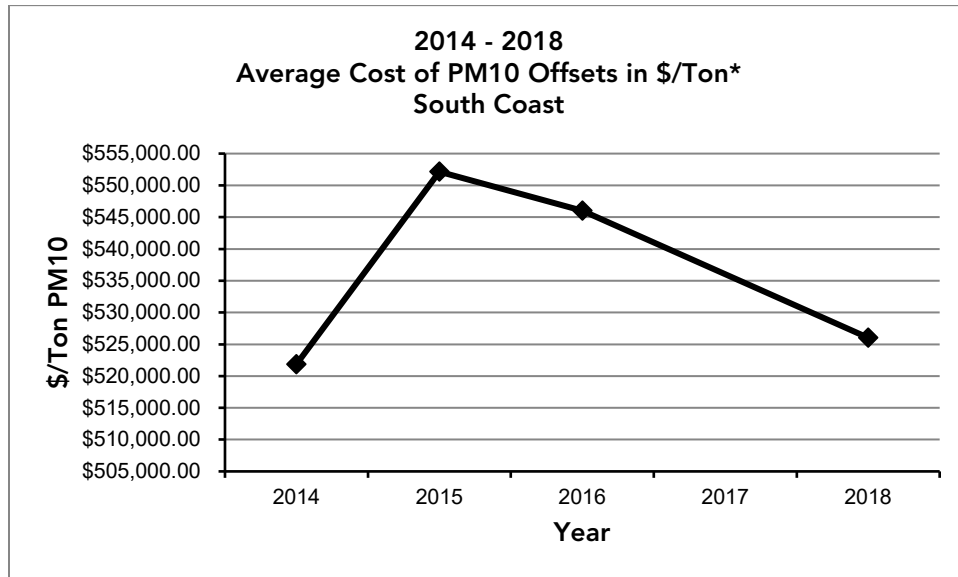


**Chart H-2**  
**Average Cost of NOx Offsets from 2014-2018**  
**South Coast**

2014 - 2018  
Average Cost of NOx Offsets in \$/Ton\*  
South Coast



**Chart H-3  
Average Cost of PM10 Offsets from 2014-2018  
South Coast**



**I. Ventura County Air Pollution Control District**

The Ventura County Air Pollution Control District reported five HC monetary transactions in 2018.

**Table I-1  
2018 Emissions Reduction Credit Transaction Costs  
Reported in Total Tons Traded  
Ventura County**

Pollutant	\$/Ton	Tons
HC	64,000	1.00
HC	64,000	1.00
HC	70,000	15.00
HC	64,000	1.00
HC	64,000	1.00

**Table I-2  
2018 Summary Statistics for Emission Reduction Credit Transactions\*  
Ventura County**

Pollutant	Total Tons Traded	Average (mean)	Median \$/Ton	High \$/Ton	Low \$/Ton
HC	19.00	\$68,737	\$64,000	\$70,000	\$64,000

