



South Coast Air Quality Management District

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BOARD MEETING DATE: March 4, 2016

AGENDA NO. 39

REPORT: Annual RECLAIM Audit Report for 2014 Compliance Year

SYNOPSIS: The annual report on the NO_x and SO_x RECLAIM program is prepared in accordance with Rule 2015 - Backstop Provisions. The report assesses emission reductions, availability of RECLAIM Trading Credits (RTCs) and their average annual prices, job impacts, compliance issues, and other measures of performance for the twenty-first year of this program. In addition, recent trends in trading future year RTCs are analyzed and presented in this report. Further, a list of facilities that did not reconcile their emissions for the 2014 Compliance Year is included with the report.

COMMITTEE: Stationary Source, February 19, 2016, Reviewed

RECOMMENDED ACTION:
Approve the attached annual report.

A handwritten signature in black ink, appearing to read "Barry R. Wallerstein".

Barry R. Wallerstein, D.Env.
Executive Officer

MN:DL

Background

The Board adopted the RECLAIM program on October 15, 1993 to provide a more flexible compliance program than command-and-control for specific facilities, which represent SCAQMD's largest emitters of NO_x and SO_x. Although RECLAIM was developed as an alternative to command-and-control, it was designed to meet all state and federal Clean Air Act and other air quality regulations and program requirements, as well as a variety of performance criteria in order to ensure public health protection, air quality improvement, effective enforcement, and the same or lower implementation costs and job impacts. RECLAIM is what is commonly referred to as a "cap and trade" program. Facilities subject to the program were initially allocated declining annual balances of RECLAIM Trading Credits (RTCs, denominated in pounds of emissions in a specified year) based upon their historical production levels and upon emissions factors established in the RECLAIM regulation. RECLAIM facilities are required to

reconcile their emissions with their RTC holdings on a quarterly basis (*i.e.*, hold RTCs equal to or greater than their emissions). These facilities have the flexibility to manage how they meet their emission goals by installing emission controls, making process changes or trading RTCs amongst themselves. RECLAIM achieves its overall emission reduction goals provided aggregate RECLAIM emissions are no more than aggregate allocations.

RECLAIM Rule 2015 - Backstop Provisions requires SCAQMD staff to conduct annual program audits to assess various aspects of the program and to verify that program objectives are met. SCAQMD staff has completed audits of facility records and completed the annual audit of the RECLAIM program for Compliance Year 2014 (which encompasses the time period for Cycle 1 from January 1, 2014 to December 31, 2014 and for Cycle 2 from July 1, 2014 to June 30, 2015). Based on audited emissions in this report and previous annual reports, SCAQMD staff has determined that RECLAIM met its emissions goals for Compliance Year 2014, as well as for all previous compliance years with the only exception of NO_x emissions in Compliance Year 2000. For that year, NO_x emissions exceeded programmatic allocations (by 11%) primarily due to emissions from electric generating facilities during the California energy crisis. For Compliance Year 2014, audited NO_x emissions were 23% less than programmatic NO_x allocations and audited SO_x emissions were 23% less than programmatic SO_x allocations.

Audit Findings

The audit of the RECLAIM Program's Compliance Year 2014 and trades of RTCs that occurred during calendar year 2015 show:

- **Overall Compliance** – Audited NO_x and SO_x emissions from RECLAIM facilities were significantly below programmatic allocations.
- **Universe** – The RECLAIM universe consisted of 275 facilities as of June 30, 2014. One facility was included, no facility was excluded, and four facilities in the RECLAIM universe shut down during Compliance Year 2014. Thus, 272 facilities were in the RECLAIM universe on June 30, 2015, the end of the Compliance Year 2014.

One facility was newly included in NO_x RECLAIM because they reported NO_x emissions from permitted sources in excess of four tons a year. Of the four facilities that shut down, one facility was sold and consolidated its operations with its parent company, whereas another facility had all equipment removed from the site and abandoned the property. The third facility's representative was unwilling to provide any reason for the shutdown other than it was because they are no longer making rocket engines. This property was sold for development. The fourth facility shut down and filed for bankruptcy.

- Facility Compliance** – The vast majority of RECLAIM facilities complied with their allocations during the 2014 compliance year (96% of NOx facilities and 97% of SOx facilities). Twelve facilities (4% of total facilities) exceeded their allocations (11 facilities exceeded their NOx allocations, and one facility exceeded its SOx allocation) during Compliance Year 2014. The 11 facilities that exceeded their NOx allocations had total NOx emissions of 140.1 tons and did not have adequate allocations to offset 32.4 of those tons. The exceedances represent 0.33% of total RECLAIM NOx universe allocations and 23.1% of total NOx emissions from the 11 facilities. The one SOx facility that exceeded its SOx allocation had total SOx emissions of 311.1 tons and did not have adequate allocations to offset 26.3 tons. This exceedance represents 0.93% of total RECLAIM SOx universe allocations and 8.5% of total SOx emissions from this facility. Pursuant to Rule 2010(b)(1)(A), all 12 facilities had their respective exceedances deducted from their annual allocations for the compliance year subsequent to SCAQMD’s determination that the facilities exceeded their Compliance Year 2014 allocations.
- Job Impacts** – Based on a survey of the RECLAIM facilities, the RECLAIM program had minimal impact on employment during the 2014 compliance year, which is consistent with previous years. RECLAIM facilities reported an overall net gain of 266 jobs, representing 0.26% of their total employment. None of the four RECLAIM facilities that shut down during Compliance Year 2014 cited RECLAIM as a contributing factor to the decision to shut down. No facilities reported a gain or loss of jobs due to RECLAIM. The job loss and job gain data are compiled strictly from reports submitted by RECLAIM facilities, and SCAQMD staff is not able to verify the accuracy of the reported job impacts data.
- Trading Activity** – The RTC trading market activity during calendar year 2015 was comparable in terms of number of trades, higher with respect to volume (by 38%), but substantially higher with respect to total value (by 89%) when compared to calendar year 2014. A total of over \$1.34 billion in RTCs has been traded since the adoption of RECLAIM, of which \$197.1 million occurred in calendar year 2015 (compared to \$104.2 million in calendar year 2014), excluding swaps.

The average annual prices of infinite-year block (IYB) and all compliance years discrete-year NOx and SOx RTCs traded in calendar year 2015 were below the applicable review thresholds for average RTC prices. The average annual prices of RTCs traded during calendar years 2014 and 2015 are summarized and compared to the applicable thresholds in Tables 1 and 2 below:

Table 1 – Average Prices for Discrete-Year RTCs Traded during Calendar Years 2014 and 2015

Year Traded	Average Price (\$/ton)				Review Thresholds (\$/ton)	
	2013 NOx RTC	2014 NOx RTC	2015 NOx RTC	2016 NOx RTC	Rule 2015(b)(6)	Health and Safety Code §39616(f)
2014	\$1,065	\$1,910	\$3,779	None traded	\$15,000	\$41,591
2015		\$1,039	\$1,642	\$2,833		
Year Traded	2013 SOx RTC	2014 SOx RTC	2015 SOx RTC	2016 SOx RTC	Rule 2015(b)(6)	Health and Safety Code §39616(f)
2014	\$378	\$400	None traded	None traded	\$15,000	\$29,946
2015		\$483	\$380	None traded		

Table 2 – Average Prices for IYB RTCs Traded during Calendar Years 2014 and 2015

RTCs	Average Price (\$/ton)		Review Threshold (\$/ton) [Health and Safety Code §39616(f)]
	Traded in 2014	Traded in 2015	
NOx	\$110,509	\$199,685	\$623,866
SOx	\$80,444	\$53,665	\$449,184

- Role of Investors** – Investors were active in the RTC market. Based on both overall trading values and volume of NOx trades with price, investors’ involvement in 2015 was greater when compared to calendar year 2014. However, with respect value and volume of SOx trades with price, investors’ involvement decreased. Investors were involved in 147 of the 201 discrete NOx trades with price, and 2 of the 6 discrete SOx trades with price. With respect to IYB trades, investors’ participation was significant and were involved with 44 of 47 IYB NOx trades with price, and all of the 4 IYB SOx trades with price. Compared to calendar year 2014, investor holdings of total IYB NOx RTCs decreased from 4.9% to 1.9%, but increased for total IYB SOx RTCs from 0.9% to 3.3% at the end of calendar year 2015. Investors are those who purchase RTCs but are not RECLAIM facilities or brokers. (Brokers typically do not actually purchase RTCs but facilitate transactions.)
- Other Findings** – RECLAIM also met other applicable requirements including meeting the applicable federal offset ratio under New Source Review and having no significant seasonal fluctuation in emissions. Additionally, there is no evidence that RECLAIM resulted in any increase in health impacts due to emissions of air toxics. RECLAIM facilities and non-RECLAIM facilities are subject to the same requirements for controlling air toxic emissions.

Attachment

Annual RECLAIM Audit Report for 2014 Compliance Year

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Annual RECLAIM Audit Report for 2014 Compliance Year

March 4, 2016

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TABLE OF CONTENTS

List of Abbreviations	i
Executive Summary	ES-1
INTRODUCTION	I-1
Chapter 1: RECLAIM Universe	1-1
Chapter 2: RTC Allocations and Trading	2-1
Chapter 3: Emission Reductions Achieved	3-1
Chapter 4: New Source Review Activity	4-1
Chapter 5: Compliance	5-1
Chapter 6: Reported Job Impacts	6-1
Chapter 7: Air Quality and Public Health Impacts	7-1
Figures	
Figure 1-1: Universe Changes in Compliance Year 2014	1-5
Figure 2-1: NOx RTC Supply	2-6
Figure 2-2: SOx RTC Supply	2-7
Figure 2-3: Annual Trading Values for NOx and SOx (Excluding Swaps)	2-9
Figure 2-4: Calendar Year 2015 Overall Trading Activity (Excluding Swaps)	2-10
Figure 2-5: Calendar Year 2015 Trading Activity for Discrete RTCs (Excluding Swaps)	2-11
Figure 2-6: Calendar Year 2015 Trading Activity for IYB RTCs (Excluding Swaps)	2-12
Figure 2-7: Discrete NOx RTC Trades (Excluding Swaps)	2-13
Figure 2-8: Discrete SOx RTC Trades (Excluding Swaps)	2-14
Figure 2-9: IYB NOx RTC Trades (Excluding Swaps)	2-15
Figure 2-10: IYB SOx RTC Trades (Excluding Swaps)	2-16
Figure 2-11: Annual Average Prices for Discrete-Year NOx RTCs during Calendar Years 2007 through 2015	2-20
Figure 2-12: Annual Average Prices for Discrete-Year SOx RTCs during Calendar Years 2007 through 2015	2-20
Figure 2-13: Bi-Monthly Average Price for NOx RTCs near Expiration	2-23
Figure 2-14: Calendar Year 2015 Investor-Involved Discrete NOx and SOx Trades Based on Value Traded	2-27
Figure 2-15: Calendar Year 2015 Investor-Involved Discrete NOx and SOx Trades Based on Volume Traded with Price	2-27
Figure 2-16: Calendar Year 2015 Investor-Involved IYB NOx and SOx Trades Based on Value Traded	2-28
Figure 2-17: Calendar Year 2015 Investor-Involved IYB NOx and SOx Trades Based on Volume Traded with Price	2-28
Figure 3-1: NOx Emissions and Available RTCs	3-4
Figure 3-2: SOx Emissions and Available RTCs	3-6
Figure 7-1: NOx Emission Trend for RECLAIM Sources	7-2
Figure 7-2: SOx Emission Trend for RECLAIM Sources	7-3
Figure 7-3: Calendar Year 2014 NOx Quarterly Emissions	7-5
Figure 7-4: Quarterly NOx Emissions from Calendar Years 2002 through 2014	7-6
Figure 7-5: Calendar Year 2014 SOx Quarterly Emissions	7-7
Figure 7-6: Quarterly SOx Emissions from Calendar Years 2002 through 2014	7-8

TABLE OF CONTENTS

Tables

Table 1-1:	RECLAIM Universe Changes _____	1-4
Table 2-1:	Changes in NOx and SOx RTC Supplies during Compliance Year 2014 (tons/year) _____	2-5
Table 2-2:	NOx Trade Registrations Involving Swaps _____	2-18
Table 2-3:	SOx Trade Registrations Involving Swaps _____	2-18
Table 2-4:	Twelve-Month Rolling Average Prices of Compliance Year 2015 NOx RTCs_	2-22
Table 2-5:	IYB NOx Pricing (Excluding Swaps) _____	2-24
Table 2-6:	IYB SOx Pricing (Excluding Swaps) _____	2-25
Table 3-1:	Summary of Re-Opened Audits _____	3-2
Table 3-2:	Annual NOx Emissions for Compliance Years 1994 through 2014 _____	3-3
Table 3-3:	Annual SOx Emissions for Compliance Years 1994 through 2014 _____	3-5
Table 3-4:	Breakdown Emission Comparison for Compliance Year 2014 _____	3-11
Table 3-5:	NOx Emissions Impact from the Changes in Universe (Tons) _____	3-13
Table 3-6:	SOx Emissions Impact from the Changes in Universe (Tons) _____	3-13
Table 5-1:	MDP Impact on Annual Emissions _____	5-5
Table 5-2:	Monitoring Requirements for RECLAIM Sources _____	5-7
Table 5-3:	Passing Rates Based on RATAs of Certified CEMS in 2014 _____	5-8
Table 5-4:	Passing Rates Based on RATAs of Certified CEMS in 2015 _____	5-9
Table 6-1:	Job Impacts at RECLAIM Facilities for Compliance Year 2014 _____	6-2
Table 7-1:	Summary of Ozone Data _____	7-10
Table 7-2:	Per Capita Exposure to Ozone above the State One-Hour Standard of 0.09 ppm (hours) _____	7-11

Appendices

Appendix A:	RECLAIM Universe of Sources _____	A-1
Appendix B:	Facility Inclusions _____	B-1
Appendix C:	RECLAIM Facilities Ceasing Operation or Excluded _____	C-1
Appendix D:	Facilities that Exceeded their Annual Allocation for Compliance Year 2014 _____	D-1
Appendix E:	Reported Job Impacts Attributed to RECLAIM _____	E-1

LIST OF ABBREVIATIONS

AAQS	Ambient Air Quality Standards
ACEMS	Alternative Continuous Emissions Monitoring System(s)
AER	Annual Emission Report
APEP	Annual Permit Emissions Program
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
BARCT	Best Available Retrofit Control Technology
CAA	Clean Air Act
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEMS	Continuous Emissions Monitoring System(s)
CEQA	California Environmental Quality Act
CGA	Cylinder Gas Audit
CPMS	Continuous Process Monitoring System(s)
EDR	Electronic Data Reporting
EGF	Electricity Generating Facility
ERC	Emission Reduction Credit
IYB RTC	Infinite-Year Block RECLAIM Trading Credit
LAER	Lowest Achievable Emission Rate
LAP	Laboratory Approval Program
MDP	Missing Data Procedures
MRR	Monitoring, Reporting and Recordkeeping
MSERC	Mobile Source Emission Reduction Credit
NAAQS	National Ambient Air Quality Standards
NNI	No Net Increase
NOx	Oxides of Nitrogen
NSR	New Source Review
ODC	Ozone Depleting Compound
OEHHA	Office of Environmental Health Hazard Assessment
QCER	Quarterly Certification of Emissions Report
RACT	Reasonably Available Control Technology
RATA	Relative Accuracy Test Audit
RECLAIM	REgional CLean Air Incentives Market
RTC	RECLAIM Trading Credit
RTU	Remote Terminal Unit
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SOx	Oxides of Sulfur
SOON	Surplus Off-Road Opt-In for NOx
SSC	Stationary Source Committee
TAC	Toxic Air Contaminant
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
WATERS	Web Access To Electronic Reporting System

EXECUTIVE SUMMARY

Introduction

The South Coast Air Quality Management District (SCAQMD) Governing Board adopted the REgional CLean Air Incentives Market (RECLAIM) program on October 15, 1993. The RECLAIM program represented a significant departure from traditional command-and-control regulations. RECLAIM's objective is to provide facilities with added flexibility in meeting emissions reduction requirements while lowering the cost of compliance. This is accomplished by establishing facility-specific emissions reduction targets without being prescriptive regarding the method of attaining compliance with the targets. Each facility may determine for itself the most cost-effective approach to reducing emissions, including reducing emissions at their facility, and/or purchasing RECLAIM Trading Credits (RTCs) from other RECLAIM facilities, or from other RTC holders.

Rule 2015 - Backstop Provisions includes provisions for annual program audits focusing on specific topics, as well as a one-time comprehensive audit of the program's first three years, to ensure that RECLAIM is meeting all state and federal requirements and other performance criteria. Rule 2015 also provides backstop measures if the specific criteria are not met. This report constitutes the Rule 2015 annual program audit report for Compliance Year 2014 (January 1 through December 31, 2014 for Cycle 1 and July 1, 2014 through June 30, 2015 for Cycle 2 facilities). This annual audit report covers activities for the twenty-first year of the program.

Chapter 1: RECLAIM Universe

When RECLAIM was adopted in October 1993, a total of 394 facilities were identified as the initial "universe" of sources subject to the requirements of RECLAIM. From program adoption through June 30, 2014, the overall changes in RECLAIM participants were 129 facilities included into the program, 70 facilities excluded from the program, and 178 facilities ceased operation. Thus, the RECLAIM universe consisted of 275 active facilities at the end of Compliance Year 2013 (December 31, 2013 for Cycle 1 facilities and June 30, 2014 for Cycle 2 facilities). During Compliance Year 2014 (January 1, 2014 through December 31, 2014 for Cycle 1 facilities and July 1, 2014 through June 30, 2015 for Cycle 2 facilities), one facility was included into the RECLAIM universe, no facility was excluded, and four facilities (one facility in both the NO_x and SO_x universes and three in the NO_x universe only) shut down and are no longer in the active RECLAIM universe. These changes resulted in a net decrease of three facilities in the universe, bringing the total number of active RECLAIM facilities to 272 as of the end of Compliance Year 2014.

Chapter 2: RTC Allocations and Trading

On November 5, 2010, the Governing Board adopted amendments to SO_x RECLAIM to phase in SO_x reductions beginning in Compliance Year 2013 and full implementation in Compliance Year 2019 and beyond. The amendments will result in an overall reduction of 48.4% (or 5.7 tons/day) in SO_x allocations when

fully implemented (Compliance Year 2019 and beyond). For Compliance Year 2014, the second year of implementation, the SOx allocation supply was reduced by 34% (or 4.0 tons/day, which is an additional 1.0 ton/day reduction from the previous compliance year) to 2,839 tons. There was no programmatic allocation reduction in NOx RTCs during Compliance Year 2014. However, on December 4, 2015, the Governing Board adopted amendments to NOx RECLAIM to phase in additional NOx reductions beginning in Compliance Year 2016 and continue through Compliance Year 2022. The amendment resulted in an overall NOx reduction of 45% (or 12 tons/day) when fully implemented for Compliance Year 2022 and beyond.

The overall NOx RTC supply increased by 11.3 tons and the SOx RTC supply decreased by 0.6 tons during Compliance Year 2014. The changes were due to allocation adjustments for clean fuel production pursuant to Rule 2002(c)(12).

During calendar year 2015, there were 356 registered RTC transactions with a total value of over \$197 million traded, excluding the values reported for swap transactions. Since the inception of the RECLAIM program in 1994, a total value of over \$1.34 billion dollars has been traded in the RTC trading market, excluding swap transactions. RTC trades are reported to SCAQMD as either discrete-year RTC transactions or infinite-year block (IYB) transactions (trades that involve blocks of RTCs with a specified start year and continuing into perpetuity). In terms of volume traded in calendar year 2015, a total of 3,371 tons of discrete NOx RTCs, 520 tons of discrete SOx RTCs, 1,234 tons of IYB NOx RTCs and 408 tons of IYB SOx RTCs were traded. The RTC trading market activity during calendar year 2015 compared to calendar year 2014 was about the same in terms of number of trades, higher in total volume (increased by 47%), and substantially higher in total value (increased by 89%).

The annual average prices of discrete-year NOx RTCs traded during calendar year 2015 were \$1,039 per ton for Compliance Year 2014 RTCs, \$1,642 per ton for Compliance Year 2015 RTCs, and \$2,833 per ton for Compliance Year 2016 RTCs. The annual average prices for discrete-year SOx RTCs traded during the same period were \$483 per ton for Compliance Year 2014 RTCs, and \$380 per ton for Compliance Year 2015 RTCs. Therefore, the annual average prices for discrete NOx and SOx RTCs for all compliance years remained well below the \$15,000 per ton threshold to evaluate and review the compliance aspects of the program set forth in SCAQMD Rule 2015, as well as the \$41,591 per ton of NOx and \$29,946 per ton of SOx discrete RTCs pre-determined overall program review thresholds established by the Governing Board pursuant to Health and Safety Code §39616(f).

The annual average price during calendar year 2015 for IYB NOx RTCs was \$199,685 per ton and the annual average price for IYB SOx RTCs was \$53,665 per ton. Therefore, annual average IYB RTC prices did not exceed the \$623,866 per ton of IYB NOx RTCs or the \$449,184 per ton of IYB SOx RTCs pre-determined overall program review thresholds established by the Governing Board pursuant to Health and Safety Code §39616(f).

Investors were again active in the RTC market during calendar year 2015. They were involved in 147 of the 201 discrete NOx trade registration and two of the six discrete SOx trade registrations with price. Investors were also involved in 44 of 47 IYB NOx and all four of the IYB SOx trades with price. Investors were involved in 91% of total value and 79% of total volume for discrete NOx trades,

and 37% of total value and 31% of total volume for discrete SO_x trades. In addition, investors were involved in 92% of total value and 91% of total volume for IYB NO_x trades with price. Investors were involved in all IYB SO_x trades with price. At the end of calendar year 2015, investors' holdings of IYB NO_x RTCs and IYB SO_x RTCs were 1.9% and 3.3% of the total RECLAIM RTCs, respectively.

Chapter 3: Emission Reductions Achieved

For Compliance Year 2014, aggregate NO_x emissions were below total allocations by 23% and aggregate SO_x emissions were below total allocations by 23%. No emissions associated with breakdowns were excluded from reconciliation with facility allocations in Compliance Year 2014. Accordingly, no mitigation is necessary to offset excluded emissions due to approved Breakdown Emission Reports. Therefore, based on audited emissions, RECLAIM achieved its targeted emission reductions for Compliance Year 2014. With respect to the Rule 2015 backstop provisions, Compliance Year 2014 aggregate NO_x and SO_x emissions were both well below aggregate allocations and, as such, did not trigger the requirement to review the RECLAIM program.

Chapter 4: New Source Review Activity

The annual program audit assesses New Source Review (NSR) activity from RECLAIM facilities in order to ensure that RECLAIM is complying with federal NSR requirements and state no net increase (NNI) in emissions requirements while providing flexibility to facilities in managing their operations and allowing new sources into the program. In Compliance Year 2014, a total of eight NO_x RECLAIM facilities had NSR NO_x emission increases, and no SO_x RECLAIM facilities had NSR SO_x emission increases due to expansion or modification. Consistent with all prior compliance years, there were sufficient NO_x and SO_x RTCs available to allow for expansion, modification, and modernization by RECLAIM facilities.

RECLAIM is required to comply with federal NSR emissions offset requirements at a 1.2-to-1 offset ratio programmatically for NO_x emission increases and a 1-to-1 offset ratio for SO_x emission increases on a programmatic basis. In Compliance Year 2014, RECLAIM demonstrated federal equivalency with a programmatic NO_x offset ratio of 73-to-1 based on the compliance year's total unused allocations and total NSR emission increases for NO_x. RECLAIM inherently complies with the federally-required 1-to-1 SO_x offset ratio for any compliance year, provided aggregate SO_x emissions under RECLAIM are lower than or equal to aggregate SO_x allocations for that compliance year. As shown in Chapter 3, there was no programmatic SO_x exceedance during Compliance Year 2014. In fact, there was a surplus of SO_x RTCs. Therefore, RECLAIM more than complied with the federally-required SO_x offset ratio and further quantification of the SO_x offset ratio is unnecessary. Compliance with the federally-required offset ratio also demonstrates compliance with any applicable state NNI requirements for new or modified sources. In addition, RECLAIM requires application of, at a minimum, California Best Available Control Technology (BACT), which is at least as stringent as federal Lowest Achievable Emission Rate (LAER). The same BACT guidelines are used to determine applicable BACT to RECLAIM and non-RECLAIM facilities.

Chapter 5: Compliance

Of the 276 NOx RECLAIM facilities audited during Compliance Year 2014, a total of 265 facilities (96%) complied with their NOx allocations, and 32 of the 33 SOx facilities (97%) complied with their SOx allocations. Twelve facilities exceeded their allocations (11 facilities exceeded their NOx allocations, and one facility exceeded its SOx allocation) during Compliance Year 2014. The 11 facilities that exceeded their NOx allocations had aggregate NOx emissions of 140.1 tons and did not have adequate allocations to offset 32.4 tons (or 23.1%) of their combined emissions. The one SOx facility that exceeded its SOx allocation had total SOx emissions of 311.1 tons and did not have adequate allocations to offset 26.3 tons (or 8.5%). The NOx and SOx exceedance amounts are relatively small compared to the overall NOx and SOx allocations for Compliance Year 2014 (0.33% of total NOx allocations and 0.93% of total SOx allocations). The exceedances from these facilities did not impact the overall RECLAIM emission reduction goals. Pursuant to Rule 2010(b)(1)(A), these facilities had their respective exceedances deducted from their annual allocations for the compliance year subsequent to the date of SCAQMD's determination that the facilities exceeded their Compliance Year 2014 allocations. The overall RECLAIM NOx and SOx emission reduction targets and goals were met for Compliance Year 2014 (*i.e.*, aggregate emissions for all RECLAIM facilities were well below aggregate allocations).