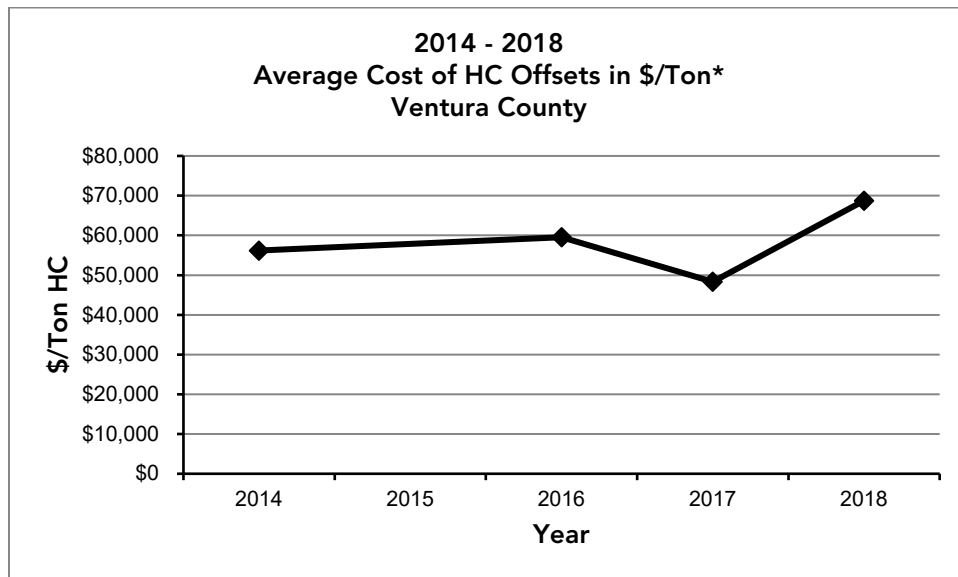
\*No CO transactions reported

\*No SOx transactions reported (last SOx transaction reported in 2008)

\*No PM10 transactions reported (last PM10 transaction reported in 2011)

\*No NOx transactions reported (last NOx transaction reported in 2012)

**Chart I-1  
Average Cost of Hydrocarbon Offsets from 2014-2018  
Ventura**



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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

Thank you for taking the time to fill out the annual Emissions Reduction Credit (ERC) Transaction Report Form. This year, the reporting form has been updated to more easily collect and analyze the data from each District. While the form has changed, the information collected remains the same.

This form should be submitted to the California Air Resources Board (CARB) no later than **September 27, 2019**. CARB will compile all data from the districts and publish a statewide report on the cost of ERCs.

## General Instructions

The new reporting form is a Microsoft Excel worksheet that requires the user to input specific information for each individual ERC transaction. Only transactions which were deemed final and where either money or barter agreements were exchanged in **2018** should be reported in this form.

As shown below, there is a new tab for each pollutant. All ERC transactions involving NO<sub>x</sub> should be input on the NO<sub>x</sub> tab, all ERC transactions involving SO<sub>x</sub> should be input on the SO<sub>x</sub> tab, and so on. You can navigate between the tabs on the bottom of the excel worksheet. Please make sure each pollutant tab is filled out. Hydrocarbons (HC) is equivalent to other acronyms used for hydrocarbons such as POC, ROC, ROG, and VOC.

ANNUAL EMISSION REDUCTION CREDIT TRANSACTION REPORT FOR 2018 NO <sub>x</sub> TRANSACTIONS									
District ID	Quantity of Pollutant (tons)	Price Paid (\$)	Price per ton (\$/ton)	Credit Source (Stationary, Mobile, Agricultural, or Other)	Annual or Quarterly	Barter Transaction	Subsidiary Transaction	Length of Life/Lease	There were no ERC Transactions for this Pollutant in 2018
AAYYXXX	2	\$100,000.00	\$50,000.00	Agricultural	Q3	No	No	No Limit	<input type="checkbox"/>
			\$0.00						
			\$0.00						
			\$0.00						
			\$0.00						
			\$0.00						

If there were no ERC Transactions for a given pollutant in 2018, please mark the box in the top right corner of the table and continue to the next tab. Please see below for location of the check box.

ANNUAL EMISSION REDUCTION CREDIT TRANSACTION REPORT FOR 2018 NOx TRANSACTIONS								
District ID	Quantity of Pollutant (tons)	Price Paid (\$)	Price per ton (\$/ton)	Credit Source (Stationary, Mobile, Agricultural, or Other)	Annual or Quarterly	Barter Transaction	Subsidiary Transaction	Length of Life/Lease
AAYYXX	2	\$100,000.00	\$50,000.00	Agricultural	Q3	No	No	No Limit
			\$0.00					
			\$0.00					

For ERC transactions that occur across district boundaries, transactions should be reported in the district in which the ERCs were banked.

### Required Information

1. **ERC Transaction Number:** The ID # will only be used to track the origin of data and for internal data validation. The assignment of a transaction number will ensure quality control of data transfer between the district and CARB. Individual transactions will not be identified in CARB summary reports. The District ID # should be in this format:

**AAYYXX**

where **AA** is a two letter district code (a list of district codes can be found in the table below), **YY** is a two-digit year (in which the transaction took place) identifier (e.g. 18 for 2018), and **XXX** is a three-digit transaction number from 001 to 999.