Chapter 6: Reported Job Impacts

This chapter compiles data as reported by RECLAIM facilities in their Annual Permit Emissions Program (APEP) reports. The analysis focuses exclusively on job impacts at RECLAIM facilities and determination if those job impacts were directly attributable to RECLAIM as reported by those facilities. Additional benefits to the local economy (*e.g.*, generating jobs for consulting firms, source testing firms and CEMS vendors) attributable to the RECLAIM program, as well as factors outside of RECLAIM (*e.g.*, the prevailing economic climate), impact the job market. However, these factors are not evaluated in this report. Also, job losses and job gains are strictly based on RECLAIM facilities' reported information. SCAQMD staff is not able to independently verify the accuracy of the reported job impact information.

According to the Compliance Year 2014 employment survey data gathered from APEP reports, RECLAIM facilities reported a net gain of 266 jobs, representing 0.26% of their total employment. None of the four RECLAIM facilities that shut down during Compliance Year 2014 cited RECLAIM as a factor contributing to the decision to shutdown. No facilities reported a gain or loss of jobs due to RECLAIM.

Chapter 7: Air Quality and Public Health Impacts

Audited RECLAIM emissions have been in an overall downward trend since the program's inception. Compliance Year 2014 NOx emissions increased 1.7% relative to Compliance Year 2013, and Compliance Year 2014 SOx emissions were 5.3% more than the previous year. Quarterly calendar year 2014 NOx emissions fluctuated within 6 percent of the mean NOx emissions for the year. Quarterly calendar year 2014 SOx emissions fluctuated within 11 percent of the

year's mean SOx emissions. There was no significant shift in seasonal emissions from the winter season to the summer season for either pollutant.

The California Clean Air Act (CCAA) required a 50% reduction in population exposure to ozone, relative to a baseline averaged over three years (1986 through 1988), by December 31, 2000. The Basin achieved the December 2000 target for ozone well before the deadline. In calendar year 2014, the per capita exposure to ozone (the average length of time each person is exposed) continued to be well below the target set for December 2000.

Air toxic health risk is primarily caused by emissions of certain volatile organic compounds (VOCs) and fine particulates, such as metals. RECLAIM facilities are subject to the same air toxic, VOC, and particulate matter regulations as other sources in the Basin. All sources are subject, where applicable, to the NSR rule for toxics (Rule 1401 and/or Rule 1401.1). In addition, new or modified sources with NOx or SOx emission increases are required to be equipped with BACT, which minimizes to the extent feasible the increase of NOx and SOx emissions. RECLAIM and non-RECLAIM facilities that emit toxic air contaminants are required to report those emissions to SCAQMD. Those emissions reports are used to identify candidates for the Toxics Hot Spots program (AB2588). This program requires emission inventories and, depending on the type and amount of emissions, facilities may be required to do public notice and/or prepare and implement a plan to reduce emissions. There is no evidence that RECLAIM has caused or allowed higher toxic risk in areas adjacent to RECLAIM facilities.

INTRODUCTION

The South Coast Air Quality Management District (SCAQMD) REgional CLean Air Incentives Market (RECLAIM) program was adopted in October 1993 and replaced certain command-and-control rules regarding oxides of nitrogen (NOx) and oxides of sulfur (SOx) with a new market incentives program for facilities that meet the inclusion criteria. The goals of RECLAIM are to provide facilities with added flexibility in meeting emissions reduction requirements while lowering the cost of compliance. The RECLAIM program was designed to meet all state and federal Clean Air Act (CAA) and other air quality regulations and program requirements, as well as various other performance criteria, such as equivalent or better air quality improvement, enforcement, implementation costs, job impacts, and no adverse public health impacts.

Since RECLAIM represents a significant change from traditional command-and-control regulations, RECLAIM rules include provisions for program audits in order to verify that the RECLAIM objectives are being met. The rules provide for a comprehensive audit of the first three years of program implementation and for annual program audits. The audit results are used to help determine whether any program modifications are appropriate. SCAQMD staff has completed the initial tri-annual program audit and each individual annual program audit report through the 2014 Compliance Year Audit.

This report presents the annual program audit and progress report of RECLAIM's twenty-first compliance year (January 1 through December 31, 2014 for Cycle 1 and July 1, 2014 through June 30, 2015 for Cycle 2 RECLAIM facilities), also known as Compliance Year 2014. As required by Rule 2015(b)(1) – Annual Audits, this audit assesses:

- Emission reductions;
- Per capita exposure to air pollution;
- Facilities permanently ceasing operation of all sources;
- Job impacts;
- Annual average price of each type of RECLAIM Trading Credit (RTC);
- Availability of RTCs;
- Toxic risk reductions;
- New Source Review permitting activity;
- Compliance issues, including a list of facilities that were unable to reconcile emissions for that compliance year;
- Emission trends/seasonal fluctuations;
- Emission control requirement impacts on stationary sources in the program compared to other stationary sources identified in the Air Quality Management Plan (AQMP); and
- Emissions associated with equipment breakdowns.

The annual program audit report is organized into the following chapters:

1. ***RECLAIM Universe***
This chapter discusses summarizes changes to the universe of RECLAIM sources that occurred up until July 1, 2014 (covered under the Annual RECLAIM Audit Report for 2013 Compliance Year), then discusses changes to the RECLAIM universe of sources in detail through the end of Compliance Year 2014.
2. ***RTC Allocations and Trading***
This chapter summarizes changes in emissions allocations in the RECLAIM universe, RTC supply and RTC trading activity, annual average prices, availability of RTCs, and market participants.
3. ***Emission Reductions Achieved***
This chapter assesses emissions trends and progress towards emission reduction goals for RECLAIM sources, emissions associated with equipment breakdowns, and emissions control requirement impacts on RECLAIM sources compared to other stationary sources. It also discusses the latest amendments to the RECLAIM program.
4. ***New Source Review Activity***
This chapter summarizes New Source Review (NSR) activities at RECLAIM facilities.
5. ***Compliance***
This chapter discusses compliance activities and the compliance status of RECLAIM facilities. It also evaluates the effectiveness of SCAQMD's compliance program, as well as the monitoring, reporting, and recordkeeping (MRR) protocols for NOx and SOx.
6. ***Reported Job Impacts***
This chapter addresses job impacts and facilities permanently ceasing operation of all emission sources.
7. ***Air Quality and Public Health Impacts***
This chapter discusses air quality trends in the South Coast Air Basin, seasonal emission trends for RECLAIM sources, per capita exposure to air pollution, and the toxic impacts of RECLAIM sources.

CHAPTER 1 RECLAIM UNIVERSE

Summary

When RECLAIM was adopted in October 1993, a total of 394 facilities were identified as the initial “universe” of sources subject to the requirements of RECLAIM. From program adoption through June 30, 2014, the overall changes in RECLAIM participants were 129 facilities included into the program, 70 facilities excluded from the program, and 178 facilities ceased operation. Thus, the RECLAIM universe consisted of 275 active facilities at the end of Compliance Year 2013 (December 31, 2013 for Cycle 1 facilities and June 30, 2014 for Cycle 2 facilities). During Compliance Year 2014 (January 1, 2014 through December 31, 2014 for Cycle 1 facilities and July 1, 2014 through June 30, 2015 for Cycle 2 facilities), one facility was included into the RECLAIM universe, no facility was excluded, and four facilities (one facility in both the NOx and SOx universes and three in the NOx universe only) shut down and are no longer in the active RECLAIM universe. These changes resulted in a net decrease of three facilities in the universe, bringing the total number of active RECLAIM facilities to 272 as of the end of Compliance Year 2014.

Background

The RECLAIM program replaced the traditional “command-and-control” rules for a defined list of facilities participating in the program (the RECLAIM “universe”). The criteria for inclusion in the RECLAIM program are specified in Rule 2001 – Applicability. Facilities are generally subject to RECLAIM if they have NOx or SOx reported emissions greater than or equal to four tons per year in 1990 or any subsequent year. However, certain facilities are categorically excluded from RECLAIM. The categorically excluded facilities include dry cleaners; restaurants; police and fire fighting facilities; construction and operation of landfill gas control, landfill gas processing or landfill gas energy facilities; public transit facilities, potable water delivery operations; facilities that converted all sources to operate on electric power prior to October 1993; and facilities, other than electric generating facilities established on or after January 1, 2001, located in the Riverside County portions of the Mojave Desert Air Basin or the Salton Sea Air Basin.

Other categories of facilities are not automatically included but do have the option to enter the program. These categories include electric utilities (exemption only for the SOx program); equipment rental facilities; facilities possessing solely “various locations” permits; schools or universities; portions of facilities conducting research operations; ski resorts; prisons; hospitals; publicly-owned municipal waste-to-energy facilities; publically-owned sewage treatment facilities operating consistent with an approved regional growth plan; electrical power generating systems owned and operated by the Cities of Burbank, Glendale, or Pasadena or their successors; facilities on San Clemente Island; agricultural facilities; and electric generating facilities that are new on or after January 1, 2001 and located in the Riverside County portions of the Mojave Desert Air Basin or the Salton Sea Air Basin. An initial universe of 394 RECLAIM

facilities was developed using the inclusion criteria initially adopted in the RECLAIM program based on 1990, 1991 and 1992 facility reported emissions data.

A facility that is not in a category that is specifically excluded from the program may voluntarily join RECLAIM regardless of its emission level. Additionally, a facility may be required to enter the RECLAIM universe if:

- It increases its NO_x and/or SO_x emissions from permitted sources above the four ton per year threshold; or
- It ceases to be categorically excluded and its reported NO_x and/or SO_x emissions are greater than or equal to four tons per year; or
- It is determined by SCAQMD staff to meet the applicability requirements of RECLAIM, but was initially misclassified as not subject to RECLAIM.

At the time of joining RECLAIM, each RECLAIM facility is issued an annually declining allocation of emission credits (“RECLAIM Trading Credits” or “RTCs”) based on its historic production level (if the facility existed prior to January 1, 1993), external offsets it previously provided, and any Emission Reduction Credits (ERCs) generated at and held by the facility. Each RECLAIM facility’s RTC holdings constitute an annual emissions budget. RTCs may be bought or sold as the facility deems appropriate (see Chapter 2 – RTC Allocations and Trading).

RECLAIM facilities that permanently go out of business are removed from the active emitting RECLAIM universe, but may retain their remaining RTCs and participate in the trading market.

Staff has periodically initiated the process of reviewing past Annual Emission Reports (AERs) from non-RECLAIM facilities to determine applicability of RECLAIM pursuant to Rule 2001(b) – Criteria for Inclusion in RECLAIM. Commencing in 2012, an annual review process was implemented. This facility inclusion process begins with SCAQMD staff compiling a list of non-RECLAIM (pollutant-specific) facilities that emitted NO_x or SO_x emissions greater than or equal to four tons per year, as reported under the AER program, for potential inclusion into RECLAIM. This part of the process involves screening for emissions only from equipment that are subject to RECLAIM (*e.g.*, emissions from on-site, off-road mobile sources are not included). From this initial list, each facility’s business activity/operations are evaluated based on SCAQMD’s records for possible categorical exemption pursuant to Rule 2001(i). Facilities that qualify under these categorical exemptions are removed from the list. The remaining facilities are informed of their potential inclusion into RECLAIM and are given the opportunity to provide records to demonstrate why the facility should not be included under RECLAIM. This may include additional information about the facility’s operations that would qualify it for categorical exemption from RECLAIM pursuant to Rule 2001(i), or correcting their AER-reported emissions with supporting documentation. Once a facility has qualified for inclusion, a draft facility permit is prepared, sent to the facility for comments, finalized and issued.

Universe Changes

In the early years of the RECLAIM program, facilities initially identified for inclusion were excluded upon determination that they did not meet the criteria for

inclusion (e.g., some facilities that had reported emissions from permitted sources above four tons in a year were determined to have over-reported their emissions and subsequently submitted corrected emissions reports reflecting emissions from permitted sources below four tons per year). Additionally, facilities that were not part of the original universe were subsequently added to the program based on the inclusion criteria mentioned above. The overall changes to the RECLAIM universe from the date of adoption (October 15, 1993) through June 30, 2014 (the last day of Compliance Year 2013 for Cycle 2 facilities) were: the inclusion of 129 facilities (including 34 facilities created by partial change of operator of existing RECLAIM facilities), the exclusion of 70 facilities, and the shutdown of 178 facilities. Thus, the net change in the RECLAIM universe from October 15, 1993 through June 30, 2014 was a decrease of 119 facilities from 394 to 275 facilities. In Compliance Year 2014 (January 1, 2014 through December 31, 2014 for Cycle 1 facilities and July 1, 2014 through June 30, 2015 for Cycle 2 facilities), one facility was included, no facility was excluded, and four facilities shut down. These changes brought the total number of facilities in the RECLAIM universe to 272 facilities. The Compliance Year 2014 RECLAIM universe includes 240 NO_x-only, no SO_x-only, and 32 both NO_x and SO_x RECLAIM facilities. The list of active facilities in the RECLAIM universe as of the end of Compliance Year 2014 is provided in Appendix A.

Facility Inclusions and Exclusions

One facility was included in NO_x RECLAIM pursuant to Rule 2001(b) – Criteria for Inclusion in RECLAIM because it reported NO_x emissions from permitted sources in excess of four tons a year. Appendix B lists the facility and the reason for its inclusion. No facility was excluded from the RECLAIM universe during Compliance Year 2014. Currently, there are 23 facilities in various stages of the inclusion review process. Additional inclusions will be addressed in future RECLAIM annual program audits as facility eligibility is confirmed. Per Rule 2001(c)(2), a facility is subject to RECLAIM provisions on the date a facility permit containing RECLAIM requirements is issued.

Facilities Permanently Ceasing Operations

Four RECLAIM facilities permanently ceased operations in Compliance Year 2014. One facility was sold and consolidated its operations with its parent company. A second facility had all equipment removed from the site and abandoned the property. Staff attempted to contact the owners, but were unable to obtain further clarification regarding the reason for shutdown. The third facility's representative was unwilling to provide any reason for the shutdown other than it was because they are no longer making rocket engines. The property was sold for development. The fourth facility shut down and filed for bankruptcy. Again, staff attempted to contact the owners, but were unable to obtain further clarification regarding the reason for shutdown. None of these facilities cited RECLAIM as a cause for their shutting down. Three of the four facilities permanently ceasing operations were in NO_x RECLAIM only. The remaining facility was in both NO_x and SO_x RECLAIM. Appendix C lists these facilities and provides brief descriptions of the reported reasons for their closures.

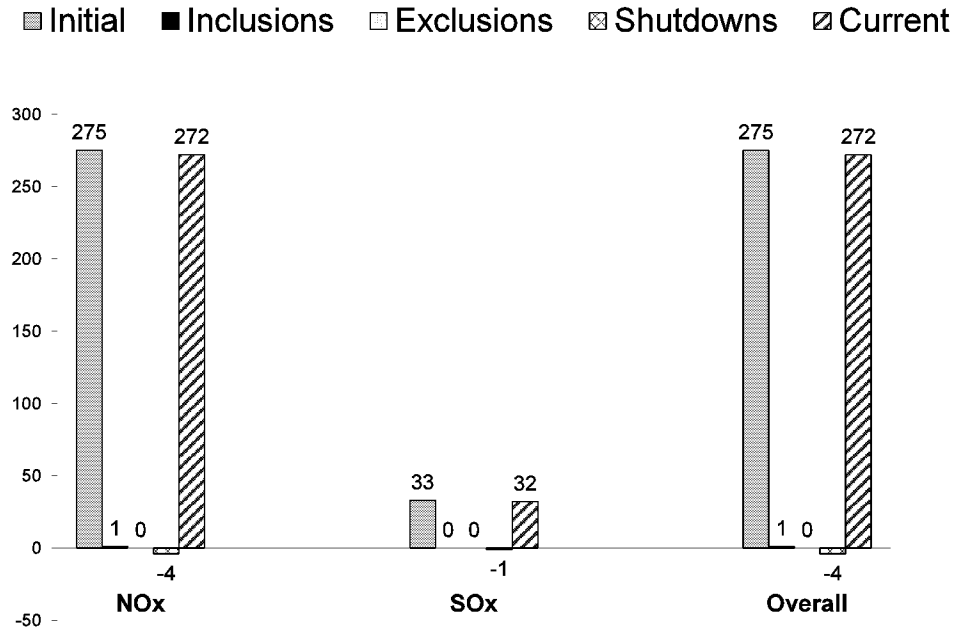
The above mentioned changes to the RECLAIM Universe resulted in a net decrease of three facilities in the RECLAIM universe during Compliance Year 2014. Table 1-1 summarizes overall changes in the RECLAIM universe between the start of the program and end of Compliance Year 2014 (December 31, 2014 for Cycle 1 facilities and June 30, 2015 for Cycle 2 facilities). Changes to the RECLAIM universe that occurred in Compliance Year 2014 are illustrated in Figure 1-1.

**Table 1-1
RECLAIM Universe Changes**

	NOx Facilities	SOx Facilities	Total* Facilities
Universe – October 15, 1993 (Start of Program)	392	41	394
Inclusions – October 15, 1993 through Compliance Year 2013	129	13	129
Exclusions – October 15, 1993 through Compliance Year 2013	-69	-4	-70
Shutdowns – October 15, 1993 through Compliance Year 2013	-177	-17	-178
Universe – June 30, 2014	275	33	275
Inclusions –Compliance Year 2014	1	0	1
Exclusions –Compliance Year 2014	0	0	0
Shutdowns –Compliance Year 2014	-4	-1	-4
Universe – End of Compliance Year 2014	272	32	272

* “Total Facilities” is not the sum of NOx and SOx facilities due to the overlap of some facilities being in both the NOx and SOx universes.

Figure 1-1
Universe Changes in Compliance Year 2014



CHAPTER 2

RTC ALLOCATIONS AND TRADING

Summary

On November 5, 2010, the Governing Board adopted amendments to SOx RECLAIM to phase in SOx reductions beginning in Compliance Year 2013 and full implementation in Compliance Year 2019 and beyond. The amendments will result in an overall reduction of 48.4% (or 5.7 tons/day) in SOx allocations when fully implemented (Compliance Year 2019 and beyond). For Compliance Year 2014, the second year of implementation, the SOx allocation supply was reduced by 34% (or 4.0 tons/day, which is an additional 1.0 ton/day reduction from the previous compliance year) to 2,839 tons. There was no programmatic allocation reduction in NOx RTCs during Compliance Year 2014. However, on December 4, 2015, the Governing Board adopted amendments to NOx RECLAIM to phase in additional NOx reductions beginning in Compliance Year 2016 and continue through Compliance Year 2022. The amendment resulted in an overall NOx reduction of 45% (or 12 tons/day) when fully implemented for Compliance Year 2022 and beyond.

The overall NOx RTC supply increased by 11.3 tons and the SOx RTC supply decreased by 0.6 tons during Compliance Year 2014. The changes were due to allocation adjustments for clean fuel production pursuant to Rule 2002(c)(12).

During calendar year 2015, there were 356 registered RTC transactions with a total value of over \$197 million traded, excluding the values reported for swap transactions. Since the inception of the RECLAIM program in 1994, a total value of over \$1.34 billion dollars has been traded in the RTC trading market, excluding swap transactions. RTC trades are reported to SCAQMD as either discrete-year RTC transactions or infinite-year block (IYB) transactions (trades that involve blocks of RTCs with a specified start year and continuing into perpetuity). In terms of volume traded in calendar year 2015, a total of 3,371 tons of discrete NOx RTCs, 520 tons of discrete SOx RTCs, 1,234 tons of IYB NOx RTCs and 408 tons of IYB SOx RTCs were traded. The RTC trading market activity during calendar year 2015 compared to calendar year 2014 was about the same in terms of number of trades, higher in total volume (increased by 47%), and substantially higher in total value (increased by 89%).

The annual average prices of discrete-year NOx RTCs traded during calendar year 2015 were \$1,039 per ton for Compliance Year 2014 RTCs, \$1,642 per ton for Compliance Year 2015 RTCs, and \$2,833 per ton for Compliance Year 2016 RTCs. The annual average prices for discrete-year SOx RTCs traded during the same period were \$483 per ton for Compliance Year 2014 RTCs, and \$380 per ton for Compliance Year 2015 RTCs. Therefore, the annual average prices for discrete NOx and SOx RTCs for all compliance years remained well below the \$15,000 per ton threshold to evaluate and review the compliance aspects of the program set forth in SCAQMD Rule 2015, as well as the \$41,591 per ton of NOx and \$29,946 per ton of SOx discrete RTCs pre-determined overall program review thresholds established by the Governing Board pursuant to Health and Safety Code §39616(f).

The annual average price during calendar year 2015 for IYB NOx RTCs was \$199,685 per ton and the annual average price for IYB SOx RTCs was \$53,665 per ton. Therefore, annual average IYB RTC prices did not exceed the \$623,866 per ton of IYB NOx RTCs or the \$449,184 per ton of IYB SOx RTCs pre-determined overall program review thresholds established by the Governing Board pursuant to Health and Safety Code §39616(f).

Investors were again active in the RTC market during calendar year 2015. They were involved in 147 of the 201 discrete NOx trade registration and two of the six discrete SOx trade registrations with price. Investors were also involved in 44 of 47 IYB NOx and all four of the IYB SOx trades with price. Investors were involved in 91% of total value and 79% of total volume for discrete NOx trades, and 37% of total value and 31% of total volume for discrete SOx trades. In addition, investors were involved in 92% of total value and 91% of total volume for IYB NOx trades with price. Investors were involved in all IYB SOx trades with price. At the end of calendar year 2015, investors' holdings of IYB NOx RTCs and IYB SOx RTCs were 1.9% and 3.3% of the total RECLAIM RTCs, respectively.

Background

SCAQMD issues each RECLAIM facility emissions allocations for each compliance year, according to the methodology specified in Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx). For facilities existed prior to January 1, 1993, the allocation is calculated based on each facility's historic production levels as reported to SCAQMD in its annual emission reports (AERs), NOx emission factors listed in Tables 1, 3, and 6 of Rule 2002 or SOx emission factors in Table 2 and 4 of Rule 2002 for the appropriate equipment category, any qualified¹ external offsets previously provided by the facility, and any unused Emission Reduction Credits (ERCs) generated at and held by the facility. Facilities entering RECLAIM after 1994 are issued allocations, if eligible, for the Compliance Year of entry and all years after, and Compliance Year 1994 allocations (also known as the facility's "Starting Allocation") for the purpose of establishing New Source Review trigger level.

These allocations are issued as RTCs, denominated in pounds of NOx or SOx with a specified 12-month term. Each RTC may only be used for emissions occurring within the term of that RTC. The RECLAIM program has two staggered compliance cycles—Cycle 1 with a compliance period of January 1 through December 31 of each year, and Cycle 2 with a compliance period of July 1 of each year through June 30 of the following year. Each RECLAIM facility is assigned to either Cycle 1 or Cycle 2 and the RTCs it is issued (if any) have corresponding periods of validity.

The issuance of allocations for future years provides RECLAIM facilities guidance regarding their future emission reduction requirements. Facilities can plan their compliance strategies by reducing actual emissions or securing needed RTCs through trade registrations (or a combination of the two), based on their operational needs.

¹ Only external offsets provided at a one-to-one offset ratio after the base year used for allocation quantification purposes.

RECLAIM facilities may acquire RTCs issued for either cycle through trading and apply them to emissions, provided that the RTCs are used for emissions occurring within the RTCs' period of validity and the trades are made during the appropriate time period. RECLAIM facilities have until 30 days after the end of each of the first three quarters of each compliance year to reconcile their quarterly and year-to-date emissions, and until 60 days after the end of each compliance year to reconcile their last quarter and total annual emissions by securing adequate RTCs. Please note that, although other chapters in this report present and discuss Compliance Year 2014 data, RTC trading and price data discussed in this chapter are for calendar year 2015.

RTC Allocations and Supply

The methodology for determining RTC allocations is established by Rule 2002. According to this rule, allocations may change when the universe of RECLAIM facilities changes, emissions associated with the production of re-formulated gasoline increase or decrease, reported historical activity levels are updated, or emission factors used to determine allocations are changed. In addition to these SCAQMD-allocated RTCs, RTCs may be generated by conversion of emissions reduction credits from mobile and area sources pursuant to approved protocols. The total RTC supply in RECLAIM is made up of all RECLAIM facilities' allocations, conversions of ERCs owned by RECLAIM and non-RECLAIM facilities², emissions associated with the production of re-formulated gasoline, and conversion of emission reduction credits from mobile sources and area sources pursuant to approved protocols. The SCAQMD Governing Board may adopt additional rules that affect RTC supply. Changes in the RTC supply during Compliance Year 2014 are discussed below.

Allocations Adjustments Due to Inclusion and Exclusion of Facilities

Facilities existing prior to October 1993 and entering RECLAIM after 1994 may receive allocations just like facilities that were included at the beginning of the program. However, allocations issued for these facilities are only applicable for the compliance year of entry and forward. In addition, these facilities are issued allocations and Non-tradable/Non-usable Credits for Compliance Year 1994 for the sole purpose of establishing their starting allocation to ensure compliance with offset requirements under Rule 2005 - New Source Review for RECLAIM and the trading zone restriction to ensure net ambient air quality improvement within the sensitive zone established by Health and Safety Code §40410.5. These Compliance Year 1994 credits are not allowed to be used to offset current emissions because they have expired. Similarly, if an existing facility that was previously included in RECLAIM is subsequently excluded because it is determined to be categorically excluded or exempt pursuant to Rule 2001(i) or to not have emitted four tons or more of NO_x or SO_x in a year, any RTCs it was issued upon entering RECLAIM are removed from the market upon its exclusion. The sole NO_x facility included in Compliance Year 2014 was not eligible to receive any allocations because it was established after 1994, the start of RECLAIM.

² The window of opportunity to convert ERCs to RTCs other than during the process of a non-RECLAIM facility entering the program closed June 30, 1994.

Allocations Adjustments Due to Clean Fuel Production

Rule 2002(c)(12) – Clean Fuel Adjustment to Starting Allocation, provides refineries with RTCs to compensate for their actual emissions increases caused by the production of California Air Resources Board (CARB) Phase II reformulated gasoline. The amount of these RTCs is based on actual emissions for the subject compliance year and historical production data. The quantities of such clean fuels RTCs needed were projected based on the historical production data submitted, and qualifying refineries were issued in 2000 an aggregate baseline of 86.5 tons of NO_x and 42.3 tons of SO_x for Compliance Year 1999, 101.8 tons of NO_x and 41.4 tons of SO_x for Compliance Year 2000, and 98.4 tons of NO_x and 40.2 tons of SO_x for each subsequent Compliance Year on the basis of those projections. These refineries are required to submit, at the end of each compliance year in their Annual Permit Emissions Program (APEP) report, records to substantiate actual emission increases due solely to the production of reformulated gasoline. If actual emission increases for a subject year are different than the projected amount, the RTCs issued are adjusted accordingly (*i.e.*, excess RTCs issued are deducted if emissions were less than projected; conversely, additional RTCs are issued if emissions were higher than projected).

As a result of the amendment to Rule 2002 in January 2005 to further reduce RECLAIM NO_x allocations, the NO_x historical baseline Clean Fuel Adjustments for Compliance Year 2007 and subsequent years held by the facility were also reduced by the appropriate factors as stated in Rule 2002(f)(1)(A). On the other hand, Rule 2002(c)(12) provides refineries a Clean Fuels adjustment based on actual emissions. Therefore, each refinery is subject to an adjustment at the end of each compliance year equal to the difference between the amount of actual emission increases due solely to production of reformulated gasoline at each refinery and the amount of credits it was issued in 2000 after discounting by the factors for the corresponding compliance year. For Compliance Year 2014, the overall effect of adjusting NO_x allocations to account for these differences was a total of 11.3 tons of NO_x RTCs (0.1% of total NO_x allocation for Compliance Year 2014) added to, and 0.6 tons of SO_x RTCs (less than 0.1% of total SO_x allocation for Compliance Year 2014) deducted from, refineries' Compliance Year 2014 holdings.

Changes in RTC Allocations Due to Activity Corrections

RECLAIM facilities' allocations are determined by their reported historical activity levels (*e.g.*, fuel usage, material usage, or production) in their AERs. In the case where a facility's AER reported activity levels are updated within five years of the AER due date, its allocation is adjusted accordingly³. There were no changes in RTC allocations due to activity corrections in Compliance Year 2014.

Conversions of Other Types of Emission Reduction Credits

Conversions of Mobile Source Emission Reduction Credits (MSERCs) and other types of emission reduction credits, other than regular stationary source ERCs issued under Regulation XIII – New Source Review, to RTCs are allowed under

³ Pursuant to Rule 2002(b)(5) as amended on December 4, 2015, any AERs (including corrections) submitted more than five years after the original due date are not considered in the RTC quantification process.

Rule 2008 – Mobile Source Credits, and several programs under Regulation XVI – Mobile Source Offset Programs and Regulation XXV – Intercredit Trading. Conversion of these credits to RTCs is allowed based on the respective approved protocol specified in each rule. Currently, Rules 1610 – Old-Vehicle Scrapping and 1612 – Credits for Clean On-Road Vehicles allow the creation of MSERCs. However, there are no State Implementation Plan (SIP) approved protocols for conversion of MSERCs to RTCs. No new RTCs were issued by conversion of other types of emission reduction credits in Compliance Year 2014.

Net Changes in RTC Allocations

The changes to RTC supplies described in the above sections resulted in a net increase of 11.3 tons of NOx RTCs (0.1% of the total) and a decrease of 0.6 tons of SOx RTCs (less than 0.1% of the total) for Compliance Year 2014. Table 2-1 summarizes the changes in NOx and SOx RTC supplies that occurred in Compliance Year 2014 pursuant to Rule 2002.

**Table 2-1
Changes in NOx and SOx RTC Supplies during Compliance Year 2014 (tons/year)**

Source	NOx	SOx
Universe changes	0	0
Clean Fuel/Reformulated Gasoline	11.3	-0.6
Activity corrections	0	0
MSERCs	0	0
Net change	11.3	-0.6

Note: The data in this table represents the changes that occurred over the course of Compliance Year 2014 to the Compliance Year 2014 aggregate NOx and SOx RTC supplies originally issued pursuant to Rule 2002, not the difference between 2014 aggregate RTC supply and that for any other compliance year.

Allocation Reduction Resulting from BARCT Review

Pursuant to California Health and Safety Code §40440, SCAQMD is required to monitor the advancement in BARCT and periodically re-assess the RECLAIM program to ensure that RECLAIM achieves equivalent emission reductions to the command-and-control BARCT rules it subsumes. This assessment is done periodically as part of AQMP development. This process resulted in 2003 AQMP Control Measure #2003 CMB-10 – Additional NOx Reductions for RECLAIM (NOx) calling for additional NOx reductions from RECLAIM sources. SCAQMD staff started the rule amendment process in 2003, including a detailed analysis of control technologies that qualified as BARCT for NOx, and held lengthy discussions with stakeholders—including regulated industry, environmental groups, the California Air Resources Board (CARB), and the United States Environmental Protection Agency (USEPA). On January 7, 2005, the Governing Board implemented CMB-10 by adopting changes to the RECLAIM program that resulted in a 22.5% reduction of NOx allocations from all RECLAIM facilities. The reductions were phased in commencing in Compliance Year 2007 and have been fully implemented since Compliance Year 2011.

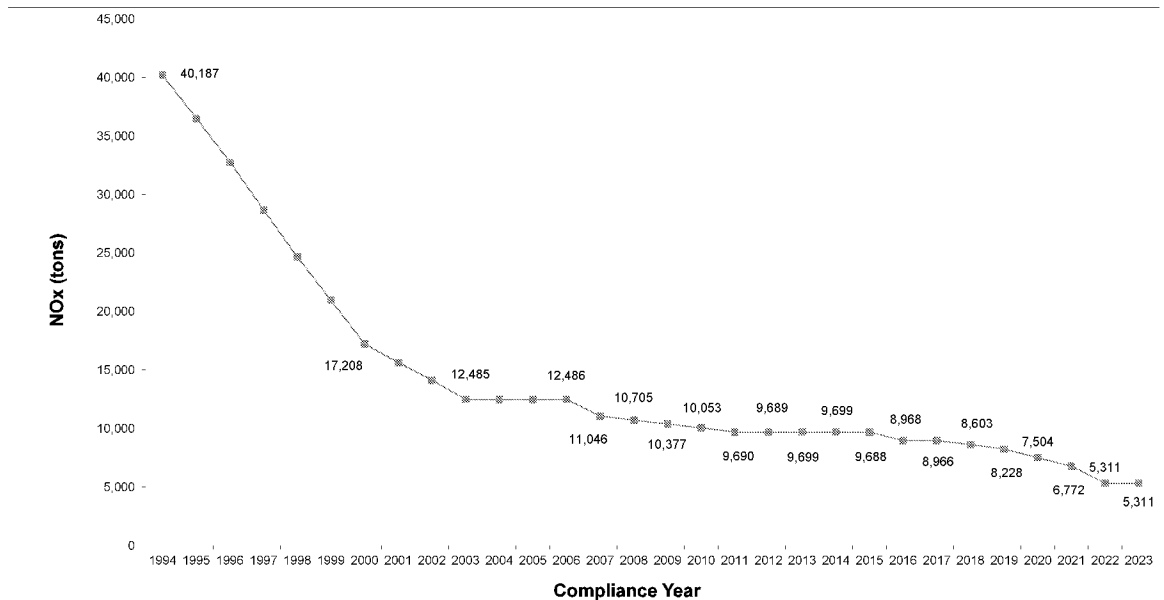
Similarly, the 2012 AQMP adopted by the Governing Board in 2012, included Control Measure CMB-01- Further NOx Reductions for RECLAIM that identified a

new group of RECLAIM NOx emitting equipment that should be reviewed for new BARCT. The rule making process for the amendment to the NOx RECLAIM program implementing CMB-01 started in 2012. On December 4, 2015, the Governing Board adopted amendments to the RECLAIM rules that resulted in an additional reduction of 12 tons of NOx per day when fully implemented in Compliance Year 2022. The reductions are to be phased-in beginning with 2 tons per day in Compliance Year 2016 and 2017, 3 tons per day in Compliance Year 2018, 4 tons per day in Compliance Year 2019, 6 tons per day in Compliance Year 2020, 8 tons per day in Compliance Year 2021 and 12 tons per day in Compliance Year 2022 and thereafter.

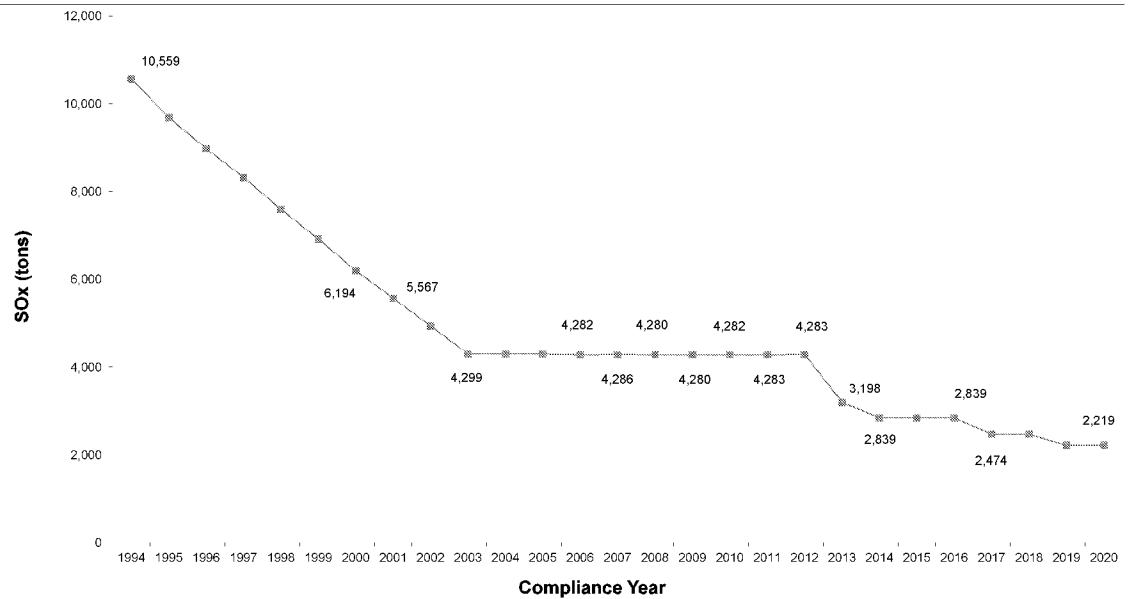
On November 5, 2010, the Governing Board adopted changes to the RECLAIM program implementing the 2007 AQMP Control Measure CMB-02 – Further SOx Reductions for RECLAIM (SOx). These amendments resulted in a BARCT-based overall reduction of 5.7 tons SOx per day when fully implemented in Compliance Year 2019 (the reductions are being phased in from Compliance Year 2013 through Compliance Year 2019: 3.0 tons per day in 2013; 4.0 tons per day in years 2014, 2015, and 2016; 5.0 tons per day in 2017 and 2018; and 5.7 tons per day starting in 2019 and continuing thereafter). This reduction in SOx is an essential part of the South Coast Air Basin’s effort in attaining the federal 24-hour average PM2.5 standard by the year 2020.

Figure 2-1 illustrates the total NOx RTC supply through the end of Compliance Year 2023 incorporating all the changes discussed above. Figure 2-2 illustrates the total SOx RTC supply through the end of Compliance Year 2020 incorporating the changes discussed.

**Figure 2-1
NOx RTC Supply**



**Figure 2-2
SOx RTC Supply**



Upcoming Proposals for Credit Generation

Proposed Rule 2511 – Credit Generation Program for Locomotive Head End Power Unit Engines and Proposed Rule 2512 – Credit Generation Program for Ocean-Going Vessels at Berth are two potential rules that could generate credits for the RECLAIM program. Proposed Rule 2511 would allow generation of emission reduction credits through the voluntary repowering of diesel-fueled auxiliary head end power generating units on passenger locomotives with cleaner engines. Proposed Rule 2512 would allow generation of credits for emission through the control of exhaust emissions from auxiliary engines and/or boilers used on Ocean-Going Vessels while at berth in a commercial marine port. Both of these proposed rules are listed on the Rule and Control Measure Forecast as rule activities for calendar year 2016.

RTC Trades

RTC Price Reporting Methodology

RTC trades are reported to SCAQMD as one of two types: discrete-year RTC transactions or infinite-year block (IYB) transactions (trades that involve blocks of RTCs with a specified start year and continuing into perpetuity). Prices for discrete-year trades are reported in terms of dollars per pound and prices for IYB trades are reported as total dollar value for total amount of IYB RTCs traded. In addition, the trading partners are required to identify any swap trades. Swap trades occur when trading partners exchange different types of RTCs. These trades maybe of equal value or different values, in which case some amount of money or credits are also included in swap trades (additional details on swap

trades are discussed later in this chapter). Prices reported for swap trades are based on the agreed upon value of the trade by the participants, and do not involve exchange of funds for the total value agreed upon. As such, the reported prices for swap trades can be somewhat arbitrary and are, therefore, excluded from the calculation of annual average prices. In this report, the annual average prices for discrete-year RTCs are averaged in dollars per ton of RTCs for each compliance year, while the average price for IYB RTCs are averaged as a total dollar value per ton of IYB RTCs.

RTC Price Thresholds for Program Review

Rule 2015(b)(6) specifies that, if the annual average price of discrete NO_x or SO_x RTCs exceeds \$15,000 per ton, the Executive Officer will conduct an evaluation and review of the compliance and enforcement aspects of RECLAIM. The Governing Board has also established average RTC price overall program review thresholds pursuant to Health and Safety Code §39616(f). Unlike the \$15,000 per ton threshold for review of the compliance and enforcement aspects of RECLAIM, these overall program review thresholds are adjusted by CPI each year. In addition, according to Rule 2002(f)(1)(S), if the annual average price of discrete SO_x RTCs for any compliance year from 2017 through 2019 exceeds \$50,000 per ton, the Governing Board has the discretion to convert facilities' Nontradable/Nonusable RTCs to Tradable/Usable RTCs. For RTC transactions occurring in calendar year 2015, the overall program review thresholds in 2015 dollars are \$41,591 per ton of discrete-year NO_x RTCs, \$29,946 per ton of discrete-year SO_x RTCs, \$623,866 per ton of IYB NO_x RTCs, and \$449,184 per ton of IYB SO_x RTCs.

RTC Trading Activity Excluding Swaps

Overall Trading Activity

RTC trades include discrete and IYB RTCs traded with prices, discrete and IYB RTC transfers with zero price, and discrete and IYB RTC swap trades. The RTC market activity in calendar year 2015 was comparable to the market activity in calendar year 2014 in terms of the number of transactions. The calendar year 2015 trading activity—356 total registered trade transactions (335 NO_x trades and 21 SO_x trades)—was slightly lower than the number of trade transactions in calendar year 2014 (362 total registered trade transactions; 344 NO_x trades and 18 SO_x trades).

In comparison to calendar year 2014, the value traded in calendar year 2015 was substantially higher (increased by 89%). Excluding swap trades, a total value of almost \$197.1 million was traded in calendar year 2015 (\$193.1 million for NO_x and \$4.02 million for SO_x)—substantially higher than the total value of \$104.2 million traded in calendar year 2014 (\$102.4 million for NO_x and \$1.8 million for SO_x). As illustrated in Figure 2-3, 2015 experienced the highest annual value of RTCs traded in RECLAIM since the California energy crisis that happened in 2000-2001. The increase in the total value traded was due to the much higher price for IYB NO_x RTCs traded in 2015, likely a result of the on-going NO_x allocation reduction discussions that culminated in the Governing Board's adoption of the December 4, 2015 rule amendment. Figure 2-4 summarizes overall trading activity (excluding swaps) in calendar year 2015 by pollutant.

With respect to volume traded (also excluding swap trades), the 3,891 tons of discrete RTCs traded in calendar year 2015 were substantially higher than the 2,811 tons of discrete RTCs traded in calendar year 2014 (increased by 38%). In calendar year 2015, there were 2,396 tons of discrete NOx RTCs and 47 tons of discrete SOx traded with price and 975 tons of discrete NOx and 473 tons of discrete SOx traded without price. In addition, the 1,642 tons of IYB RTCs traded in calendar year 2015 were also much higher than the 965 tons of IYB RTCs traded in 2014 (increased by 70%). There were 939 tons of IYB NOx and 75 tons of IYB SOx traded with price and 295 tons of IYB NOx traded with zero price and 333 tons of IYB SOx traded with zero price. Additional information on the discrete and IYB trading activities, value, and volume are discussed later in this chapter.

There were 83 trades with zero price in calendar year 2015. RTC transfers with zero price generally occur when a seller transfers or escrows RTCs to a broker pending transfer to the purchaser with price, when there is a transfer between facilities under common operator, when a facility is retiring RTCs for a settlement agreement or pursuant to variance conditions, or when there is a transfer between facilities that have gone through a change of operator. Trades with zero price also occur when the trading parties have mutual agreements where one party provides a specific service (e.g., providing steam or other process components) for the second party. In return, the second party will transfer the RTCs necessary to offset emissions generated from the service. In calendar year 2015, the majority of trades with zero price were transfers between facilities under common ownership and facilities that had a change of operator.

**Figure 2-3
Annual Trading Values for NOx and SOx (Excluding Swaps)**

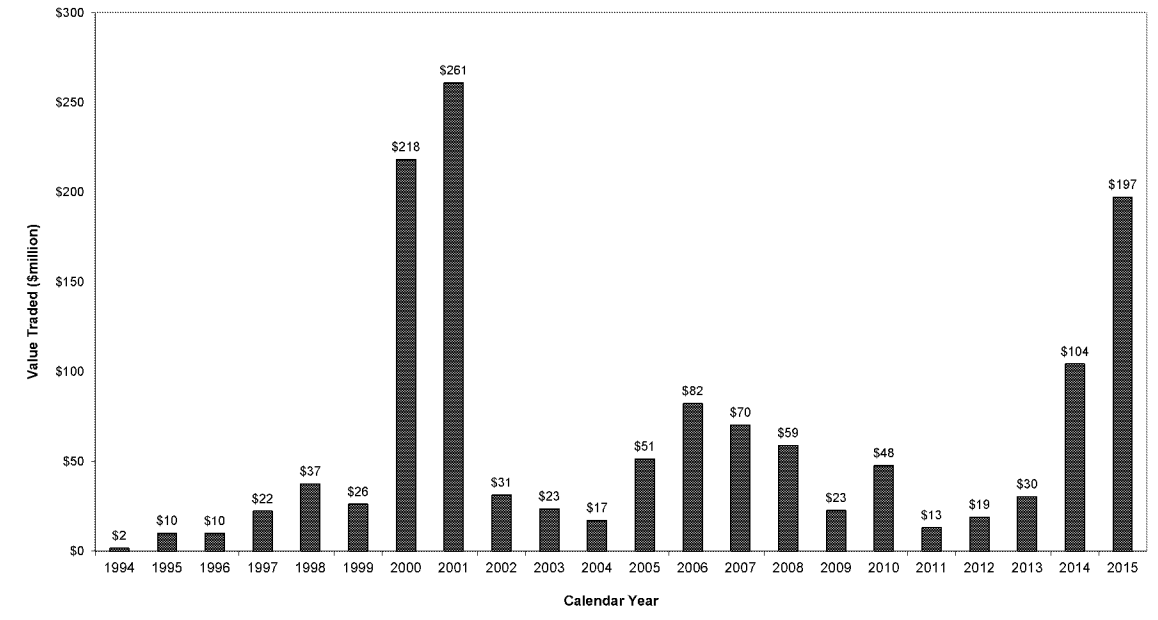
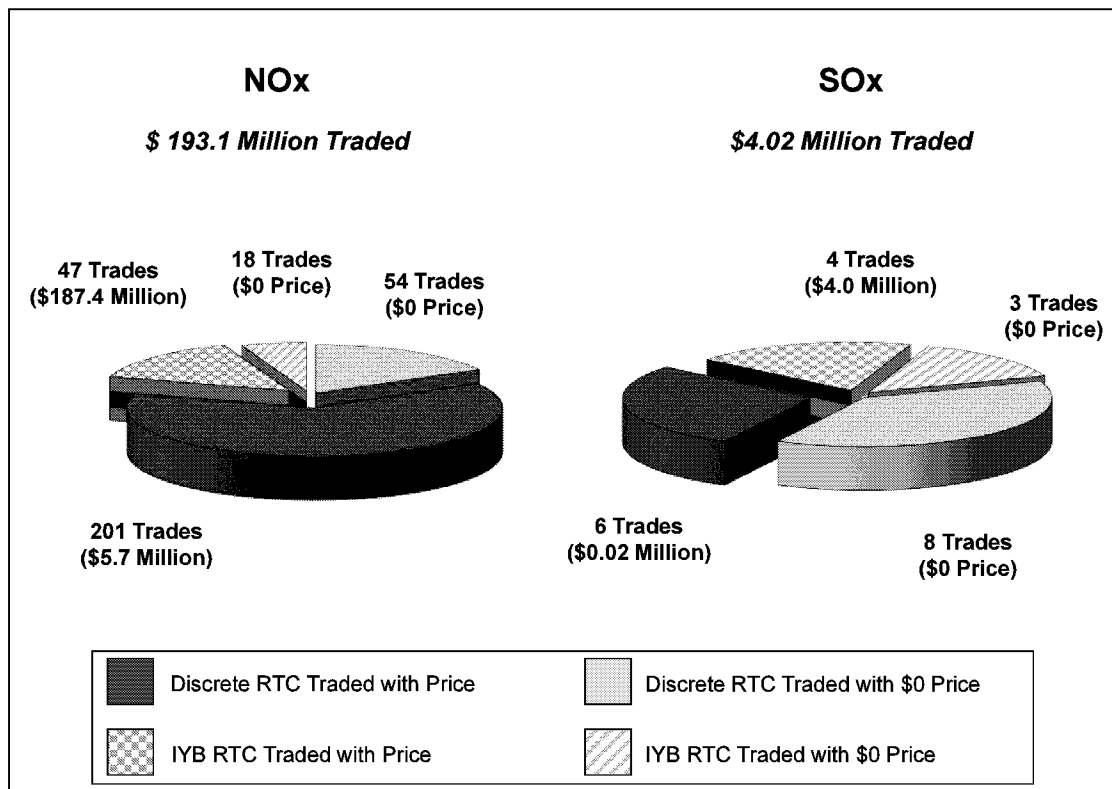


Figure 2-4
Calendar Year 2015 Overall Trading Activity (Excluding Swaps)



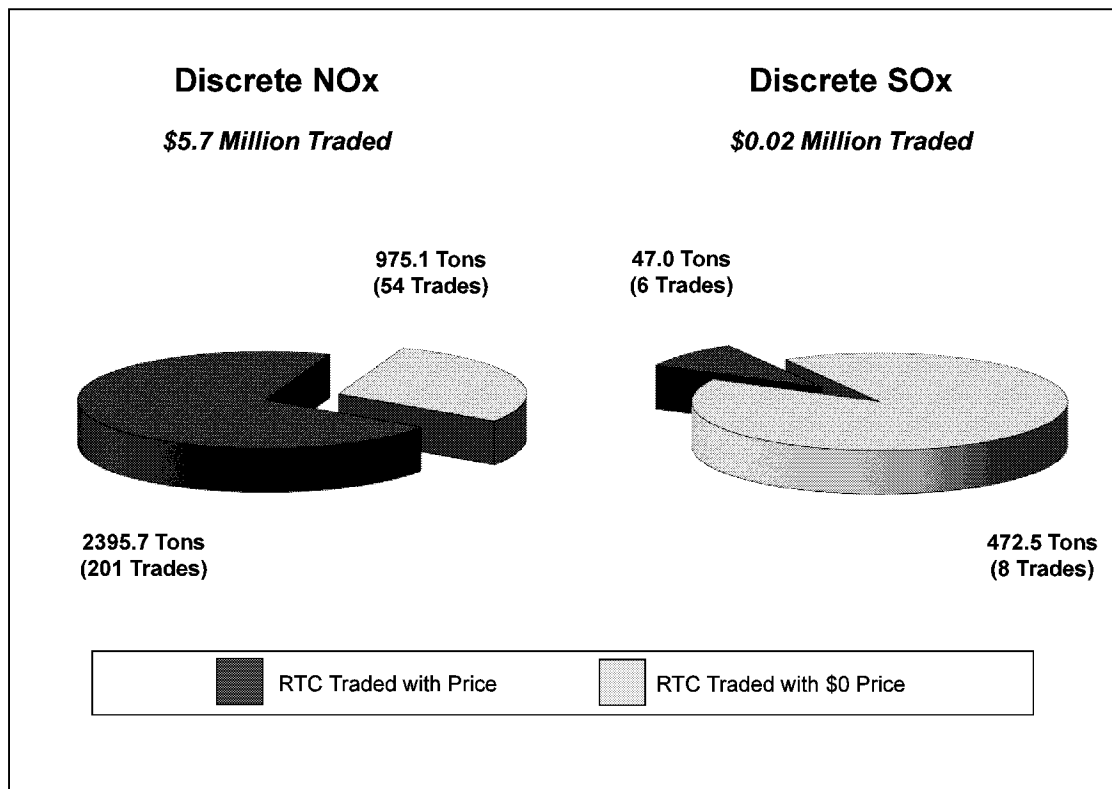
Discrete RTC Trading Activity

In calendar year 2015, there were a total of 255 discrete NOx RTC trades (201 trades with price and 54 trades with zero price) and 14 discrete SOx RTC trades (six trades with price and eight trades with zero price), excluding swap trades. The trading of discrete NOx RTCs included RTCs for Compliance Years 2014 through 2019. The trading of discrete SOx RTCs included RTCs for Compliance Years 2014 and 2015.