Air District	Code	Air District	Code
Amador County APCD	AM	Monterey Bay Air Resources District	MB
Antelope Valley AQMD	AV	North Coast Unified AQMD	NC
Bay Area AQMD	BA	Northern Sierra AQMD	NO
Butte County AQMD	BT	Northern Sonoma County APCD	NS
Calaveras County APCD	CA	Placer County APCD	PL
Colusa County APCD	CO	Sacramento Metropolitan AQMD	SM
El Dorado County AQMD	ED	San Diego County APCD	SD

Feather River AQMD	FR	San Joaquin Valley APCD	SJ
Glenn County APCD	GL	San Luis Obispo APCD	SL
Great Basin Unified APCD	GB	Santa Barbara County APCD	SB
Imperial County APCD	IM	Shasta County AQMD	SH
Kern County APCD	KE	Siskiyou County APCD	SI
Lake County AQMD	LA	South Coast AQMD	SC
Lassen County APCD	LS	Tehama County APCD	TE
Mariposa County APCD	MA	Tuolumne County APCD	TU
Mendocino County AQMD	ME	Ventura County APCD	VE
Modoc County APCD	MO	Yolo-Solano AQMD	YS
Mojave Desert AQMD	MD		

2. Quantity of Pollutant: Many districts record ERC transactions in different units. To provide consistency, please provide the quantity of pollutant in tons/year. Please see the following examples for how to convert units:

**Example 1: For single transactions**

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

**Example 2: For annual transactions**

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

**Example 3: For quarterly ERCs used to offset annual sources**

$$(Q1 + Q2 + Q3 + Q4) = \text{lbs/year, then convert to tons per year}$$

3. Amount 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. The total price paid for the credits should be reported.

4. Cost per Ton: This column is automatically populated by dividing the amount paid by the quantity of pollutant to get a cost per ton value. Do not manually fill out this column.
5. Credit Source: Please select the source of ERCs from the dropdown options. Choose from the following: stationary, mobile, agricultural, or other. Stationary source ERCs 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 ERCs when analyzing the cost.

ANNUAL EMISSION REDUCTION CREDIT TRANSACTION REPORT FOR 2018 NOx TRANSACTIONS								
District ID	Quantity of Pollutant (tons/year)	Price Paid (\$)	Price per ton (\$/ton)	Credit Source (Stationary, Mobile, Agricultural, or Other)	Annual or Quarterly	Barter Transaction	Subsidiary Transaction	Length of Life/Lease
AAYYXX	2	\$100,000.00	\$50,000.00	Agricultural		No	No	No Limit
			\$0.00	Stationary				
			\$0.00	Mobile				
			\$0.00	Agricultural				
			\$0.00	Other				

6. Annual/Quarter: Please indicate if credits are valid on an annual basis or quarterly. Additionally, if credits are valid quarterly, indicate in which quarter(s) they can be used. This applies to seasonal credits or credits that are only valid in a specific quarter. Please list all quarters where valid credits were transferred. If credits in all four quarters were transferred, please indicate 'Annual'. If credits transferred are only valid in specific quarters please indicate any and all quarters in which the credits are valid (Q1, Q2, Q3, Q4)
7. Barter and Subsidiary Transactions: Please specify whether the transaction is a barter or subsidiary transaction. If barter was involved and/or no money was exchanged for the ERCs, the district should request the applicant to calculate a dollar per ton value for the credit transaction. Barters 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 ERCs should be the value of the ERC at the time of the transaction.

If a transaction occurred between two subsidiaries of the same parent company, specify this as a subsidiary transaction. This also applies to transactions that occur between agencies of the same government system, such as between two agencies of a county. Since the price paid 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 credits that have a finite useful life. If no limit is placed on the useful life, do not specify any length of use/lease.