Discrete RTC trading values increased in calendar year 2015. The 201 NOx trades with price totaled \$5.7 million in value, up from \$2.7 million in calendar year 2014. The six discrete SOx trades with price totaled \$0.02 million in value, which is equal to the \$0.02 million traded in calendar year 2014.

In calendar year 2015, the overall quantities of discrete NOx and SOx RTCs traded were 3,371 tons and 520 tons, respectively. These quantities were all higher than those traded in calendar year 2014 (2,318 tons of NOx RTCs and 493 tons of SOx RTCs). There were 2,396 tons of discrete NOx traded with price in calendar year 2015, an increase from 1,808 tons of NOx in 2014. However, the 47 tons of discrete SOx RTCs traded in 2015 is lower than the 51 tons of SOx RTCs traded in 2014. In addition, there were 975 tons of discrete NOx RTCs and 473 tons of discrete SOx traded with zero price, an increase from 510 tons of NOx and 442 tons of SOx in 2014. Figure 2-5 illustrates the trading activity of discrete RTCs (excluding swaps) for calendar year 2015.

**Figure 2-5
Calendar Year 2015 Trading Activity for Discrete RTCs (Excluding Swaps)**



IYB RTC Trading Activity

In calendar year 2015, there were 65 IYB NOx trades and seven IYB SOx trades. The IYB NOx trades included varying start years through Compliance Year 2020, while the IYB SOx trades had Compliance Years 2015, 2016 and 2017 as start years. Of the 65 IYB NOx trades, 47 trades were with price and 18 trades were with zero price. Of the seven IYB SOx trades, four were with price and three were with zero price.

The 47 IYB NOx trades with price totaling over \$187 million in calendar year 2015 were much higher in value than the 49 trades with price for \$99.7 million in 2014. The four IYB SOx RTC trades with price totaling \$4.0 million in calendar year 2015 were also much higher in value than the four trades and \$1.8 million traded in 2014.

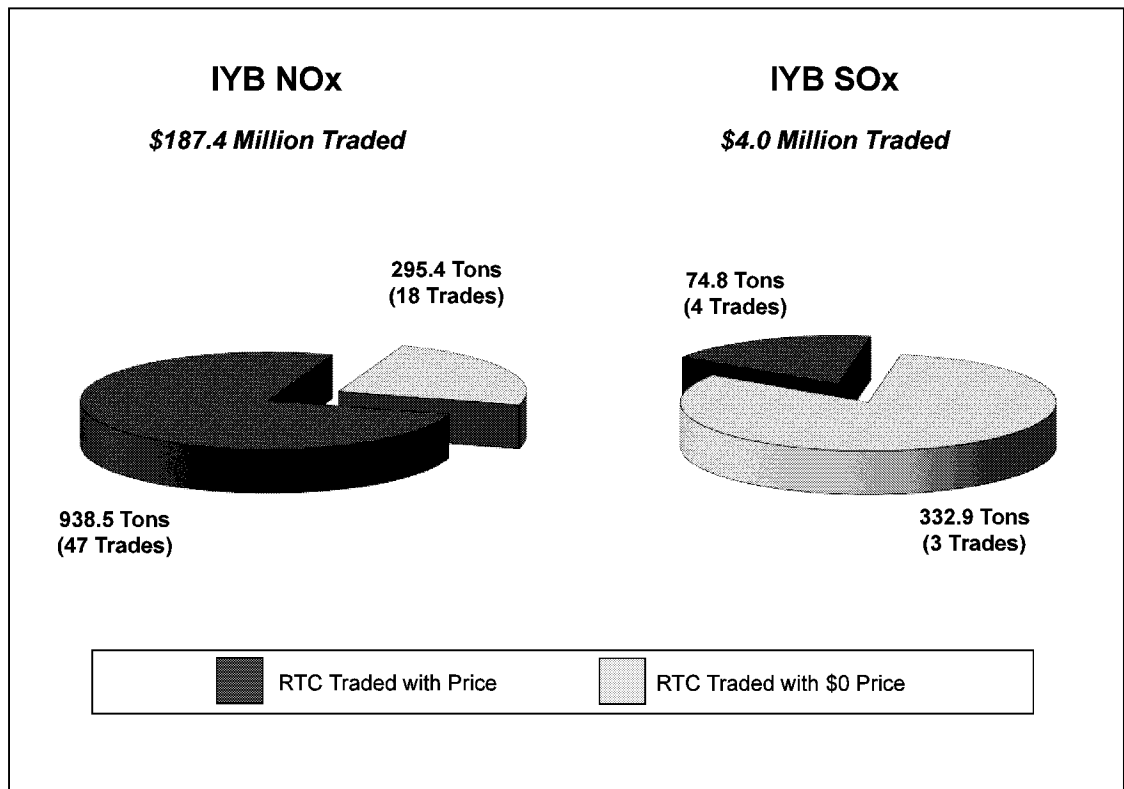
The total quantity of 1,234 tons of IYB NOx traded in calendar year 2015 was higher than the 942 tons traded in calendar year 2014. The quantity traded with price in calendar year 2015 was 939 tons, which is slightly higher than the 902 tons traded with price in calendar year 2014.

The total quantity of 408 tons of IYB SOx traded in calendar year 2015 was much higher than the 23 tons of IYB SOx traded in calendar year 2014. The quantity traded with price in calendar year 2015 was 75 tons, also much higher than the 23 tons of IYB SOx traded with price in calendar year 2014. A significant portion

of the IYB SOx traded with price (55%) was due to the shutdown of a battery recycling plant.

In calendar year 2015, 295 tons of IYB NOx were traded without price compared to only 40 tons in calendar year 2014. Similarly, 333 tons of IYB SOx were traded without price in calendar year 2015, while none were traded without price in calendar year 2014. As described earlier, the majority of these transfers are between facilities under common ownership and facilities that had a change of operator. Figure 2-6 illustrates the calendar year 2015 IYB RTC trading activity excluding swap trades.

Figure 2-6
Calendar Year 2015 Trading Activity for IYB RTCs (Excluding Swaps)



Prior to the amendment of Rule 2007 – Trading Requirements in May 2001, swap information and details of discrete and IYB trades were not required to be provided by trade participants. In compiling data for calendar years 1994 through part of 2001, any trade registration involving IYB RTCs was considered as a single IYB trade and swap trades were assumed to be nonexistent. Trading activity since inception of the RECLAIM program is illustrated in Figures 2-7 through 2-10 (discrete NOx trades, discrete SOx trades, IYB NOx trades, and IYB SOx trades, respectively) based on the trade reporting methodology described earlier in this report.

Figure 2-7
Discrete NOx RTC Trades (Excluding Swaps)

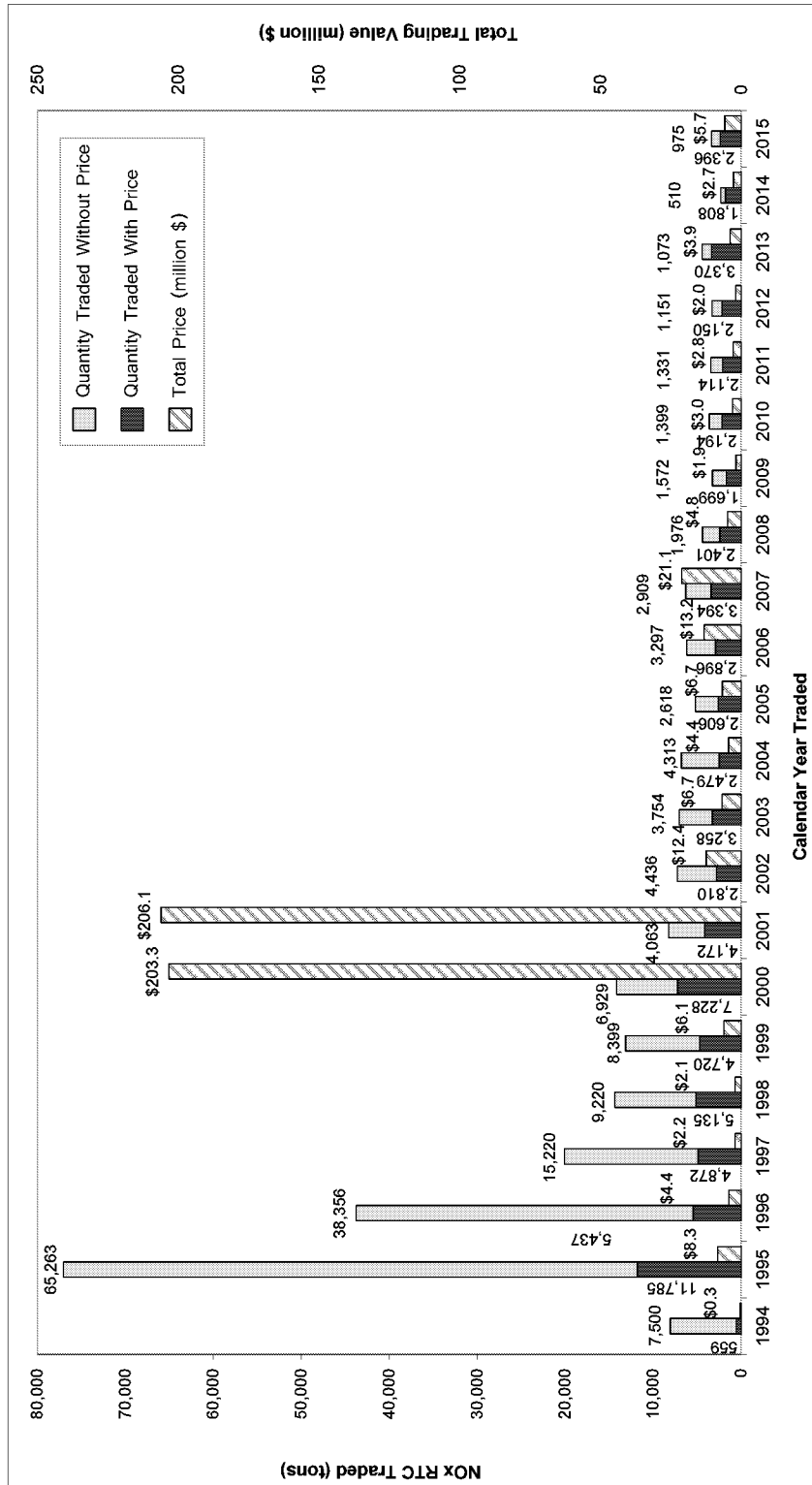


Figure 2-8
Discrete SOx RTC Trades (Excluding Swaps)

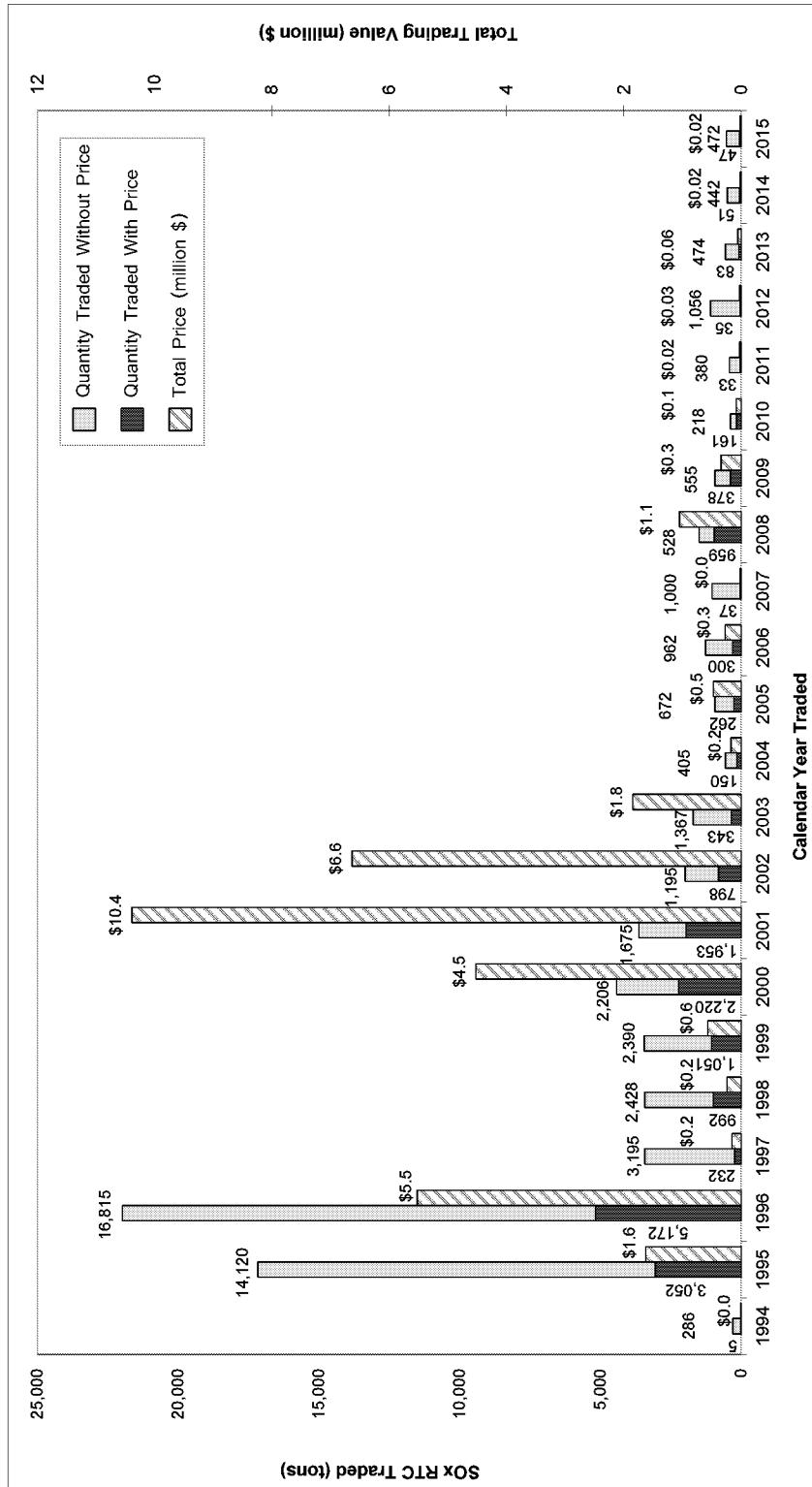


Figure 2-9
IYB NOx RTC Trades (Excluding Swaps)

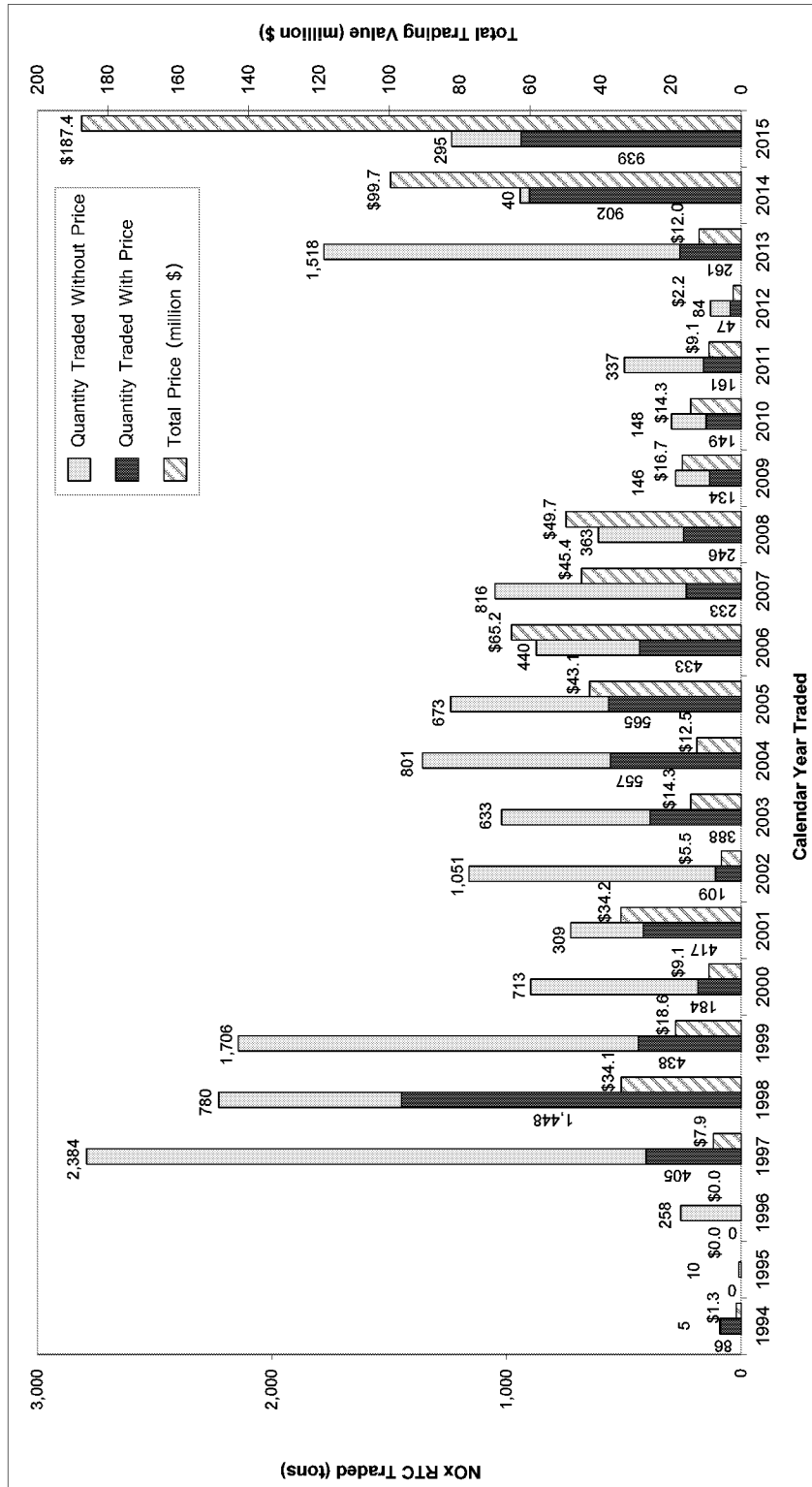
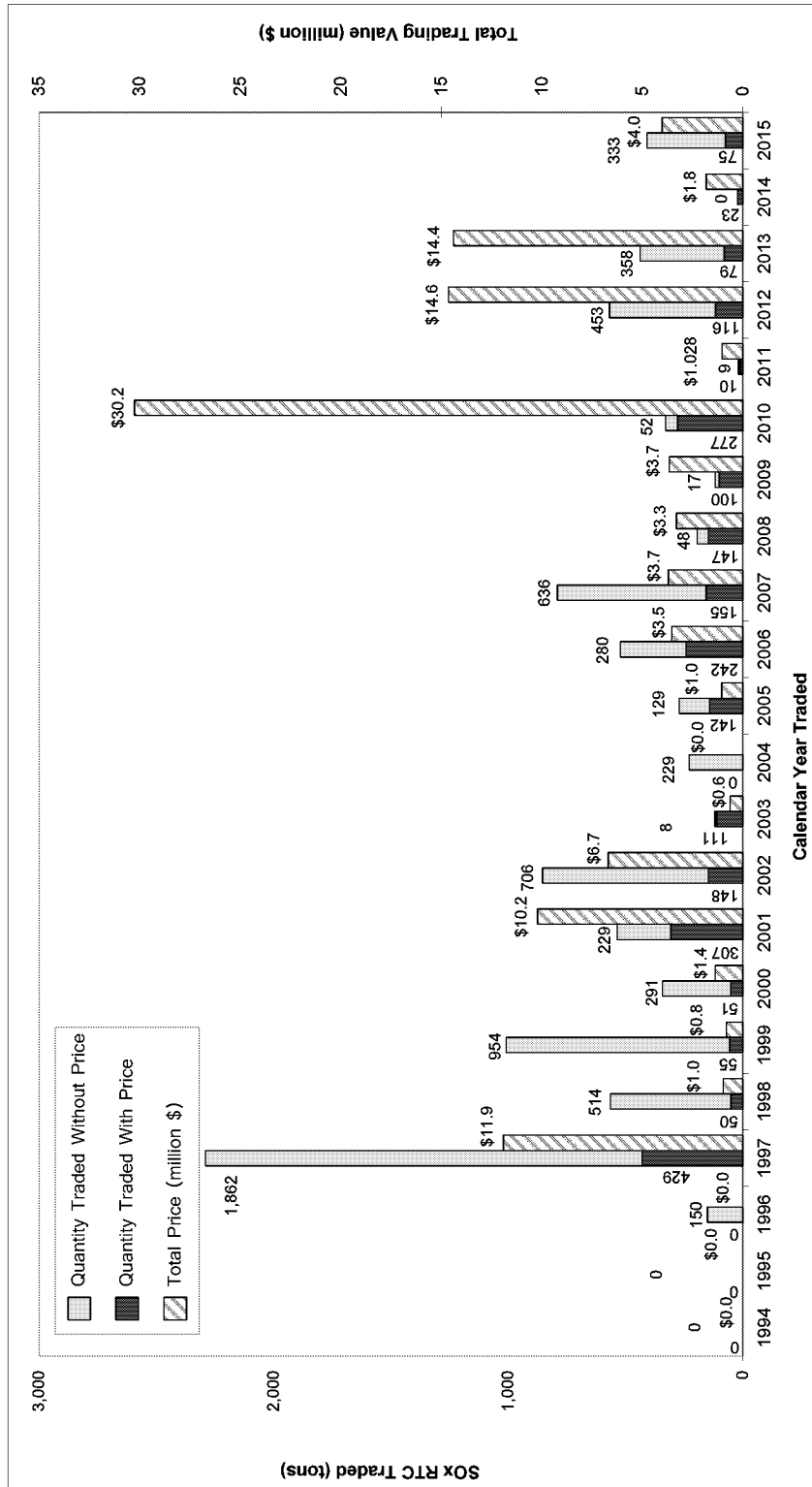


Figure 2-10
IYB SOx RTC Trades (Excluding Swaps)



Swap Trades

In addition to traditional trades of RTCs for a price, RTC swaps also occurred between trading partners. Most of the swap trades were exchanges of RTCs with different zones, cycles, expiration years, and/or pollutants. Some swaps involved a combination of RTCs and cash payment as a premium. There were also swaps of RTCs for ERCs. Trading parties swapping RTCs were required to report the agreed upon price of RTCs for each trade even though, with the exception of the above-described premiums, no money was actually exchanged. Over \$6.8 million in total value was reported from RTCs that were swapped in calendar year 2015, of which four swap trades involved trading IYB NOx RTCs for PM10 ERCs and were collectively valued at a total of \$6.09 million. The swap values are based on the prices reported on the RTC trade registrations. Since RTC swap trades occur when two trading partners exchange RTCs, values reported on both trades involved in the exchange are included in the calculation of the total value reported. However, in cases where commodities other than RTCs are involved in the swap, these commodity values are not included in the above reported total value (*e.g.*, in the case of a swap of NOx RTCs valued at \$10,000 for another set of RTCs valued at \$8,000 together with a premium of \$2,000, the value of such a swap would have been reported at \$18,000 in Table 2-2).

For calendar years that have swap transactions with large values (*e.g.*, 2009) the inclusion of swap transactions in the average trade price calculations would have resulted in calculated annual average prices dominated by swap transactions, and therefore, potentially not representative of market prices actually paid for RTCs. Prices of swap trades are excluded from analysis of average trade prices because the values of the swap trades are solely based upon prices agreed upon between trading partners and do not reflect actual funds transferred. Tables 2-2 and 2-3 present the calendar years 2001 through 2015 RTC swaps for NOx and SOx, respectively.

Table 2-2
NOx Registrations Involving Swaps*

Year	Total Value (\$ millions)	IYB RTC Swapped with Price (tons)	Discrete RTC Swapped with Price (tons)	Number of Swap Registrations with Price	Total Number of Swap Registrations
2001	\$24.29	6.0	612.2	71	78
2002	\$14.31	64.3	1,701.7	94	94
2003	\$7.70	69.9	1,198.1	64	64
2004	\$3.74	0	1,730.5	90	90
2005	\$3.89	18.7	885.3	53	53
2006	\$7.29	14.8	1,105.9	49	49
2007	\$4.14	0	820.0	43	49
2008	\$8.41	4.5	1,945.8	48	50
2009	\$55.76	394.2	1,188.4	37	42
2010	\$3.73	18.2	928.5	25	31
2011	\$2.00	0	775.5	25	32
2012	\$1.29	0	928.1	36	36
2013	\$2.41	11.6	1,273.5	44	44
2014	\$3.24	28.5	489.6	25	25
2015	\$6.77	31.0	317.0	15	15

* Swaps without price are strictly transfers of RTCs between trading partners and their respective brokers. Information regarding swap trades was not required prior to May 9, 2001.

Table 2-3
SOx Registrations Involving Swaps*

Year	Total Value (\$ millions)	IYB RTC Swapped with Price (tons)	Discrete RTC Swapped with Price (tons)	Number of Swap Registrations with Price	Total Number of Swap Registrations
2001	\$1.53	18.0	240.0	3	4
2002	\$6.11	26.6	408.4	30	30
2003	\$5.88	20.9	656.0	32	32
2004	\$0.39	0	161.8	13	13
2005	\$2.16	43.5	227.8	13	14
2006	\$0.02	0	24.4	2	2
2007	\$0.00	0	0	0	0
2008	\$0.40	0	197.0	5	8
2009	\$3.63	55.3	401.3	9	10
2010	\$6.89	79.4	417.0	16	18
2011	\$0.25	0	228.5	3	4
2012	\$27.01	100.0	7.5	4	4
2013	\$0.33	3.1	5.5	2	2
2014	\$0.01	0.0	14.8	1	1
2015	\$0	0.0	0	0	0

* Swaps without price are strictly transfers of RTCs between trading partners and their respective brokers. Information regarding swap trades was not required prior to May 9, 2001.

RTC Trade Prices

Discrete-Year RTC Prices

In calendar year 2015, the annual average prices for discrete-year NOx RTCs were \$1,039 per ton for Compliance Year 2014, \$1,642 per ton for Compliance Year 2015, \$2,833 per ton for Compliance Year 2016, \$4,020 per ton for Compliance Year 2017, \$6,006 per ton for Compliance Year 2018, and \$8,067 per ton for Compliance Year 2019. The calendar year 2015 annual average prices for discrete-year SOx RTCs were \$483 per ton for Compliance Year 2014, and \$380 per ton for Compliance Year 2015. There was no trading of Compliance Year 2016 and after SOx RTCs in calendar year 2015.

Figures 2-11 and 2-12 present the annual average prices for discrete-year NOx and SOx RTCs during calendar years 2007 through 2015, respectively. Note that prices for a Compliance Year's RTCs may also be shown for the calendar year after those RTCs expired, since the average price for each compliance year is based on sales of both Cycle 1 RTCs expiring in December of that year, as well as Cycle 2 RTCs expiring in June of the following year. Furthermore, Cycle 1 RTCs expiring in December may be traded during the 60-day reconciliation period following the expiration date, which extends into the next calendar year.

Annual average prices in calendar year 2015 for discrete NOx and SOx RTCs for all compliance years remained well below the \$15,000 per ton threshold to evaluate and review the compliance aspects of the program set forth by SCAQMD Rule 2015, as well as the \$41,591 per ton of NOx and \$29,946 per ton of SOx discrete RTCs pre-determined overall program review thresholds established by the Governing Board pursuant to Health and Safety Code §39616(f).

Figure 2-11
Annual Average Prices for Discrete-Year NOx RTCs during Calendar Years 2007 through 2015

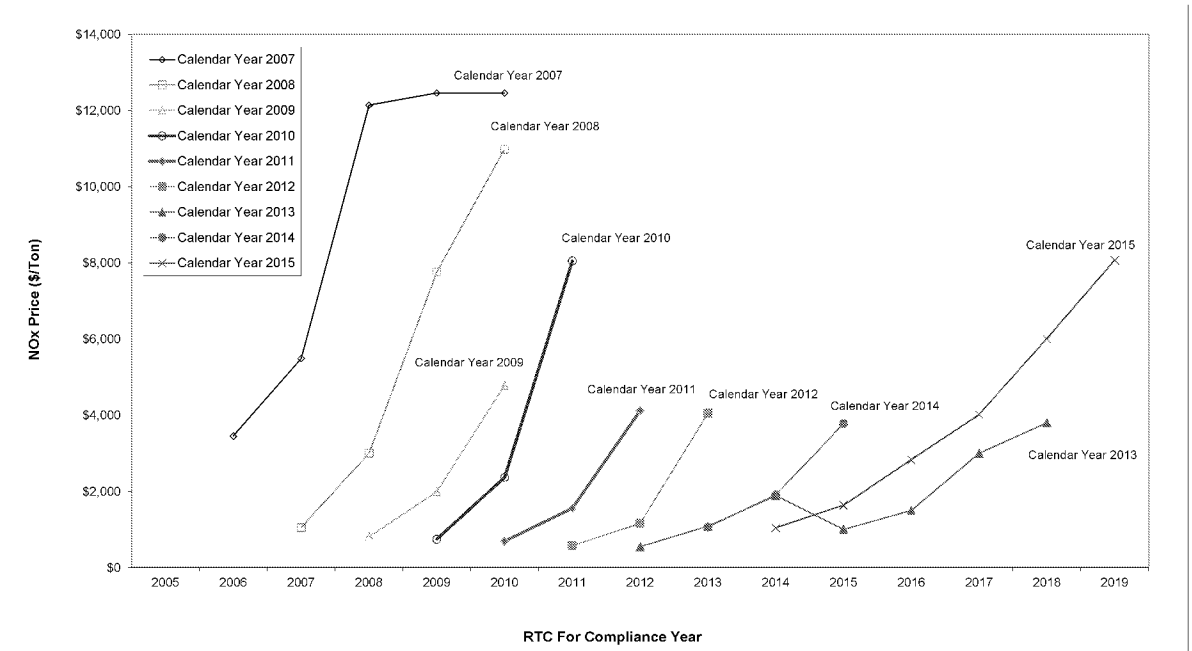
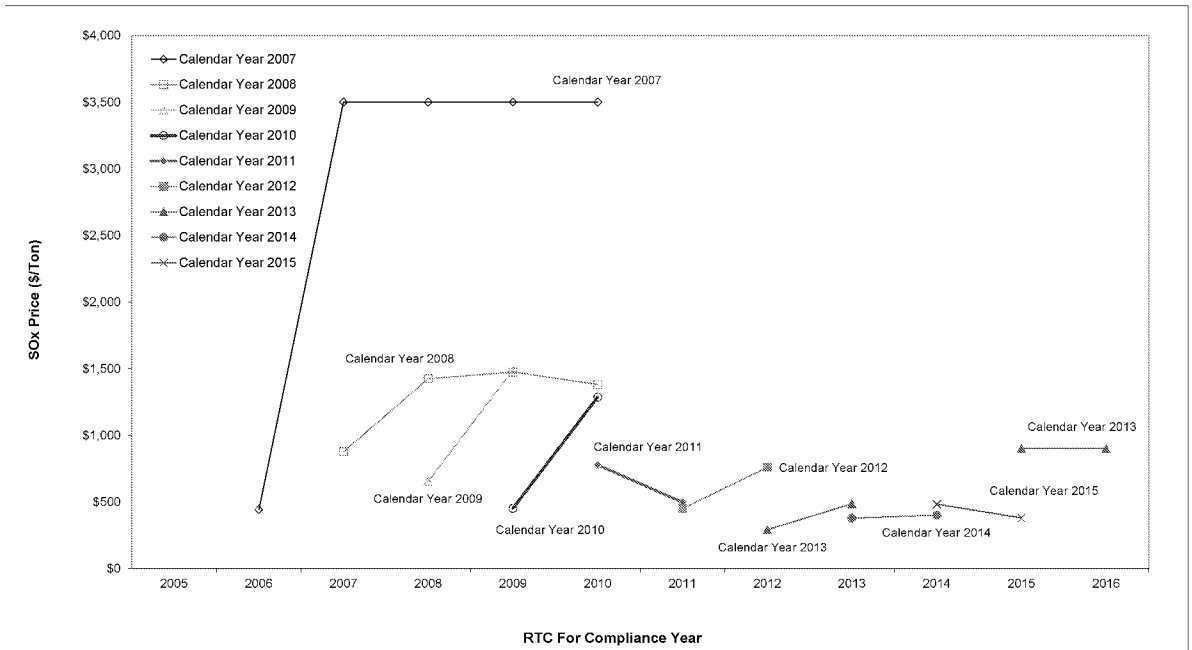


Figure 2-12
Annual Average Prices for Discrete-Year SOx RTCs during Calendar Years 2007 through 2015



Twelve-Month Rolling Average Prices of Compliance Year 2015 NOx RTCs

The January 2005 RECLAIM amendments directed the Executive Officer to calculate the 12-month rolling average price of NOx RTCs (“rolling average price”) “for all trades for the current compliance year” excluding “RTC transactions reported at no price.” Swap transactions are also excluded from the calculation of rolling average prices.

In the event that the rolling average price exceeds \$15,000 per ton, the Executive Officer is required to report the rolling average price to the Governing Board. If the Governing Board determines that the rolling average price exceeds \$15,000 per ton, SCAQMD is required to review the compliance aspects of the RECLAIM program. In its resolution amending Rule 2002(f) on January 7, 2005, the Governing Board directed the Executive Officer to report the NOx RTC 12-month rolling average price data to the Stationary Source Committee (SSC) at least quarterly. Accordingly, such reports have been prepared by SCAQMD staff and submitted to the SSC on a quarterly basis. To date, the twelve-month rolling average prices have been far below and have not exceeded the \$15,000 per ton threshold. Staff continues to monitor the twelve-month rolling average price of current-year NOx RTCs on a monthly basis and report the rolling average prices to the Stationary Source Committee on a quarterly basis.

On December 4, 2015, the Governing Board amended Rule 2002(f)(1)(H) to change the twelve-month rolling average price threshold to \$22,500 per ton for NOx RTCs. In order to have a quicker response trigger, the Governing Board also adopted a three-month rolling average price threshold of \$35,000 per ton commencing on May 1, 2016. If NOx RTC prices exceeded either of these levels, a report to the Governing Board and program review will be required.

As shown in Table 2-4, the twelve-month rolling average prices of Compliance Year 2015 NOx RTCs started decreasing noticeably from August 2015 through the end of the year. Throughout 2015, the twelve-month rolling average prices did not exceed the \$15,000 per ton threshold specified in Rule 2002(f). Therefore, it was not necessary for the Executive Officer to report the rolling average price to the Governing Board or for the Governing Board to require a compliance audit.

Table 2-4
Twelve-Month Rolling Average Prices of Compliance Year 2015 NOx RTCs

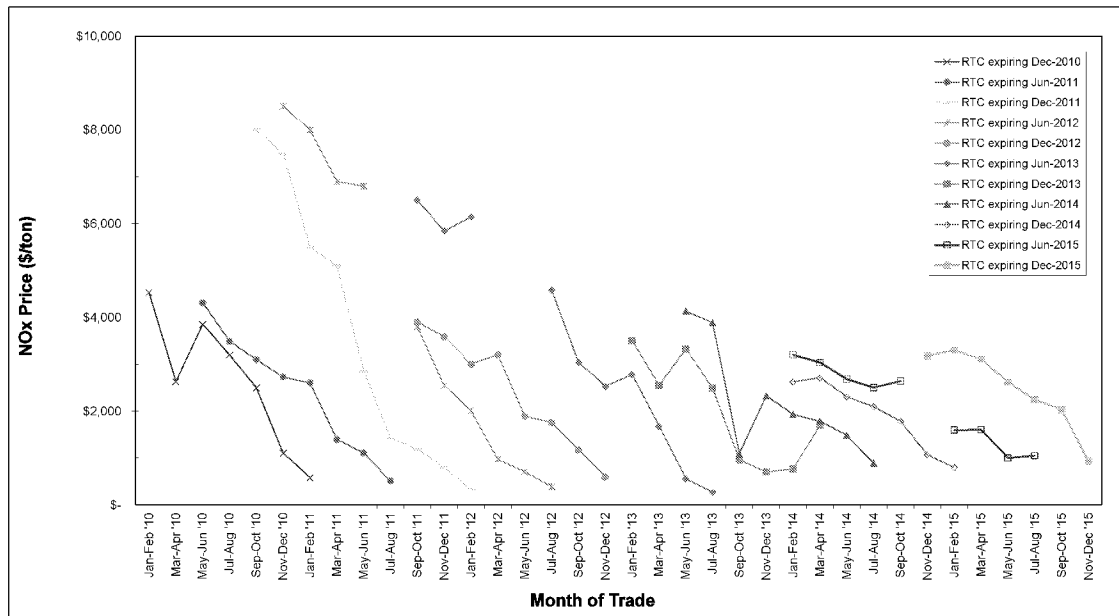
Reporting Month	12-Month Period	Average Price (\$/ton)
January 2015	January 2014 through December 2014	\$3,779
February 2015	February 2014 through January 2015	\$3,800
March 2015	March 2014 through February 2015	\$3,800
April 2015	April 2014 through March 2015	\$3,800
May 2015	May 2014 through Apr 2015	\$3,755
June 2015	June 2014 through May 2015	\$3,722
July 2015	July 2014 through June 2015	\$3,625
August 2015	August 2014 through July 2015	\$2,734
September 2015	September 2014 through August 2015	\$2,603
October 2015	October 2014 through September 2015	\$2,600
November 2015	November 2014 through October 2015	\$2,449
December 2015	December 2014 through November 2015	\$1,890
January 2016	January 2015 through December 2015	\$1,642

Average Price for NOx RTCs Nearing Expiration

Generally, RTC prices decrease as their expiration dates approach and during the sixty days after their expiration dates during which they can be traded. RTC prices are usually lowest during the 60 day-period following their expiration date during which facilities are allowed to trade and obtain RTCs to cover their emissions. This general trend has been repeated every year since 1994 except for Compliance Years 2000 and 2001 (during the California energy crisis), when NOx RTC prices increased as the expiration dates approached because the power plants' NOx emissions increased significantly, causing a shortage of NOx RTCs. Prices for NOx RTCs that expired in calendar year 2015 followed the general trend of RTC prices declining over the course of the Compliance Year and the sixty-day trading period thereafter.

The bi-monthly average price for these near-expiration NOx RTCs is shown in Figure 2-13 to illustrate the general price trend for these RTCs. The general declining trend of RTC prices nearing and just past expiration indicates that there was an adequate supply to meet RTC demand during the final reconciliation period following the end of the compliance years. A similar analysis is not performed for the price of SOx RTCs nearing expiration because there are not enough SOx trades over the course of the year to yield meaningful data. For calendar year 2015, there were only six discrete SOx trades with price and these prices were flat throughout the year.

Figure 2-13
Bi-Monthly Average Price for NOx RTCs near Expiration



Note: Data is presented for a limited number of RTC expiration dates for graphical clarity.

IYB RTC Prices

The annual average price for IYB NOx RTCs traded in calendar year 2015 was \$199,685 per ton, which is much higher than the annual average price of \$110,509 per ton traded in calendar year 2014. The annual average price for IYB SOx RTCs traded in calendar year 2015 was \$53,665 per ton, which is lower than the \$80,444 per ton traded in calendar year 2014. There were four IYB SOx trades with price totaling 75 tons in 2015, compared to the 22.5 tons traded in 2014. Two investors purchased all the IYB SOx traded with price. Data regarding IYB RTCs traded with price (excluding swap trades) for NOx and SOx RTCs and their annual average prices since 1994 are summarized in Tables 2-5 and 2-6, respectively. In calendar year 2015, the annual average IYB RTC prices did not exceed the \$623,866 per ton of NOx RTCs or the \$449,184 per ton of SOx RTCs program review thresholds established by the Governing Board for IYB RTCs pursuant to California Health and Safety Code §39616(f).

The December 4, 2015 Rule 2002 amendment requires staff to prepare the twelve-month rolling average price report for IYB NOx RTCs. Commencing in 2019, if the twelve-month rolling average IYB NOx price falls below \$200,000 per ton, staff would report this finding to the Governing Board.

Table 2-5
IYB NOx Pricing (Excluding Swaps)

Calendar Year	Total Reported Value (\$ millions)	IYB RTC Traded with Price (tons)	Number of IYB Registrations With Price	Average Price (\$/ton)
1994*	\$1.3	85.7	1	\$15,623
1995*	\$0.0	0	0	N/A
1996*	\$0.0	0	0	N/A
1997*	\$7.9	404.6	9	\$19,602
1998*	\$34.1	1,447.6	23	\$23,534
1999*	\$18.6	438.3	19	\$42,437
2000*	\$9.1	184.2	15	\$49,340
2001*	\$34.2	416.9	25	\$82,013
2002	\$5.5	109.5	31	\$50,686
2003	\$14.3	388.3	28	\$36,797
2004	\$12.5	557.0	52	\$22,481
2005	\$43.1	565.3	71	\$76,197
2006	\$65.2	432.9	50	\$150,665
2007	\$45.4	233.5	25	\$194,369
2008	\$49.7	245.6	27	\$202,402
2009	\$16.7	134.2	14	\$124,576
2010	\$14.3	149.0	13	\$95,761
2011	\$9.1	160.7	29	\$56,708
2012	\$2.2	46.6	13	\$48,146
2013	\$12.0	260.9	17	\$45,914
2014	\$99.7	902.2	49	\$110,509
2015	\$187.4	938.5	47	\$199,685

* No information regarding swap trades was reported until May 9, 2001.

Table 2-6
IYB SOx Pricing (Excluding Swaps)

Calendar Year	Total Reported Value (\$ millions)	IYB RTC Traded with Price (tons)	Number of IYB Registrations With Price	Average Price (\$/ton)
1994*	\$0.0	0	0	N/A
1995*	\$0.0	0	0	N/A
1996*	\$0.0	0	0	N/A
1997*	\$11.9	429.2	7	\$27,738
1998*	\$1.0	50.0	1	\$19,360
1999*	\$0.8	55.0	3	\$14,946
2000*	\$1.4	50.6	5	\$27,028
2001*	\$10.2	306.8	8	\$33,288
2002	\$6.7	147.5	5	\$45,343
2003	\$0.6	110.9	1	\$5,680
2004	\$0.0	0.0	0	N/A
2005	\$1.0	141.5	3	\$7,409
2006	\$3.5	241.7	12	\$14,585
2007	\$3.7	155.2	5	\$23,848
2008	\$3.3	146.8	5	\$22,479
2009	\$3.7	100.0	4	\$36,550
2010	\$30.2	277.0	10	\$109,219
2011	\$1.03	10.0	2	\$102,366
2012	\$14.6	116.2	4	\$125,860
2013	\$14.4	79.2	4	\$181,653
2014	\$1.8	22.5	4	\$80,444
2015	\$4.0	74.8	4	\$53,665

* No information regarding swap trades was reported until May 9, 2001.

Other Types of RTC Transactions and Uses

Another type of RTC trade, besides traditional trading and swapping activities, is a trade involving the contingent right (option) to purchase RTCs. In those transactions, one party pays a premium for the contingent right (option) to purchase RTCs owned by the other party at a pre-determined price within a certain time period. Until RTCs are transferred from seller to buyer, prices for options are not reported, because the seller is not paid for the actual RTCs, but only for the right to purchase the RTCs at a future date. These rights may or may not actually be exercised. RTC traders are obligated to report options to SCAQMD within five business days of reaching an agreement. These reports are posted on SCAQMD's website. There were two reported trades involving the contingent right to buy or sell RTCs in calendar year 2015.

As in prior years, RTCs were used in other programs during calendar year 2015. Six facilities surrendered a total of 67.3 tons of NOx RTCs and 0.2 tons of SOx RTCs. Nineteen tons of the NOx RTCs and all the SOx RTCs were retired to satisfy variance conditions. Two facilities surrendered 48.3 tons of NOx RTCs as part of the California Environmental Quality Act (CEQA) requirement to mitigate

the emissions impact from construction projects. These consisted of discrete year RTCs for Compliance Years 2014, 2015, and 2016.

Market Participants

RECLAIM market participants have traditionally included RECLAIM facilities, brokers, commodity traders, and private investors. Starting in calendar year 2004, mutual funds joined the traditional participants in RTC trades. Market participation expanded further in 2006, when foreign investors started participating in RTC trades. However, foreign investors have not participated in any RTC trades since calendar year 2008 and foreign investors do not hold any current or future RTCs at this time.

RECLAIM facilities are the primary users of RTCs and they hold the majority of RTCs as allocations. They usually sell their surplus RTCs by the end of the compliance year or when they have a long-term decrease in emissions. Brokers match buyers and sellers, and usually do not purchase or own RTCs. Commodity traders and private investors actually invest in and own RTCs in order to seek profits by trading them. They do not need RTCs to offset or reconcile any emissions. For purposes of discussion in this report, "investors" include all parties who hold RTCs other than RECLAIM facility permit holders and brokers. Brokers typically do not actually purchase RTCs but facilitate transactions.

Investor Participation

In 2015 investors were actively involved in 147 of the 201 discrete NO_x RTC trades with price, two of the six discrete SO_x RTC trades with price, and 44 of the 47 IYB NO_x trades with price. Investors were also involved in all of the four IYB SO_x trades with price.

Investors' involvement in discrete NO_x and SO_x trades registered with price in calendar year 2015 is illustrated in Figures 2-14 and 2-15. Figure 2-14 is based on total value of discrete NO_x and SO_x RTCs traded, and shows that investors were involved in 91% and 37%, respectively, of the discrete NO_x and SO_x trades reported by value. Figure 2-15 is based on volume of discrete RTCs traded with price and shows that investors were involved in 79% and 31% of the discrete NO_x and SO_x trades by volume, respectively. Figures 2-16 and 2-17 provide similar data for IYB NO_x and SO_x trades, and show that investors were involved in 92% of IYB NO_x trades on a reported value basis, and 91% of IYB NO_x trades on the basis of the volume traded with price. Investors were involved in all IYB SO_x trades with price in calendar year 2015.

Figure 2-14
Calendar Year 2015 Investor-Involved Discrete NOx and SOx Trades Based on Value Traded

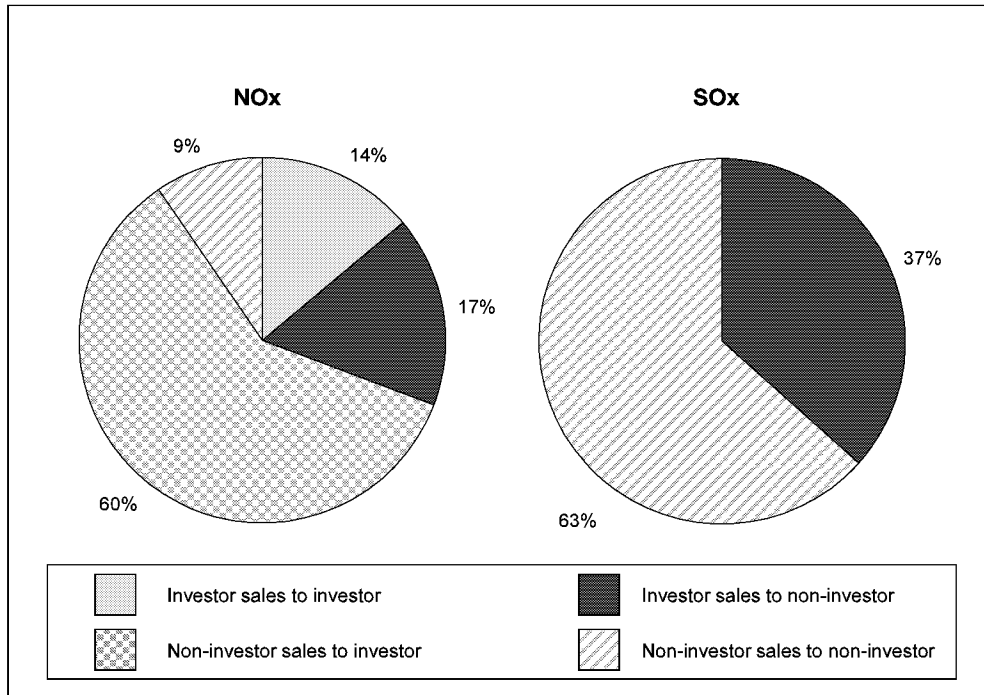


Figure 2-15
Calendar Year 2015 Investor-Involved Discrete NOx and SOx Trades Based on Volume Traded with Price

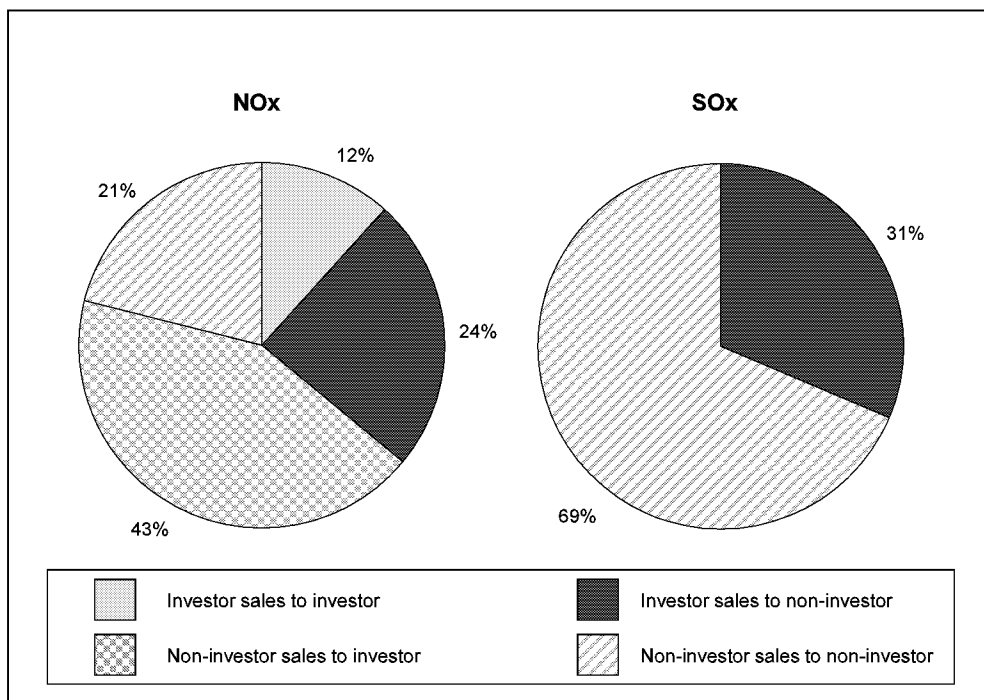


Figure 2-16
Calendar Year 2015 Investor-Involved IYB NOx and SOx Trades Based on Value Traded