APPENDIX C  
GLOSSARY OF TERMS

## 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.

**Leased:** A legal agreement that lets someone use an asset for a period of time in return for payment.

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

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

**Subsidiary:** Serving to assist or supplement.

APPENDIX D  
NON-MONETARY TRANSACTIONS

**Table D-1**  
**2018 California Emission Reduction Credit Non-Monetary Transactions**  
**Reported in Total Tons Traded**

District	Pollutant	\$/Ton	Tons	Notes
Bay Area				
Total of 2 Transactions	CO	\$0	2.12	Stationary
	CO	\$0	0.16	Stationary
Mojave Desert				
Total of 5 Transactions	NOx	\$0	297.00	Stationary
	SOx	\$0	211.00	Stationary
	CO	\$0	169.00	Stationary
	HC	\$0	1.48	Stationary
	PM10	\$0	53.00	Stationary
South Coast				
Total of 82 Transactions	SOx	\$0	0.73	Stationary
	CO	\$0	5.11	Stationary
	CO	\$0	5.11	Stationary
	CO	\$0	4.75	Stationary
	HC	\$0	22.27	Stationary
	HC	\$0	0.73	Stationary
	HC	\$0	5.66	Stationary
	HC	\$0	1.64	Stationary

District	Pollutant	\$/Ton	Tons	Notes
	HC	\$0	48.73	Stationary
	HC	\$0	1.10	Stationary
	HC	\$0	47.63	Stationary
	HC	\$0	2.56	Stationary
	HC	\$0	45.08	Stationary
	HC	\$0	2.92	Stationary
	HC	\$0	42.16	Stationary
	HC	\$0	2.56	Stationary
	HC	\$0	39.60	Stationary
	HC	\$0	2.37	Stationary
	HC	\$0	21.35	Stationary
	HC	\$0	6.39	Stationary
	HC	\$0	0.73	Stationary
	HC	\$0	0.18	Stationary
	HC	\$0	0.73	Stationary
	HC	\$0	37.23	Stationary
	HC	\$0	2.92	Stationary
	HC	\$0	3.29	Stationary
	HC	\$0	3.47	Stationary
	HC	\$0	6.94	Stationary
	HC	\$0	0.91	Stationary

District	Pollutant	\$/Ton	Tons	Notes
	HC	\$0	0.55	Stationary
	HC	\$0	0.55	Stationary
	HC	\$0	0.91	Stationary
	HC	\$0	0.91	Stationary
	HC	\$0	0.73	Stationary
	HC	\$0	25.00	Stationary
	HC	\$0	14.97	Stationary
	HC	\$0	1.28	Stationary
	HC	\$0	0.73	Stationary
	HC	\$0	0.73	Stationary
	HC	\$0	0.73	Stationary
	HC	\$0	0.55	Stationary
	HC	\$0	0.55	Stationary
	HC	\$0	0.55	Stationary
	HC	\$0	1.83	Stationary
	HC	\$0	34.31	Stationary
	HC	\$0	3.29	Stationary
	HC	\$0	31.03	Stationary
	HC	\$0	2.37	Stationary
	HC	\$0	132.68	Stationary
	HC	\$0	3.10	Stationary

District	Pollutant	\$/Ton	Tons	Notes
	HC	\$0	0.73	Stationary
	HC	\$0	18.25	Stationary
	HC	\$0	0.55	Stationary
	HC	\$0	2.92	Stationary
	HC	\$0	14.42	Stationary
	HC	\$0	17.70	Stationary
	HC	\$0	2.92	Stationary
	HC	\$0	28.65	Stationary
	HC	\$0	1.10	Stationary
	PM10	\$0	0.18	Stationary
	PM10	\$0	0.91	Stationary
	PM10	\$0	0.18	Stationary
	PM10	\$0	0.55	Stationary
	PM10	\$0	0.73	Stationary
	PM10	\$0	0.91	Stationary
	PM10	\$0	0.55	Stationary
	PM10	\$0	0.18	Stationary
	PM10	\$0	0.18	Stationary
	PM10	\$0	0.91	Stationary
	PM10	\$0	0.55	Stationary
	PM10	\$0	1.28	Stationary

District	Pollutant	\$/Ton	Tons	Notes
	PM10	\$0	1.64	Stationary
	PM10	\$0	0.55	Stationary
	PM10	\$0	1.64	Stationary
	PM10	\$0	0.18	Stationary
	PM10	\$0	1.28	Stationary
	PM10	\$0	0.73	Stationary
	PM10	\$0	0.73	Stationary
	PM10	\$0	0.37	Stationary
	PM10	\$0	0.73	Stationary
	PM10	\$0	0.73	Stationary
	PM10	\$0	0.73	Stationary