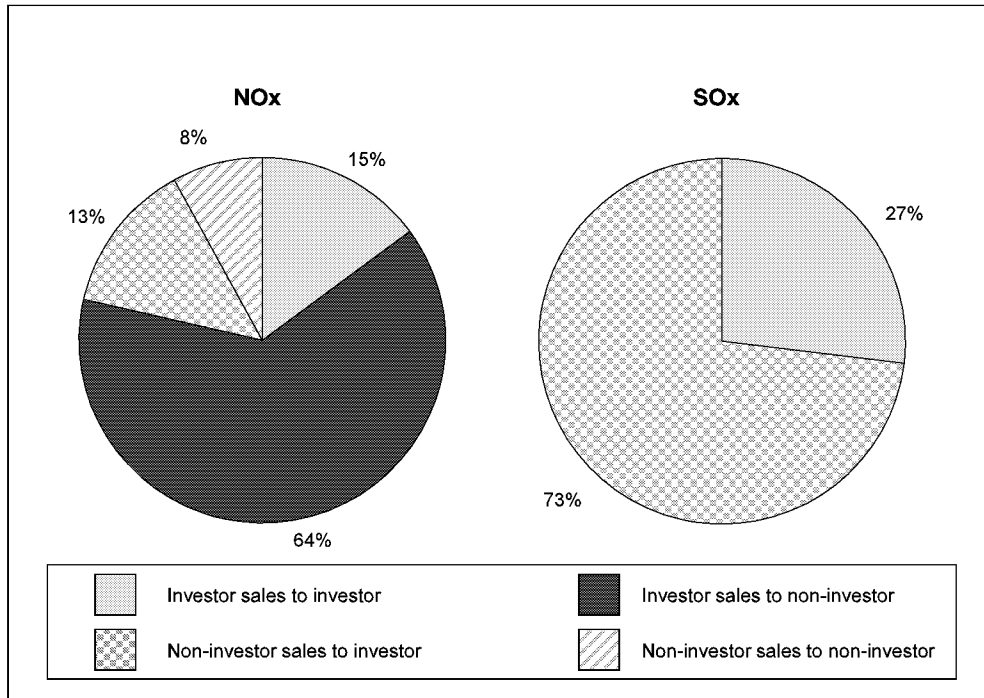
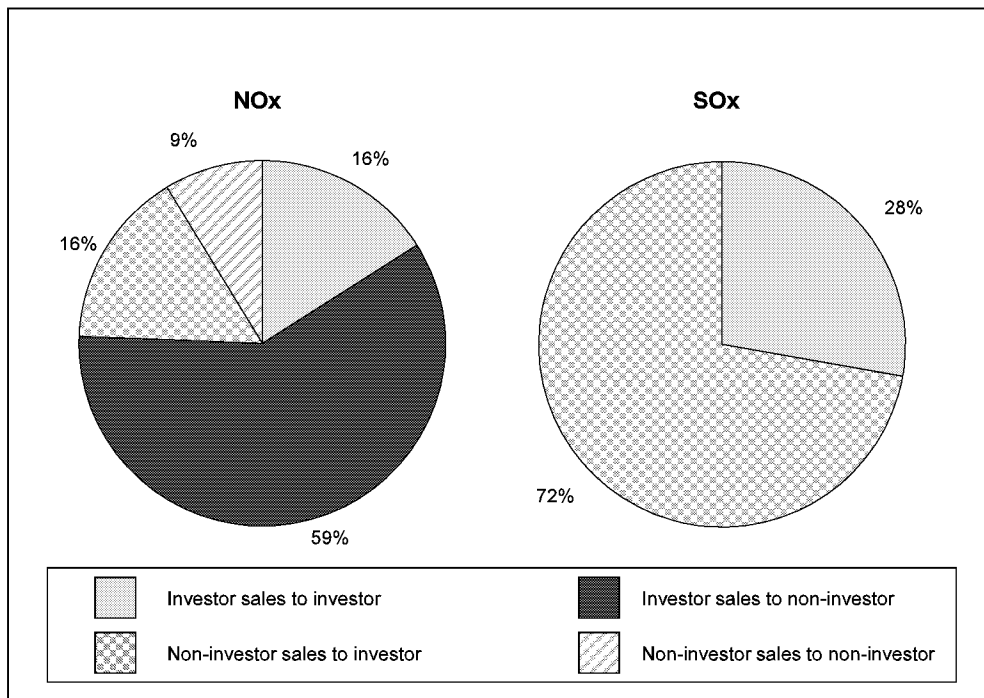


Figure 2-17
Calendar Year 2015 Investor-Involved IYB NOx and SOx Trades Based on Volume Traded with Price



As of the end of calendar year 2015, investors' holding of IYB NOx RTCs had decreased to 1.9% compared to 4.6% at the end of calendar year 2014. Mutual fund investors are no longer holders of IYB NOx RTCs, down from a high of 3.3% at the end of calendar year 2011 and 1.4% at the end of calendar year 2014. Investors' holding of IYB SOx RTCs increased to 3.3% at the end of calendar year 2015 from 0.9% at the end of calendar year 2014. No IYB SOx RTCs are currently held by mutual fund investors.

The available supply of IYB RTCs are generally from facilities that have permanently reduced emissions through the installation of control equipment, the modification or replacement of old equipment, or equipment and/or facility shutdowns. There were four RECLAIM facilities that shut down during Compliance Year 2014. These four facilities all participated in the NOx RECLAIM program and held a total of 179.0 tons of IYB NOx RTCs and the one facility also participating in the SOx RECLAIM program held a total of 110.9 tons of IYB SOx. Currently, these facilities hold a total of 1.7 tons of IYB NOx RTCs and no IYB SOx RTCs. All IYB NOx and SOx RTCs sales from these shutdowns occurred prior to calendar year 2015.

Investor Impacts on RTC Market

Theoretically, the role of investors in this market is to provide capital for installing air pollution control equipment that costs less than the market value of credits. In addition, investors can also improve price competitiveness. This market theory may not fully apply to RECLAIM due to the uniqueness of the program because RECLAIM facility operators have no substitute for RTCs, and short of curtailing operations, pollution controls cannot be implemented within a short time period. That is, there is no alternative source of credits available to RECLAIM facilities when RTC prices increase (they do not have the option to switch to another source of credits when RTCs become expensive). Therefore, RECLAIM facility operators may be at the mercy of owners of surplus or investor-owned RTCs in the short term, particularly during times of rapid price increases, as evidenced in 2000 and 2001 during the California energy crisis.

Generally, RECLAIM facilities hold back additional RTC's for each year as a compliance margin to ensure that they do not inadvertently find themselves exceeding their allocations (failing to reconcile by securing sufficient RTCs to cover their emissions) if their reported emissions increase as the result of any problems or errors discovered by SCAQMD staff during annual facility audits. Facilities have indicated to staff in the past that this compliance margin is approximately 10% of their emissions. For Compliance Year 2014, the total RECLAIM NOx emissions were 7,447 tons. If the future total NOx emissions increased to the Compliance Year 2007 level of 8,796 tons (as illustrated in Figure 7-1), the NOx RTC surplus would be only 903 tons (9% of allocation), which is almost in line with the 10% compliance margin reportedly held by RECLAIM facilities.

To put investors' holdings in context, at the end of calendar year 2015 the aggregate investors' holdings are 1.9% of IYB NOx RTCs. While it can be argued that the holding of IYB NOx RTCs by investors as a group is small relative to the total supply of IYB NOx RTCs, and given the recent rule

amendment that reduced allocations by 45.3% to be achieved in future years, there is no clear basis to estimate the level of IYB RTCs available for sale by non-investors. IYB RTCs represent a critical aspect of the program because these streams of RTCs are sought after to support growth at new or existing facilities. Active facilities are less likely to sell their future year RTCs as IYB. As a result, new RECLAIM facilities or facilities with modifications resulting in emissions increases are potentially at the mercy of investors holding IYB RTCs. Investors have the ability to purchase RTCs at any time so there is the potential for investors' holdings of IYB NOx RTCs to increase in the future.

On the other hand, overall emissions in RECLAIM will certainly change and can be affected by various factors including installation of more emission control equipment, production changes, inclusion of additional facilities into the RECLAIM universe, and shifts in industry sectors and in the economy, in general. Staff anticipates that there are two primary mechanisms that drive a facility to implement additional control technologies: Implementation of Best Available Control Technology (BACT) when existing sources reach the end of their useful lives and are replaced, and demand for RTCs approaching the supply driving up RTC prices and incentivizing the installation of emission controls. The first of these mechanisms will occur gradually over time and the second is likely to be significant when RECLAIM facilities increase production or the supply of RTCs decreases as a result of amendments to Rule 2002 implementing BARCT as discussed in Chapter 3. The first iteration of amending Rule 2002 to reduce the NOx RTC supply to reflect changes in BARCT was adopted by the Governing Board in January 2005 and phased in from Compliance Year 2007 through Compliance Year 2011. The first iteration for SOx (adopted November 2010 with phased implementation commencing in Compliance Year 2013 and full implementation starting with Compliance Year 2018) is currently underway. SOx RECLAIM facilities had ample notice and have been able to keep aggregate SOx emissions below aggregate allocations without significant price increases in Compliance Years 2013 and 2014. On December 4, 2015, the Governing Board amended Rule 2002 to implement BARCT by reducing the NOx RTC supply for Compliance Year 2016 and after, as further discussed in Chapter 3. SCAQMD is working with stakeholders to develop proposed amendments to Regulation XX involving the surrender of RTCs held by RECLAIM facilities when they shutdown equipment or the whole facility to bring this aspect of RECLAIM more in line with non-RECLAIM New Source Review. The December 2015 amendments and the current rule development effort are expected to put pressure on RECLAIM facility operators to reduce emissions so as to keep them below their RTC holdings. It is too soon to tell how the market will respond to these amendments, but if adequate emissions controls are not implemented in a timely manner there is the potential for a seller's market for NOx RTCs to develop, which would make RTCs held by investors increasingly important to the market, as described above. SCAQMD staff will continue to monitor market activity and prices throughout the implementation and will report back to the Governing Board regularly.

The significance of investors' holdings will certainly depend on the ability of RECLAIM facilities to generate adequate emissions reductions in time to dampen the effect of a seller's market that may exist if demand surges in a short period of time, as it did during the California energy crisis of 2000-2001. Proposals to generate emission reduction credits from sources outside of RECLAIM (*i.e.*, mobile and area sources) can also dampen sudden price increases. SCAQMD

staff continues to monitor investor participation in the market to ensure that such participation does not adversely impact the RECLAIM program.

CHAPTER 3 EMISSION REDUCTIONS ACHIEVED

Summary

For Compliance Year 2014, aggregate NOx emissions were below total allocations by 23% and aggregate SOx emissions were below total allocations by 23%. No emissions associated with breakdowns were excluded from reconciliation with facility allocations in Compliance Year 2014. Accordingly, no mitigation is necessary to offset excluded emissions due to approved Breakdown Emission Reports. Therefore, based on audited emissions, RECLAIM achieved its targeted emission reductions for Compliance Year 2014. With respect to the Rule 2015 backstop provisions, Compliance Year 2014 aggregate NOx and SOx emissions were both well below aggregate allocations and, as such, did not trigger the requirement to review the RECLAIM program.

Background

One of the primary objectives of the annual RECLAIM program audits is to assess whether RECLAIM is achieving its targeted emission reductions. Those targeted emission reductions are embodied in the annual allocations issued to RECLAIM facilities. In particular, the annual allocations reflect required emission reductions initially from the subsumed command-and-control rules and control measures, as well as from subsequent reductions in allocations as a result of BARCT implementation. In January 2005 and December 2015, the Board adopted amendments to Rule 2002 to further reduce aggregate RECLAIM NOx allocations through implementation of the latest BARCT. The 2005 amendments resulted in cumulative NOx allocation reductions of 22.5% (2,811 tons/year) from all RECLAIM facilities by Compliance Year 2011, with the biggest single-year reduction of 11.7% in Compliance Year 2007. The 2015 amendments will reduce NOx allocations by 45.3% (4,380 tons per day) by Compliance Year 2022. The reductions are phased-in from Compliance Year 2016 through Compliance Year 2022.

The Board also amended Rule 2002 in November 2010 to implement changes in BARCT for SOx. Specifically, the November 2010 amendments called for certain facilities' RECLAIM SOx allocations to be adjusted to achieve a 48% (2,081 tons/year) overall reduction, with the reductions phased-in from Compliance Year 2013 through Compliance Year 2019. About 1,460 tons/year (approximately 70% of the scheduled reduction) of SOx allocations were reduced by Compliance Year 2014.

Emissions Audit Process

Since the inception of the RECLAIM program, SCAQMD staff has conducted annual program audits of the emissions data submitted by RECLAIM facilities to ensure the integrity and reliability of RECLAIM emission data. The process includes reviews of APEP reports submitted by RECLAIM facilities and audits of field records and emission calculations. The audit process is described in further detail in Chapter 5 – Compliance.

SCAQMD staff adjusts the APEP-reported emissions based on audit results, as necessary. Whenever SCAQMD staff finds discrepancies, they discuss the findings with the facility operators and provide the operators an opportunity to review changes resulting from facility audits and to present additional data or information in support of the data stated in their APEP reports.

This rigorous audit process, although resource intensive, reinforces RECLAIM's emissions monitoring and reporting requirements and enhances the validity and reliability of the final emissions data. The audited emissions are used to determine if a facility complied with its allocations. The most recent five compliance years' audited NOx emissions for each facility are posted on SCAQMD's web page after the audits are completed. All emissions data presented in this annual RECLAIM audit report are compiled from audited facility emissions.

Emission Trends and Analysis

RECLAIM achieves its emission reduction goals on an aggregate basis by ensuring that annual emissions are below total RTCs. It is important to understand that the RECLAIM program is successful at achieving these emission reduction goals even when some individual RECLAIM facilities exceed their RTC account balances, provided aggregate RECLAIM emissions do not exceed aggregate RTCs issued. Therefore, aggregate audited NOx or SOx emissions from all RECLAIM sources are the basis for determining whether the programmatic emission reduction goals for that emittant are met each year.

Since the last annual report, one facility's previous year audit was re-opened based on reassessment of the facility's records and all information available to the SCAQMD. The re-opened audit affected the facility's NOx emissions reported for Compliance Year 2013. Table 3-1 summarizes the change to the audited emissions for the impacted facility. This audit change caused a decrease of less than 0.002% in the overall audited RECLAIM NOx emissions for Compliance Year 2013.

**Table 3-1
Summary of Re-Opened Audits**

Compliance Year	Original Audited NOx Emissions (lbs)	Updated Audited NOx Emissions (lbs)	Change in Audited NOx Emissions (lbs)	% Change	% Change in RECLAIM NOx Emissions	Number of Facilities Involved
2013	11,618	11,353	-265	-2.3%	-0.002%	1

Table 3-2 and Figure 3-1 show aggregate audited NOx emissions for Compliance Years 1994 through 2014. Programmatically, there were excess NOx RTCs remaining after accounting for audited NOx emissions for every compliance year since 1994, except for Compliance Year 2000 when NOx emissions exceeded the total allocations due to the California energy crisis. Since Compliance Year 2007, the first year of the programmatic reduction in RECLAIM NOx allocations that was adopted by the Governing Board as part of the January 2005 rule

amendments, the unused NOx RTCs have been at least 20 percent of the aggregate allocations. Specifically, Compliance Year 2014 NOx emissions were below total allocations by 23%. Aggregate annual NOx emissions have remained relatively level since a large drop in Compliance Year 2009.

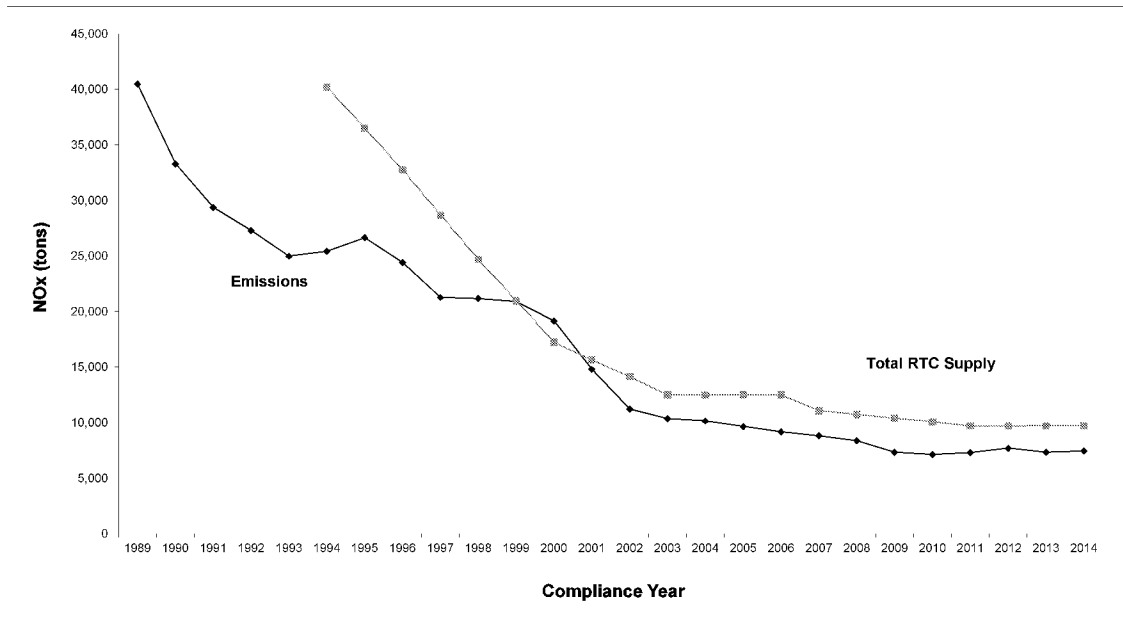
Table 3-2
Annual NOx Emissions for Compliance Years 1994 through 2014

Compliance Year	Audited Annual NOx Emissions ¹ (tons)	Audited Annual NOx Emissions Change from 1994 (%)	Total NOx RTCs ² (tons)	Unused NOx RTCs (tons)	Unused NOx RTCs (%)
1994	25,420	0%	40,186	14,766	37%
1995	26,632	4.8%	36,484	9,852	27%
1996	24,414	-4.0%	32,742	8,328	25%
1997	21,258	-16%	28,657	7,399	26%
1998	21,158	-17%	24,651	3,493	14%
1999	20,889	-18%	20,968	79	0.38%
2000	19,148	-25%	17,208	-1,940	-11%
2001	14,779	-42%	15,617	838	5.4%
2002	11,201	-56%	14,111	2,910	21%
2003	10,342	-59%	12,485	2,143	17%
2004	10,134	-60%	12,477	2,343	19%
2005	9,642	-62%	12,484	2,842	23%
2006	9,152	-64%	12,486	3,334	27%
2007	8,796	-65%	11,046	2,250	20%
2008	8,349	-67%	10,705	2,356	22%
2009	7,306	-71%	10,377	3,071	30%
2010	7,121	-72%	10,053	2,932	29%
2011	7,302	-71%	9,690	2,388	25%
2012	7,691	-70%	9,689	1,998	21%
2013	7,326	-71%	9,699	2,373	24%
2014	7,447	-71%	9,699	2,252	23%

¹ The RECLAIM universe is divided into two cycles with compliance schedules staggered by six months. Compliance years for Cycle 1 facilities run from January 1 through December 31 and Cycle 2 compliance years are from July 1 through June 30.

² Total RTCs = Allocated RTCs + RTCs from ERC conversion.

**Figure 3-1
NOx Emissions and Available RTCs**



Similar to Table 3-2 and Figure 3-1 for NOx, Table 3-3 presents aggregate annual SOx emissions data for each compliance year based on audited emissions, and Figure 3-2 compares these audited aggregate annual SOx emissions with the aggregate annual SOx RTC supply. As shown in Table 3-3 and Figure 3-2, RECLAIM facilities have not exceeded their SOx allocations on an aggregate basis in any compliance year since program inception. For Compliance Year 2014, SOx emissions were below total allocations by 23%. The unused SOx RTCs from Compliance Year 2008 and on has remained in excess of 20%. The data indicates that RECLAIM met its programmatic SOx emission reduction goals and demonstrated equivalency in SOx emission reductions compared to the subsumed command-and-control rules and control measures. Based on audited emission data, annual SOx emissions increased by 110 tons (5%) in Compliance Year 2014 compared to SOx emissions in Compliance Year 2013.

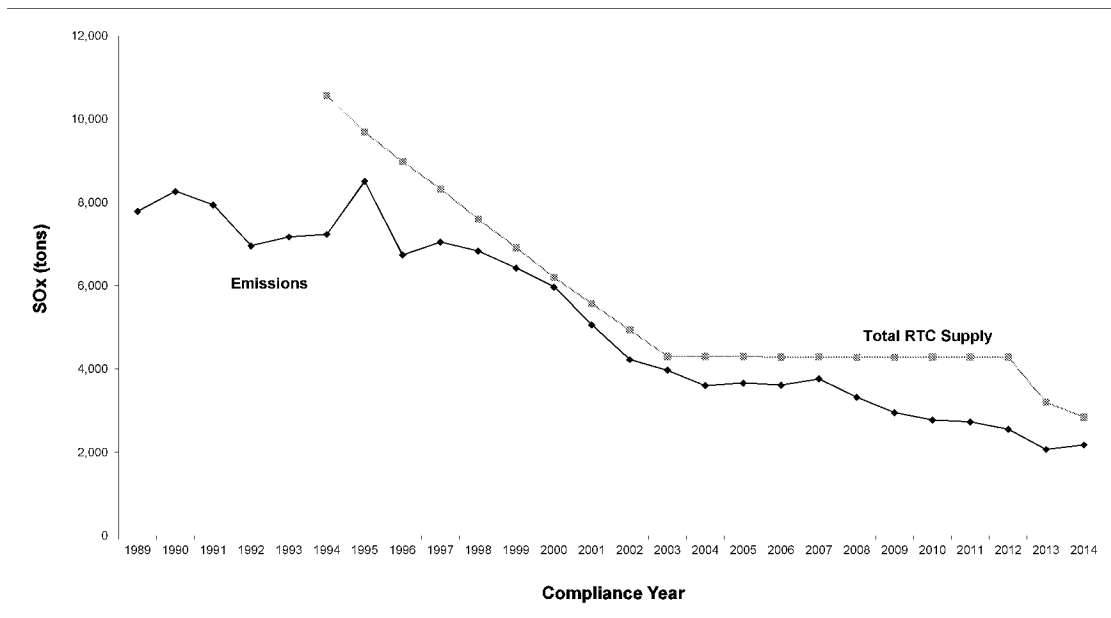
Table 3-3
Annual SOx Emissions for Compliance Years 1994 through 2014

Compliance Year	Audited Annual SOx Emissions ¹ (tons)	Audited Annual SOx Emissions Change from 1994 (%)	Total SOx RTCs ² (tons)	Unused SOx RTCs (tons)	Unused SOx RTCs (%)
1994	7,230	0%	10,336	3,106	30%
1995	8,508	18%	9,685	1,177	12%
1996	6,731	-6.9%	8,976	2,245	25%
1997	7,048	-2.5%	8,317	1,269	15%
1998	6,829	-5.5%	7,592	763	10%
1999	6,420	-11%	6,911	491	7.1%
2000	5,966	-17%	6,194	228	3.7%
2001	5,056	-30%	5,567	511	9.2%
2002	4,223	-42%	4,932	709	14%
2003	3,968	-45%	4,299	331	7.7%
2004	3,597	-50%	4,299	702	16%
2005	3,663	-49%	4,300	637	15%
2006	3,610	-50%	4,282	672	16%
2007	3,759	-48%	4,286	527	12%
2008	3,319	-54%	4,280	961	22%
2009	2,946	-59%	4,280	1,334	31%
2010	2,775	-62%	4,282	1,507	35%
2011	2,727	-62%	4,283	1,556	36%
2012	2,552	-65%	4,283	1,731	40%
2013	2,066	-71%	3,198	1,132	35%
2014	2,176	-70%	2,839	663	23%

¹ The RECLAIM universe is divided into two cycles with compliance schedules staggered by six months. Compliance years for Cycle 1 facilities run from January 1 through December 31 and Cycle 2 compliance years are from July 1 through June 30.

² Total RTCs = Allocated RTCs + RTCs from ERC conversion.

Figure 3-2
SOx Emissions and Available RTCs



Comparison to Command-and-Control Rules

RECLAIM subsumed a number of command-and-control rules¹ and sought to achieve reductions equivalent to these subsumed rules that continue to apply to non-RECLAIM facilities. RECLAIM facilities are exempt from the subsumed rules' requirements that apply to SOx or NOx emissions once the facilities comply with the applicable monitoring requirements of Rules 2011 – Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Sulfur (SOx) Emissions or 2012 – Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions, respectively.

The only rule subsumed by RECLAIM and amended during Compliance Year 2014, was Rule 1325 – Federal PM_{2.5} New Source Review Program. Amended on December 5, 2014, this rule incorporated by reference federal requirements that are applicable to major polluting facilities, defined by rule as sources with actual emissions of, or the potential to emit, 100 tons per year or more of PM_{2.5} or its precursors. Amended Rule 1325 incorporated administrative changes to definitions, provisions, and exclusions in response to comments received from the U.S. EPA regarding SIP approvability of the rule. Specifically, these requirements addressed the definition of major source, significant emissions rate, offset ratios, the applicability requirements of Lowest Achievable Emission Rate (LAER), facility compliance, offsets, and the control of PM_{2.5} precursors. Typographical corrections and other minor clarifications were also included.

These amendments to Rule 1325 were administrative in nature and did not result in any limitations on NOx or SOx sources at non-RECLAIM facilities. And since

¹ See Tables 1 and 2 of Rule 2001.

Rule 2001 only exempts those provisions in identified rules applicable to NO_x and SO_x emissions at RECLAIM facilities, the recent amendments to Rule 1325 did not result in disproportionate impacts between RECLAIM and non-RECLAIM sources.

Rule 1153.1 – Emissions of Oxides of Nitrogen from Commercial Ovens was adopted on November 7, 2014 and contained a specific exemption to exclude RECLAIM NO_x sources from its applicability. This rule applies to equipment such as food ovens, roasters, and smokehouse ovens with new NO_x emissions limits while phasing in compliance based on a 20 year equipment life, and incorporating an 800 ppm carbon monoxide emission limit. Rule 1153.1 is the BARCT rule for this group of equipment under the traditional command and control approach. Under RECLAIM, sources are not subject to source-specific emission limits but are bound by the programmatic goals as specified by the Allocations. Equivalency to command and control is evaluated and implemented as part of the BARCT review process on a programmatic basis (e.g., the three BARCT reviews that resulted in reductions of RECLAIM NO_x and SO_x allocations).

Other rules amended or adopted during Compliance Year 2014, but not subsumed by RECLAIM include Rule 2449 – Control of Oxides of Nitrogen Emissions from Off-Road Diesel Vehicles, Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces, Regulation IX – Standards of Performance for New Stationary Sources (NSPS), and Regulation X – National Emission Standards for Hazardous Air Pollutants (NESHAPS).

In May 2008, the Governing Board adopted Rule 2449 – Control of Oxides of Nitrogen Emissions from Off-Road Diesel Vehicles, implementing the Surplus Off-Road Opt-In for NO_x (SOON) provisions of the State In-Use Off-Road Diesel Vehicle Regulation, which allow air districts to opt-in to the SOON Program to achieve additional NO_x reductions from off-road diesel vehicles. On December 14, 2011, CARB amended the In-Use Off-Road Diesel Vehicle Regulation and removed Section 2449.2 of Title 13 of the California Code of Regulations (CCR). As part of that action, CARB renumbered the SOON Provision Section from 2449.3 to Section 2449.2. As a result, on July 11, 2014, Rule 2449 was amended to revise the reference to the SOON provisions provided in the In-Use Off-Road Diesel Vehicle Regulation from Section 2449.3 to Section 2449.2 of Title 13 of the California Code of Regulations.

On September 5, 2014, Rule 1111 – Reduction of NO_x Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces was amended. The purpose for amending Rule 1111 was to delay the compliance date for condensing (high efficiency) furnaces until April 1, 2015, in order to provide manufacturers additional time for testing new furnace designs and submitting and receiving approval of alternate compliance plans for selling non-compliant condensing furnaces. Additionally, the amendment provided for a mitigation fee-based compliance option to allow up to three years' delay for residential furnace manufacturers that require additional time to produce furnaces that meet the 14 ng/Joule emission limit. The mitigation fee will be used to mitigate the air emissions impacts of the delay.

On April 3, 2015, Regulations IX – Standards of Performance for New Stationary Sources (NSPS) and X – National Emission Standards for Hazardous Air

Pollutants (NESHAPS) were amended to incorporate new or amended federal standards that had been enacted by U.S. EPA for stationary sources. Historically, the Governing Board adopted NSPS (40 CFR 60) and NESHAPS (40 CFR 61) into Regulations IX and X, by reference, to provide stationary sources with a single source of information for determining which federal and local requirements apply to their specific operations. Actions by U.S. EPA, primarily from July 1, 2011 to December 31, 2014, included new performance standards for certain oil and gas operations not covered by previous EPA regulation as well as amendments to previous provisions of twelve NSPS standards and two NESHAPS standards. The amendments to Regulations IX and X incorporated these U.S. EPA NSPS and NESHAPS actions, respectively, into SCAQMD's regulations.

In contrast to Rule 1325 and 1153.1, Rules 2449, 1111, and Regulations IX and X, were not subsumed under RECLAIM and contained no exemptions from their applicability for RECLAIM NO_x or SO_x sources. Since the requirements of these amended rules apply equally to both RECLAIM and non-RECLAIM facilities, there are no differential impacts in emissions when comparing the applicability of amended rule requirements to NO_x and SO_x sources under RECLAIM with NO_x and SO_x sources of non-RECLAIM facilities. Consequently, amendments to rules during Compliance Year 2014, both subsumed by RECLAIM and rules not subsumed by RECLAIM, did not result in any disparate impacts between NO_x and SO_x sources at RECLAIM and NO_x and SO_x sources at non-RECLAIM facilities.

Program Amendments

The rule amendment process was initiated in 2012 and continued through Compliance Year 2014 to implement the 2012 AQMP Control Measure CMB-01, which seeks to comply with California Health and Safety Code §40440 in regards to implementation of BARCT and to bring the Basin into attainment with the federal 24-hour PM_{2.5} standard by 2019 and the federal ozone ambient air quality standards by 2023 and 2031. This effort culminated in a staff proposal to amend the RECLAIM Program which was presented to the Governing Board on December 4, 2015.

The rule amendment process was one of the most comprehensive rule amendment efforts. The process took more than three years and included five briefings for the Stationary Source Committee, 14 Working Group meetings, multiple meetings with various stake holders and air pollution control manufacturers, and input from two engineering consultants. Feasible BARCT identified for the refinery sector included fluid catalytic cracking units, boiler or heaters greater than 40 mmbtu/hr, gas turbines, coke calciners, and sulfur recovery and tail gas incinerators. For the non-refinery sector, new BARCT levels were proposed for container glass melting furnaces, cement kilns, sodium silicate furnaces, metal melting furnaces greater than 150 mmbtu/hr, and gas turbines and ICEs not located on the outer continental shelf. The staff proposal would have resulted in a 14 tons per day of NO_x emission reductions in the RTC supply by Compliance Year 2022 with a schedule of incremental reductions starting from Compliance Year 2016.

On December 4, 2015, the Governing Board voted to adopt a reduction of 12 tons per day and with an incremental reduction schedule of 2 tons per day in

2016, 0 tons per day in 2017, 1 ton per day in 2018, 1 ton per day in 2019, 2 tons per day in 2020, 2 tons per day in 2021, and 4 tons per day in 2022. Other program modifications included

- Three different groups of RTC holders with different rates of reductions—the first group included major refineries and RTC investors, the second group included the balance of the largest NO_x RTC holders representing 90% of the RTC supply (*i.e.*, all NO_x RTC holders were sorted by the amount of IYB NO_x RTCs held from largest holdings to smallest, and the second group was formed by moving down the list and including all those not in the first group until 90% of the IYB supply was in the first and second group), and the third group included the remaining RTC holders. RTC holdings are reduced by 56.3% for the first group, 41.7% for the second group, and zero percent for the third group;
- A Regional NSR Holding Account for certain electricity generating facilities (EGFs) to hold a portion of the reduced RTCs from these facilities. The specified EGFs may apply their portion of the reduced RTCs toward their hold requirements as imposed by Rule 2005 – New Source Review for RECLAIM;
- Provisions to allow use of RTCs in the Regional NSR Holding Account by any EGF during a Governor-declared State of Emergency related to electricity demand or power grid instability within the SCAQMD jurisdictional boundaries. Any EGF seeking such access to the Regional NSR Holding Account will have to demonstrate that it qualifies pursuant to Rule 2002(f)(4). Available RTCs from this account will be distributed in proportion to the amount requested to qualified participants until the supply is exhausted. Within 60 days of the end of the quarter in which a State of Emergency was declared by the Governor, the Executive Officer is to report to the Governing Board on the quantity of RTCs distributed from the Regional NSR Holding Account, any adverse impacts on the RECLAIM program, and any changes to help correct these impacts;
- Provisions for re-activating an incremental portion of the reduced RTCs, which are designated as Non-Tradable/Non-Usable RTCs, in specific cases. The Governing Board may decide on such re-activation if the three-month rolling average price for current compliance year NO_x RTCs exceed \$35,000 per ton or the 12-month rolling average price for current compliance year NO_x RTCs exceed \$22,500 per ton;
- A reporting requirement for the Executive Officer starting in Compliance Year 2019—the Executive Officer is to report to the Governing Board if the 12-month rolling average price for IYB NO_x RTC falls below \$200,000 per ton;
- A requirement for a report to the Governing Board in response to RTC prices exceeding the thresholds described above. The report shall include a commitment and a schedule to assess control technology implementation, emission reduction, cost-effectiveness, market analysis, and socioeconomic impacts. Such report is to be submitted to the Governing Board at a public hearing no more than 90 days after the Executive Officer determination;

- Provisions that allow an operator of an electricity generating facility that is existing as of December 4, 2015 or has been subject to NO_x RECLAIM for at least 10 years to opt-out of the RECLAIM program if all of its NO_x emissions for the most recent three compliance years are from equipment that meets current BACT or BARCT for NO_x. Once opted-out of RECLAIM, the facility is not allowed to re-enter RECLAIM;
- Provisions to issue NO_x Allocations for existing facilities entering RECLAIM after December 5, 2015 based on current BARCT emission factors as represented in tables listed in Rule 2002;
- A delay in relative accuracy testing audit due dates for specified situations;
- Alternative emission calculations for small NO_x sources that are exempt from permit requirements²—NO_x emission calculations based on certified emission levels are added for sources that are certified to certain emission levels by EPA, ARB or SCAQMD; and
- Standard Conditions for temperature³ – adding 60°F as an alternative temperature setting as the standard condition in addition to the existing standard of 68°F under RECLAIM program, provided the same standard is used throughout a RECLAIM facility. All natural gas usages as recorded by gas company meters are expressed at 60°F. Allowing use of 60°F as the standard provides more straightforward emission determinations and recordkeeping for sources that determine fuel usage incorporating Gas Company meters readings.
- A prohibition on use of Annual Emission Report (AER) data submitted more than five years after its original due date for determining Allocations for existing facilities entering RECLAIM—AER reports provide information regarding equipment, process, and production rates which form the basis for determining Allocations for existing facilities as discussed in Chapter 2. The five year limit is imposed to ensure information availability for staff to audit and determine accuracy of the AER reports

The Governing Board did not adopt staff proposed provisions that would remove RTCs from the RECLAIM Program equivalent to emissions from equipment and facilities that have shut down. Instead, the Governing Board directed staff to continue discussions with stake holders to refine the proposal, and submit to the Board a proposal at a later date. This effort is currently underway. Finally, the Board Resolution also directed staff to follow-up on the extent and impact that future power demands may have on EGFs.

Breakdowns

Pursuant to Rule 2004(i) – Breakdown Provisions, a facility may request that emission increases due to a breakdown not be counted towards the facility's allocations. In order to qualify for such exclusion, the facility must demonstrate that the excess emissions were the result of a fire or a mechanical or electrical failure caused by circumstances beyond the facility's reasonable control. The

² This amendment was affirmed by the Governing Board on February 5, 2016.

³ This amendment was adopted by the Governing Board on February 5, 2016.

facility must also take steps to minimize emissions resulting from the breakdown, and mitigate the excess emissions to the maximum extent feasible. Applications for exclusion of unmitigated breakdown emissions from a facility's total reported annual RECLAIM emissions must be approved or denied by SCAQMD in writing. In addition, facilities are required to quantify unmitigated breakdown emissions for which an exclusion request has been approved in their APEP report.

As part of the annual program audit report, Rule 2015(d)(3) requires SCAQMD staff to determine whether excess emissions approved to be excluded from RTC reconciliation have been programmatically offset by unused RTCs within the RECLAIM program. If the breakdown emissions exceed the total unused RTCs within the program, any excess breakdown emissions must be offset by either: (1) deducting the amount of emissions not programmatically offset from the RTC holdings for the subsequent compliance year from facilities that had unmitigated breakdown emissions, proportional to each facility's contribution to the total amount of unmitigated breakdown emissions; and/or (2) RTCs obtained by the Executive Officer for the compliance year following the completion of the annual program audit report in an amount sufficient to offset the unmitigated breakdown emissions.

As shown in Table 3-4, a review of APEP reports for Compliance Year 2014 found that no facilities requested to exclude breakdown emissions from being counted against their allocations. Thus, for Compliance Year 2014, no additional RTCs are required to offset breakdown emissions pursuant to Rule 2015(d)(3).

**Table 3-4
Breakdown Emission Comparison for Compliance Year 2014**

Emittant	Compliance Year 2014 Unused RTCs (tons)	Unmitigated Breakdown Emissions¹ (tons)	Remaining Compliance Year 2014 RTCs (tons)
NOx	2,252	0	2,252
SOx	663	0	663

¹ Data for unmitigated breakdown emissions (not counted against Allocation) as reported under APEP reports.

Impact of Changing Universe

As discussed in Chapter 1, one facility was included into and no facilities were excluded from the NOx universe, no facilities were included or excluded from the SOx universe, and four facilities (three NOx only and one NOx and SOx) shut down in Compliance Year 2014. Changes to the universe of RECLAIM facilities have the potential to impact emissions and the supply and demand of RTCs, and therefore, may impact RECLAIM emission reduction goals.

Existing facilities (defined by Rule 2000 as those with valid SCAQMD Permits to Operate issued prior to October 15, 1993 and that continued to be in operation or possess valid SCAQMD permits on October 15, 1993) that are not categorically excluded pursuant to Rule 200(i)(1) may choose to enter the program even though they do not meet the inclusion criteria. Existing facilities that are neither

categorically excluded nor exempt pursuant to Rule 2001(i)(2) may also be included by SCAQMD if their facility-wide emissions increase to four tons or more per year of NO_x or SO_x or both. When one of these existing facilities enters the program, they are issued RTC allocations based on their operational history pursuant to the methodology prescribed in Rule 2002. Inclusions of existing facilities may affect demand more than supply because even though these facilities are issued RTCs based on their operational history, the amount may not be sufficient to offset their current or future operations. Overall, inclusions shift the accounting of emissions from the universe of non-RECLAIM sources to the universe of RECLAIM sources without actually changing the overall emissions inventory within the South Coast Air Basin. Finally, inclusions change the rules and requirements that apply to the affected facilities. In Compliance Year 2014, no existing facilities elected to opt into the RECLAIM universe or were included into the RECLAIM universe based on the Rule 2001 threshold of actual NO_x and/or SO_x emissions greater than or equal to four tons per year.

Facilities that received all SCAQMD Permits to Operate on or after October 15, 1993 are defined by Rule 2000 as new facilities. Except as described above for categorically excluded and exempt facilities, new facilities can choose to enter RECLAIM or can be included due to actual NO_x or SO_x emissions in excess of four tons or more per year. New facilities are not issued RTCs based on operational history, but any external offsets provided by the facility are converted to RTCs. For Compliance Year 2014, no new facilities elected to opt into the RECLAIM universe, but one new facility, as defined by Rule 2000, was included into the RECLAIM universe pursuant to the Rule 2001 threshold. When a new facility joins the RECLAIM universe, it is required to obtain sufficient RTCs to offset its NO_x or SO_x emissions. These RTCs must be obtained through the trading market and are not issued by SCAQMD to the facility (any external offsets previously provided by the facility are converted to RTCs). Such facilities increase the overall demand for the fixed supply of RTCs because they increase total RECLAIM emissions without increasing the total supply of RTCs.

The shutdown of a RECLAIM facility results in a reduction in actual emissions. The shut down facility retains its RTC holdings, which it may continue to hold as an investment, transfer to another facility under common ownership, or trade on the market. Therefore, although the facility is no longer emitting, its RTCs may be used at another facility. Shutdown facilities have the opposite effect on the RTC market as do new facilities: the overall demand for RTCs is reduced while the supply remains constant. As reported in Chapter 1, four RECLAIM facilities (three NO_x-only facilities and one NO_x/SO_x facility) shut down permanently in Compliance Year 2014. As discussed earlier in this chapter, a Rule 2002 amendment proposal that will remove RTCs from the RECLAIM Program equivalent to emissions from equipment and facilities that have shut down is currently being refined for submittal to the Governing Board during 2016.

A facility is excluded from the RECLAIM universe if SCAQMD staff determines that the facility was included in the program in error. In such cases, both the emissions and the RTCs that were issued to the facility for future years are withdrawn, thereby having a neutral impact on the RTC supply. Exclusions have the reverse effect of inclusions, in that the accounting of emissions is shifted from the RECLAIM universe of sources to the non-RECLAIM universe of sources. No facilities were excluded in Compliance Year 2014.

In summary, inclusion of new facilities and the shutdown of RECLAIM facilities, change the demand for RTCs without changing the supply⁴, while exclusions of existing facilities make corresponding changes to both the demand and the supply, thereby mitigating their own impact on the markets and shifting emissions between the RECLAIM and non-RECLAIM universes.

Compliance Year 2014 NOx and SOx audited emissions and initial Compliance Year 2014 allocations for facilities that were shut down, excluded, or included into the program during Compliance Year 2014 are summarized in Tables 3-5 and 3-6.

**Table 3-5
NOx Emissions Impact from the Changes in Universe (Tons)**

Category	Compliance Year 2014 NOx Emissions (tons)	Initial Compliance Year 2014 NOx Allocations (tons)
Shutdown Facilities	0.1	180.2
Excluded Facilities	Not applicable	Not applicable
Included Facilities	1.3	0.0
RECLAIM Universe	7,447	9,699

**Table 3-6
SOx Emissions Impact from the Changes in Universe (Tons)**

Category	Compliance Year 2014 SOx Emissions (tons)	Initial Compliance Year 2014 SOx Allocations (tons)
Shutdown Facilities	0.0	110.9
Excluded Facilities	Not applicable	Not applicable
Included Facilities	Not applicable	Not applicable
RECLAIM Universe	2,176	2,839

Backstop Provisions

Rule 2015 requires that SCAQMD review the RECLAIM program and implement necessary measures to amend it whenever aggregate emissions exceed the aggregate allocations by five percent or more, or whenever the annual average price of RTCs exceeds \$15,000 per ton. Compliance Year 2014 aggregate NOx and SOx emissions were both below aggregate allocations as shown in Figures 3-1 and 3-2. At the same time, annual average prices for NOx and SOx RTCs in calendar year 2014 were below \$15,000 per ton, as shown in Chapter 2. Therefore, there is no need to initiate a program review.

⁴ Facilities that were initially permitted after the October 1993 adoption of RECLAIM and that provided NOx or SOx ERCs to offset their emissions are issued RTCs corresponding to the ERCs provided.

CHAPTER 4 NEW SOURCE REVIEW ACTIVITY

Summary

The annual program audit assesses New Source Review (NSR) activity from RECLAIM facilities in order to ensure that RECLAIM is complying with federal NSR requirements and state no net increase (NNI) in emissions requirements while providing flexibility to facilities in managing their operations and allowing new sources into the program. In Compliance Year 2014, a total of eight NO_x RECLAIM facilities had NSR NO_x emission increases, and no SO_x RECLAIM facilities had NSR SO_x emission increases due to expansion or modification. Consistent with all prior compliance years, there were sufficient NO_x and SO_x RTCs available to allow for expansion, modification, and modernization by RECLAIM facilities.

RECLAIM is required to comply with federal NSR emissions offset requirements at a 1.2-to-1 offset ratio programmatically for NO_x emission increases and a 1-to-1 offset ratio for SO_x emission increases on a programmatic basis. In Compliance Year 2014, RECLAIM demonstrated federal equivalency with a programmatic NO_x offset ratio of 73-to-1 based on the compliance year's total unused allocations and total NSR emission increases for NO_x. RECLAIM inherently complies with the federally-required 1-to-1 SO_x offset ratio for any compliance year, provided aggregate SO_x emissions under RECLAIM are lower than or equal to aggregate SO_x allocations for that compliance year. As shown in Chapter 3, there was no programmatic SO_x exceedance during Compliance Year 2014. In fact, there was a surplus of SO_x RTCs. Therefore, RECLAIM more than complied with the federally-required SO_x offset ratio and further quantification of the SO_x offset ratio is unnecessary. Compliance with the federally-required offset ratio also demonstrates compliance with any applicable state NNI requirements for new or modified sources. In addition, RECLAIM requires application of, at a minimum, California Best Available Control Technology (BACT), which is at least as stringent as federal Lowest Achievable Emission Rate (LAER). The same BACT guidelines are used to determine applicable BACT to RECLAIM and non-RECLAIM facilities.

Background

Emissions increases from the construction of new or modified stationary sources in non-attainment areas are regulated by both federal NSR and state NNI requirements to ensure that progress toward attainment of ambient air quality standards is not hampered. RECLAIM is designed to comply with federal NSR

and state NNI requirements without hindering facilities' ability to expand or modify their operations¹.

Title 42, United States Code §7511a, paragraph (e), requires major sources in extreme non-attainment areas to offset emission increases of extreme non-attainment pollutants and their precursors at a 1.5-to-1 ratio based on potential to emit. However, if all major sources in the extreme non-attainment area are required to implement federal BACT, a 1.2-to-1 offset ratio may be used. Federal BACT is comparable to California's BARCT. SCAQMD requires all major sources to employ federal BACT/California BARCT at a minimum and, therefore, is eligible for a 1.2-to-1 offset ratio for ozone precursors (*i.e.*, NO_x and VOC). The federal offset requirement for major SO₂ sources is at least a 1-to-1 ratio, which is lower than the aforementioned 1.2-to-1 ratio. Even though the Basin is in attainment with SO_x standards, SO_x is a precursor to PM₁₀ which is a non-attainment air pollutant in the Basin. The applicable offset ratio for PM₁₀ is at least 1-to-1, thus, the applicable offset ratio for SO_x is 1-to-1. Health and Safety Code §40920.5 requires "no net increase in emissions from new or modified stationary sources of non-attainment pollutants or their precursors" (*i.e.*, a 1-to-1 offset ratio on an actual emissions basis). All actual RECLAIM emissions are offset at a 1-to-1 ratio provided there is not a programmatic exceedance of aggregate allocations, thus satisfying the federal offset ratio for SO_x and state NNI requirements for both SO_x and NO_x. Annual RTC allocations follow a programmatic reduction to reflect changes in federal BACT/California BARCT and thereby comply with federal and state offset requirements.

RECLAIM requires, at a minimum, California BACT for all new or modified sources with increases in hourly potential to emit of RECLAIM pollutants. SCAQMD uses the same BACT guidelines in applying BACT to RECLAIM and non-RECLAIM facilities. Furthermore, BACT for major sources is at least as stringent as LAER (LAER is not applicable to minor facilities as defined in Rule 1302(t)). Thus, RECLAIM complies with both state and federal requirements regarding control technologies for new or modified sources. In addition to offset and BACT requirements, RECLAIM subjects RTC trades that are conducted to mitigate emissions increases over the sum of the facility's starting allocation and non-tradable/non-usable credits to trading zone restrictions to ensure net ambient air quality improvement within the sensitive zone established by Health and Safety Code §40410.5. Furthermore, facilities with actual RECLAIM emissions that exceed their initial allocation by 40 tons per year or more are required to analyze the potential impact of their emissions increases through air quality modeling.

Rule 2005 – New Source Review for RECLAIM requires RECLAIM facilities to provide (hold), prior to the start of operation, sufficient RTCs to offset the annual increase in potential emissions for the first year of operation at a 1-to-1 ratio. The same rule also requires all new RECLAIM facilities² and all other RECLAIM

¹ Federal NSR applies to federal major sources (sources with the potential to emit at least 10 tons of NO_x or 100 tons of SO_x per year for the South Coast Air Basin) and state NNI requirements apply to all NO_x sources and to SO_x sources with the potential to emit at least 15 tons per year in the South Coast Air Basin. RECLAIM's NSR provisions apply to all facilities in the program, including those not subject to federal NSR or state NNI. (Although the threshold for RECLAIM inclusions is four tons per year of NO_x or SO_x emissions, some RECLAIM facilities have actual emissions much less than 4 tons per year).

² New facilities are facilities that received all District Permits to Construct on or after October 15, 1993.

facilities that increase their annual allocations above the level of their starting allocations plus non-tradable/non-usable credits to provide sufficient RTCs to offset the annual potential emissions increase from new or modified source(s) at a 1-to-1 ratio at the commencement of each compliance year after the start of operation of the new or modified source(s). Although RECLAIM allows a 1-to-1 offset ratio for emissions increases, RECLAIM complies with the federal 1.2-to-1 offset requirement for NO_x on an aggregate basis. This annual program audit report assesses NSR permitting activities for Compliance Year 2014 to verify that programmatic compliance of RECLAIM with federal and state NSR requirements has been maintained.

NSR Activity

Evaluation of NSR data for Compliance Year 2014 shows that RECLAIM facilities were able to expand and modify their operations while complying with NSR requirements. During Compliance Year 2014, a total of eight NO_x RECLAIM facilities (five in Cycle 1 and three in Cycle 2) were issued permits to operate, which resulted in a total of 31.21 tons per year of NO_x emission increases from starting operations of new or modified sources, and no SO_x RECLAIM facilities experienced a SO_x NSR emission increase that resulted from starting operations of new or modified permitted sources. These emission increases were calculated pursuant to Rule 2005(d) – Emission Increase. As in previous years, there were adequate unused RTCs (NO_x: 2,252 tons, SO_x: 663 tons; see Chapter 3) in the RECLAIM universe available for use to offset these emission increases at the appropriate offset ratios.

NSR Compliance Demonstration

RECLAIM is designed to programmaticly comply with the federal NSR offset requirements. Meeting the NSR requirement (offset ratio of 1.2-to-1 for NO_x and at least 1-to-1 for SO_x) also demonstrates compliance with the state NNI requirements. Section 173 (c) of the federal Clean Air Act (CAA) states that only emissions reductions beyond the requirements of the CAA, such as federal Reasonably Available Control Technology (RACT), shall be considered creditable as emissions reductions for offset purposes. Since the initial allocations (total RTC supply in Compliance Year 1994) already met federal RACT requirements when the program was initially implemented, any emissions reductions beyond the initial allocations are available for NSR offset purposes until RACT becomes more stringent. The programmatic offset ratio calculations presented in the Annual RECLAIM Audit Reports for Compliance Years 1994 through 2004 relied upon aggregate Compliance Year 1994 allocations as representing RACT. However, staff recognizes that RACT may have become more stringent in the intervening years, so it may no longer be appropriate to calculate the programmatic offset ratio based upon aggregate 1994 allocations.

Aggregate allocations for each compliance year represent federal BACT, which is equivalent to local BARCT. Federal BACT is more stringent than federal RACT (*i.e.*, the best available control technology is more stringent than what is reasonably available), so staff started using current allocations (federal BACT) as a surrogate for RACT as the basis for calculating programmatic NO_x and SO_x offset ratios in the annual program audit report for Compliance Year 2005 and is continuing to do so for NO_x in this report. This is a more conservative (*i.e.*, more

stringent) approach than using actual RACT and is much more conservative than using aggregate Compliance Year 1994 allocations. The advantage of this approach is that, as long as the calculated NOx offset ratio is at least 1.2-to-1, it provides certainty that RECLAIM has complied with federal and state offset requirements without the need to know exactly what RACT is for RECLAIM facilities. However, if this very conservative approach should ever fail to demonstrate that the aggregate NOx offset ratio for any year is at least 1.2-to-1, that will not necessarily mean RECLAIM has not actually complied with the federally required 1.2-to-1 NOx offset ratio. Rather it will indicate that further analysis is required to accurately identify RACT so that the actual offset ratio can be calculated and a compliance determination made.

Provided aggregate RECLAIM emissions do not exceed aggregate allocations, all RECLAIM emissions are offset at a ratio of 1-to-1. This leaves all unused allocations available to provide offsets beyond the 1-to-1 ratio for NSR emission increases. Unused allocations are based on all Cycle 1 and Cycle 2 RTCs of a given compliance year and the aggregate RECLAIM emissions for the selected time period. The NSR emission increase is the sum of emission increases due to permit activities at all RECLAIM facilities during the same compliance year. The aggregate RECLAIM offset ratios are expressed by the following formula:

$$\text{Offset Ratio} = \left(1 + \frac{\text{compliance year's total unused allocations}}{\text{total NSR emission increases}} \right)\text{-to-1}$$

As stated in the previous section under the title of "NSR Activity", permits to operate issued to eight RECLAIM facilities resulted in 31.21 tons of NOx emission increase pursuant to Rule 2005(d). Additionally, as identified in Table 3-2 (Annual NOx Emissions for Compliance Years 1994 through 2014), 2,252 tons of Compliance Year 2014 NOx RTCs remained unused. Therefore, the Compliance Year 2014 NOx programmatic offset ratio calculated from this methodology is 73-to-1 as shown below:

$$\begin{aligned} \text{Offset Ratio} &= \left(1 + \frac{2,252 \text{ tons}}{31.21 \text{ tons}} \right)\text{-to-1} \\ &= 73\text{-to-1} \end{aligned}$$

RECLAIM continues to generate sufficient excess emission reductions to provide a NOx offset ratio greater than the 1.2-to-1 required by federal law. This compliance with the federal offset requirements is built into the RECLAIM program through annual reductions of the allocations assigned to RECLAIM facilities and the subsequent allocation adjustments adopted by the Governing Board to implement BARCT. The required offset ratio for SOx is 1-to-1. Since RECLAIM facilities are required to secure, at a minimum, adequate RTCs to cover their actual emissions, the SOx 1-to-1 offset ratio is met automatically provided there is no programmatic exceedance of aggregate SOx allocations for that compliance year. As stated earlier in Chapter 3, there were 663 tons of excess (unused) SOx RTCs for Compliance Year 2013. Therefore, there is certainty that both the federally required SOx offset ratio and the California NNI

requirement for SO_x were satisfied and a separate calculation of the SO_x offset ratio is not necessary.

BACT and modeling are also required for any RECLAIM facility that installs new equipment or modifies sources if the installation or modification results in an increase in emissions of RECLAIM pollutants. Furthermore, the RTC trading zone restrictions in Rule 2005 – New Source Review for RECLAIM, limit trades conducted to offset emission increases over the sum of the facility's starting allocation and non-tradable/non-usable credits to ensure net ambient air quality improvement within the sensitive zone, as required by state law.

The result of the review of NSR activity in Compliance Year 2014 shows that RECLAIM is in compliance with both state NNI and federal NSR requirements. SCAQMD staff will continue to monitor NSR activity under RECLAIM in order to assure continued progress toward attainment of ambient air quality standards without hampering economic growth in the Basin.

Modeling Requirements

Rule 2004, as amended in May 2001, requires RECLAIM facilities with actual NO_x or SO_x emissions exceeding their initial allocation in Compliance Year 1994 by 40 tons per year or more to conduct modeling to analyze the potential impact of the increased emissions. The modeling analysis is required to be submitted within 90 days of the end of the compliance year. For Compliance Year 2014, three RECLAIM facilities were subject to the 40 ton modeling requirement; two facilities for NO_x emissions, and one for SO_x emissions.

This modeling is performed with an EPA approved air dispersion model to assess the impact of a facilities NO_x or SO_x emission increase on compliance with all applicable state and federal ambient air quality standards (AAQS). Air dispersion modeling submitted by each facility is reviewed by staff and revised as necessary to comply with SCAQMD's air dispersion modeling procedures including use of appropriate meteorological data for the facility location. Per Rule 2004 (q)(3), the modeling submitted by a facility must include source parameters and emissions for every major source located at the facility. For comparison against applicable state and federal AAQS, the predicted modeling impacts due to a facilities NO_x or SO_x emission increases are added to the highest background NO_x or SO_x concentration measured at the nearest ambient air monitoring station during the previous three years. Modeling runs are performed with worst-case emissions data for averaging periods that coincide with the averaging period of each applicable AAQS (e.g. 1-hr, 24-hr, annual).

The SO_x facility, which had an initial SO_x allocation in 1994 and exceed this initial allocation by more than 40 tons in Compliance Year 2014, submitted modeling that demonstrated that SO_x emissions from their major sources during 2014 will not cause an exceedance of any state or federal SO₂ AAQS. One of the NO_x facilities had an initial NO_x allocation in 1994 and exceeded this initial allocation by more than 40 tons in Compliance Year 2014. This facility submitted modeling that demonstrated that NO_x emissions from their major sources during 2014 will not cause an exceedance of any state or federal NO₂ AAQS. The other NO_x facility, which had no initial allocation in Compliance Year 1994 and whose NO_x emissions were above the 40 ton per year threshold, modeled NO_x emissions at a much higher emission level prior to its recent commissioning.

This initial modeling determined that the annual NO_x emission increase would not cause an exceedance of state or federal NO₂ AAQS. Since the initial modeling was conducted at a much higher emission level than what the facility emitted in 2014, this facility did not require additional modeling analysis (*i.e.*, the fact that modeling conducted during the permitting process demonstrated that emissions at the potential to emit level would not cause an exceedance of the state or federal AAQS for NO₂ provides certainty that the much lower actual emissions level did not cause such an exceedance).

CHAPTER 5 COMPLIANCE

Summary

Of the 276 NO_x RECLAIM facilities audited during Compliance Year 2014, a total of 265 facilities (96%) complied with their NO_x allocations, and 32 of the 33 SO_x facilities (97%) complied with their SO_x allocations. Twelve facilities exceeded their allocations (11 facilities exceeded their NO_x allocations, and one facility exceeded its SO_x allocation) during Compliance Year 2014. The 11 facilities that exceeded their NO_x allocations had aggregate NO_x emissions of 140.1 tons and did not have adequate allocations to offset 32.4 tons (or 23.1%) of their combined emissions. The one SO_x facility that exceeded its SO_x allocation had total SO_x emissions of 311.1 tons and did not have adequate allocations to offset 26.3 tons (or 8.5%). The NO_x and SO_x exceedance amounts are relatively small compared to the overall NO_x and SO_x allocations for Compliance Year 2014 (0.33% of total NO_x allocations and 0.93% of total SO_x allocations). The exceedances from these facilities did not impact the overall RECLAIM emission reduction goals. Pursuant to Rule 2010(b)(1)(A), these facilities had their respective exceedances deducted from their annual allocations for the compliance year subsequent to the date of SCAQMD's determination that the facilities exceeded their Compliance Year 2014 allocations. The overall RECLAIM NO_x and SO_x emission reduction targets and goals were met for Compliance Year 2014 (i.e., aggregate emissions for all RECLAIM facilities were well below aggregate allocations).

Background

RECLAIM facilities have the flexibility to choose among compliance options to meet their annual allocations by reducing emissions, trading RTCs, or a combination of both. However, this flexibility must be supported by standardized emission MRR requirements to ensure the reported emissions are real, quantifiable, and enforceable. As a result, detailed MRR protocols are specified in the RECLAIM regulation to provide accurate and verifiable emission reports.

The MRR requirements were designed to provide accurate and up-to-date emission reports. Once facilities install and complete certification of the required monitoring and reporting equipment, they are relieved from command-and-control rule limits and requirements subsumed under Rule 2001. Mass emissions from RECLAIM facilities are then determined directly by monitoring and reporting equipment for some sources and from data generated by monitoring equipment for others. If monitoring equipment fails to produce quality-assured data or the facility fails to file timely emissions reports, RECLAIM rules require emissions be determined by a rule-prescribed methodology known as Missing Data Procedures or "MDP." Depending on past performance of the monitoring equipment (i.e., availability of quality-assured data) and the duration of the missing data period, MDP use a tiered approach to calculate emissions. As availability of quality-assured data increases, the MDP-calculated emissions become more representative of the actual emissions, but when the availability of

quality-assured data is low, MDP calculations become more conservative and approach, to some extent, “worst case” assessments.

Allocation Compliance

Requirements

At the beginning of the RECLAIM program in 1994 or at the time a facility is included in the RECLAIM program, each RECLAIM facility is issued an annual allocation for each compliance year pursuant to methodology prescribed in Rule 2002. For a facility in existence prior to October 1993, it is issued allocations by SCAQMD based on its historical production rate. A facility without an operating history prior to 1994 receives no allocation and must purchase enough RTCs to cover the emissions for their operations, except facilities that have provided ERCs to offset emission increases prior to entering RECLAIM are issued RTCs generated by converting the surrendered ERCs to RTCs. Additionally, all facilities entering RECLAIM holding any ERCs generated at and held by the individual facility itself have those ERCs converted to RTCs and added to their allocated RTCs. Knowing their emission goals, RECLAIM facilities have the flexibility to manage their emissions in order to meet their allocations in the most cost-effective manner. Facilities may employ emission control technology or process changes to reduce emissions, buy RTCs, or sell unneeded RTCs.

Facilities may buy RTCs or sell excess RTCs at any time during the year in order to ensure that their emissions are covered. There is a thirty day reconciliation period commencing at the end of each of the first three quarters of each compliance year. In addition, after the end of each compliance year, there is a 60-day reconciliation period (instead of 30 days as at the end of the first three quarters) during which facilities have a final opportunity to buy or sell RTCs for that compliance year. These reconciliation periods are provided for facilities to review and correct their emission reports as well as securing adequate allocations. Each RECLAIM facility must hold sufficient RTCs in its allocation account to cover (or reconcile with) its quarterly as well as year-to-date emissions for the compliance year at the end of each reconciliation period. By the end of each quarterly and annual reconciliation period, each facility is required to certify the emissions for the preceding quarter and/or compliance year by submitting its Quarterly Certification of Emissions Reports (QCERs) and/or APEP report, respectively.

Compliance Audit

Since the beginning of the program, SCAQMD staff has conducted annual audits of each RECLAIM facility to ensure their integrity and reliability. The audit process includes conducting field inspections to check process equipment, monitoring devices, and operational records. Additionally, emissions calculations are performed in order to verify emissions reported electronically to SCAQMD or submitted in QCERs and APEP reports. For Compliance Year 2014, these inspections revealed that some facilities did not obtain or record valid monitoring data, were unable to substantiate reported emissions with valid records, failed to submit emission reports when due, made errors in quantifying their emissions (e.g., arithmetic errors), used incorrect adjustment factors (e.g., bias adjustment factors), failed to correct fuel usage to standard conditions, used emission calculation methodologies not allowed under the rules, or used MDP

inappropriately. Other common mistakes included reporting non-RECLAIM emissions and/or omitting reportable emissions. Appropriate compliance actions are also taken based on audit findings.

Whenever an audit revealed a facility's emissions to be in excess of its annual allocation, the facility was provided an opportunity to review the audit and to present additional data to further refine audit results. This extensive and rigorous audit process ensures valid and reliable emissions data.

Compliance Status

During this compliance year, a total of 12 RECLAIM facilities failed to reconcile their emissions (11 NOx-only facilities and one NOx and SOx facility that only exceeded its SOx allocation). Seven of these 12 facilities (six NOx-only facilities and the one NOx/SOx facility that exceeded its SOx allocations) failed to secure sufficient RTCs during either the quarterly or annual reconciliation periods to cover their reported emissions. Three of the six NOx-only facilities had additional exceedances because they under-reported their emissions and didn't hold sufficient RTCs to reconcile their audited emissions. Of the eleven facilities with NOx exceedances, the remaining five facilities (NOx-only) had exceedances solely because they under-reported their emissions and didn't hold sufficient RTCs to reconcile their audited emissions. Reasons for under-reported NOx emissions include one or more of the following: utilization of incorrect moisture content to convert measured stack flow to dry stack flow, failure to correct measured fuel flow to standard conditions, failure to account for quarterly NOx emissions from a piece of NOx emitting equipment, failure to use correct equipment rating, failure to use correct emission factor(s), and failure to use applicable missing data procedures.

Overall, the Compliance Year 2014 allocation compliance rates for facilities are 96% (265 out of 276 facilities) for NOx RECLAIM and 97% (32 out of 33 facilities) for SOx RECLAIM. For purposes of comparison, the allocation compliance rates for Compliance Year 2013 were 97% and 94% for NOx and SOx RECLAIM facilities, respectively. The 11 facilities that had NOx emissions in excess of their individual NOx allocations had 140.1 tons of NOx emissions and did not have adequate RTCs to cover 32.4 of those tons (or 23.1%). The SOx facility that exceeded its SOx allocation and had total SOx emissions of 311.1 tons did not have adequate allocations to offset 26.3 tons (or 8.5%). The NOx and SOx exceedance amounts are relatively small compared to the overall allocations for Compliance Year 2014 (0.33% of aggregate NOx allocations and 0.93% of aggregate SOx allocations). Pursuant to Rule 2010(b)(1)(A), all twelve facilities had their respective NOx or SOx Allocation exceedances deducted from their annual emissions allocations for the compliance year subsequent to SCAQMD's determination that the facilities exceeded their Compliance Year 2014 allocations.

Impact of Missing Data Procedures

MDP was designed to provide a method for determining emissions when an emission monitoring system does not yield valid emissions. For major sources, these occurrences may be caused by failure of the monitoring systems, the data acquisition and handling systems, or by lapses in the Continuous Emissions Monitoring System (CEMS) certification period. Major sources are also required

to use MDP for determining emissions whenever daily emissions reports are not submitted by the applicable deadline. When comparing actual emissions with a facility's use of substituted MDP emissions, the range of MDP emissions can vary from "more representative" to being overstated to reflect a "worst case"¹ scenario. For instance, an MDP "worst case" scenario may occur for major sources that fail to have their CEMS certified in a timely manner, and therefore, have no valid CEMS data that can be used for substitution. In other cases, where prior CEMS data is available, MDP is applied in tiers depending on the duration of missing data periods and the historical availability of monitoring systems. As the duration of missing data periods gets shorter and the historical availability of monitoring systems gets higher, the substitute data yielded by MDP becomes more representative of actual emissions².

In addition to MDP for major sources, RECLAIM rules also define MDP for large sources and process units. These procedures are applicable when a process monitoring device fails or when a facility operator fails to record fuel usage or other monitored data (*e.g.*, hours of operation). The resulting MDP emissions reports are reasonably representative of the actual emissions because averaged or maximum emissions from previous operating periods may be used. However, for extended missing data periods (more than two months for large sources or four quarters or more for process units) or when emissions data for the preceding year are unavailable, large source and process unit MDP are also based on maximum operation or worst case assumptions.

Based on APEP reports, 97 NO_x facilities and 13 SO_x facilities used MDP in reporting portions of their annual emissions during Compliance Year 2014. In terms of mass emissions, 3.3% of the total reported NO_x emissions and 3.0% of the total reported SO_x emissions in the APEP reports were calculated using MDP for Compliance Year 2014. Table 5-1 compares the impact of MDP on reported annual emissions for the last few compliance years to the second compliance year, 1995 (MDP was not fully implemented during Compliance Year 1994).

¹ Based on uncontrolled emission factor at maximum rated capacity of the source and 24 hours per day.

² Based on averaged emissions during periods before and after the period for which data is not available.

Table 5-1
MDP Impact on Annual Emissions

Year	Percent of Reported Emissions Using Substitute Data *	
	NOx	SOx
1995	23.0% (65 / 6,070)	40.0% (12 / 3,403)
2008	7.6% (86 / 625)	7.5% (9 / 242)
2009	7.8% (103 / 554)	13.8% (15 / 403)
2010	7.0% (93 / 488)	6.1% (23 / 168)
2011	6.2% (94 / 435)	12.4% (19 / 328)
2012	7.5% (95 / 560)	4.5% (13 / 114)
2013	3.9% (107 / 287)	5.6% (15 / 113)
2014	3.3% (97 / 247)	3.0% (13 / 66)

* Numbers in parenthesis that are separated by a slash represent the number of facilities that reported use of MDP in each compliance year and tons of emissions based on MDP.

Most of the issues associated with CEMS certifications were resolved prior to Compliance Year 1999. Since then, very few facilities have had to submit emissions reports based on the worst case scenario under MDP, which may considerably overstate the actual emissions from major sources. As an example, most facilities that reported emissions using MDP in 1995 did so because they did not have their CEMS certified in time to report actual emissions. Since their CEMS had no prior data, MDP called for an application of the most conservative procedure to calculate substitute data by assuming continuous uncontrolled operation at the maximum rated capacity of the facility's equipment, regardless of the actual operational level during the missing data periods. As a result, the calculations yielded substitute data that may have been much higher than the actual emissions. In comparison to the 65 NOx facilities implementing MDP in Compliance Year 1995, 97 facilities reported NOx emissions using MDP in Compliance Year 2014. Even though the number of facilities is higher than in 1995, the percentage of emissions reported using MDP during Compliance Year 2014 is much lower than it was in 1995 (3.3% compared to 23%). Additionally, in terms of quantity, NOx emissions in Compliance Year 2014 were about 4% of those in Compliance Year 1995 (247 tons compared to 6,070 tons). Since most CEMS were certified and had been reporting actual emissions by the beginning of Compliance Year 2000, facilities that had to calculate substitute data were able to apply less conservative methods of calculating MDP for systems with high availability and shorter duration missing data periods. Therefore, the substitute data they calculated for their missing data periods were more likely to be representative of the actual emissions.

It is important to note that portions of annual emissions attributed to MDP include actual emissions from the sources as well as the possibility of overestimated emissions. As shown in Table 5-1, approximately 3% of reported NO_x annual emissions were calculated using MDP in Compliance Year 2014. MDP may significantly overestimate emissions from some of the sources that operate intermittently and have low monitoring system availability, and/or lengthy missing data periods. Even though a portion of the 3% may be overestimated emissions due to conservative MDP, a significant portion (or possibly all) of it could have also been actual emissions from the sources. Unfortunately, the portion that represents the actual emissions cannot be readily estimated because the extent of this effect varies widely, depending on source categories and operating parameters, as well as the tier of MDP applied. For Compliance Year 2014, a significant portion of NO_x MDP emissions data (41%) and majority of SO_x MDP emissions data (93%) were reported by refineries, which tend to operate near maximum capacity for 24 hours per day and seven days per week, except for scheduled shutdowns for maintenance and barring major breakdowns or other unforeseeable circumstances. Missing data emissions calculated using the lower tiers of MDP (*i.e.*, 1N Procedure or 30-day maximum value) for facilities such as refineries that have relatively constant operation near their maximum operation are generally reflective of actual emissions because peak values are close to average values for these operations.

Emissions Monitoring

Overview

The reproducibility of reported RECLAIM facility emissions (and the underlying calculations)—and thereby the enforceability of the RECLAIM program—is assured through a tiered hierarchy of MRR requirements. A facility's equipment falls into an MRR category based on the kind of equipment it is and on the level of emissions produced or potentially produced by the equipment. RECLAIM divides all NO_x sources into major sources, large sources, process units, and equipment exempt from obtaining a written permit pursuant to Rule 219. All SO_x sources are divided into major sources, process units, and equipment exempt from obtaining a written permit pursuant to Rule 219. Table 5-2 shows the monitoring requirements applicable to each of these categories.

Table 5-2
Monitoring Requirements for RECLAIM Sources

Source Category	Major Sources (NOx and SOx)	Large Sources (NOx only)	Process Units and Rule 219 Equipment (NOx and SOx)
Monitoring Method	Continuous Emissions Monitoring System (CEMS) or Alternative CEMS (ACEMS)	Fuel Meter or Continuous Process Monitoring System (CPMS)	Fuel Meter, Timer, or CPMS
Reporting Frequency	Daily	Monthly	Quarterly

Continuous Emissions Monitoring System (CEMS)

Requirements

CEMS represent both the most accurate and the most reliable method of calculating emissions because they continuously monitor all of the parameters necessary to directly determine mass emissions of NOx and SOx. They are also the most costly method. These attributes make CEMS the most appropriate method for the largest emission-potential equipment in the RECLAIM universe, major sources.

Alternative Continuous Emissions Monitoring Systems (ACEMS) are alternatives to CEMS that are allowed under the RECLAIM regulation. These are devices that do not directly monitor NOx or SOx mass emissions; instead, they correlate multiple process parameters to arrive at mass emissions. To be approved for RECLAIM MRR purposes, ACEMS must be determined by SCAQMD to be equivalent to CEMS in relative accuracy, reliability, reproducibility, and timeliness.

Even though the number of major sources monitored by either CEMS or ACEMS represent 19% and 63% of all permitted RECLAIM NOx and SOx sources during Compliance Year 2014, respectively, reported emissions for Compliance Year 2014 revealed that 81% of all RECLAIM NOx emissions and 98% of all RECLAIM SOx emissions were determined by CEMS or ACEMS.

Compliance Status

By the end of calendar year 1999, almost all facilities that were required to have CEMS had their CEMS certified or provisionally approved. The only remaining uncertified CEMS are for sources that recently became subject to major source reporting requirements and sources that modified their CEMS. Typically, there will be a few new major sources each year. Therefore, there will continue to be a small number of CEMS in the certification process at any time.

Semiannual and Annual Assessments of CEMS

RECLAIM facilities conduct their Relative Accuracy Test Audit (RATA) of certified CEMS using private sector testing laboratories approved under SCAQMD's Laboratory Approval Program (LAP). These tests are conducted either semiannually or annually, depending on the most recent relative accuracy value

(the sum of the average differences and the confidence coefficient) for each source. The interval is annual only when all required relative accuracies obtained during an audit are 7.5% or less (*i.e.*, more accurate).

To verify the quality of CEMS, the RATA report compares the CEMS data to data taken simultaneously, according to approved testing methods (also known as reference methods), by a LAP-approved source testing contractor. In order to have a passing RATA, each of the following relative accuracy performance criteria must be met: The relative accuracy of the CEMS results relative to the reference method results must be within $\pm 20\%$ for pollutant concentration, $\pm 15\%$ for stack flow rate, and $\pm 20\%$ for pollutant mass emission rate. The RATAs also determine whether CEMS data must be adjusted for low readings compared to the reference method (bias adjustment factor), and by how much. The RATA presents two pieces of data, the CEMS bias (how much it differs from the reference method on the average) and the CEMS confidence coefficient (how variable that bias or average difference is).

Tables 5-3 and 5-4, respectively, summarize the 2014 and 2015 calendar years' passing rates for RATAs of certified CEMS for NO_x and SO_x concentration, total sulfur in fuel gas concentrations, stack flow rate (in-stack monitors and F-factor based calculations), and NO_x and SO_x mass emissions. However, the tables do not include SO_x mass emissions calculated from total sulfur analyzer systems because such systems serve numerous devices, and therefore are not suitable for mass emissions-based RATA testing. As noted in the footnotes for each table, the calendar year 2014 and 2015 passing rates are calculated from RATA data submitted before January 16, 2105 and January 14, 2016, respectively, and may exclude some RATA data from the fourth quarter of each year.

Table 5-3
Passing Rates Based on RATAs of Certified CEMS in 2014¹

Concentration						Stack Flow Rate				Mass Emissions			
NO _x		SO ₂		Total ² Sulfur		In-Stack Monitor		F-Factor Based Calc.		NO _x		SO _x ³	
No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass
351	100	83	100	13	100	47	100	390	100	351	100	46	100

¹ All passing rates calculated from data submitted before January 16, 2015 and may exclude some data from the fourth quarter calendar year 2014.

² Includes Cylinder Gas Audit (CGA) tests.

³ Does not include SO_x emissions calculated from total sulfur analyzers.

Table 5-4
Passing Rates Based on RATAs of Certified CEMS in 2015¹

Concentration						Stack Flow Rate				Mass Emissions			
NOx		SO ₂		Total ² Sulfur		In-Stack Monitor		F-Factor Based Calc.		NOx		SOx ³	
No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass
373	100	93	100	13	100	42	100	379	100	373	100	80	100

¹ All passing rates calculated from data submitted before January 14, 2016 and may exclude some data from the fourth quarter of calendar year 2015. All test audits were submitted electronically in 2015

² Includes Cylinder Gas Audit (CGA) tests.

³ Does not include SOx emissions calculated from total sulfur analyzers.

As indicated in Tables 5-3 and 5-4, the passing rates for NOx/SO₂ concentration, stack flow rate, and mass emissions were all 100%. The passing rates for total sulfur analyzers were also 100%. Since the inception of RECLAIM there have been significant improvements with respect to the availability of reliable calibration gas, the reliability of the reference method, and an understanding of the factors that influence valid total sulfur analyzer data.

Electronic Data Reporting of RATA Results

Facilities operating CEMS under RECLAIM are required to submit RATA results to SCAQMD. An electronic reporting system, known as Electronic Data Reporting (EDR), was set up to allow RATA results to be submitted electronically using a standardized format in lieu of the traditional formal source test reports in paper form. This system minimizes the amount of material the facility must submit to SCAQMD and also expedites reviews. All RATA results for calendar year 2015 were submitted via EDR.

Non-Major Source Monitoring, Reporting, and Recordkeeping

Emissions quantified for large sources are primarily based on concentration limits or emission rates specified in the Facility Permit. Other variables used in the calculation of large source emissions are dependent on the specific process of the equipment, but generally include fuel usage, applicable dry F-factor, and the higher heating value of the fuel used, which are collectively used to calculate stack flow rate. RECLAIM requires large sources to be source tested within defined three-year windows in order to validate fuel meter accuracy and the equipment's concentration limit or emission rate. Since emissions quantification is fuel-based, the monitoring equipment required to quantify emissions is a non-resettable fuel meter that must be corrected to standard temperature and pressure. Large source emission data must be submitted electronically on a monthly basis.

Process unit emission calculations are similar to those of large sources in that emissions are quantified using the fuel-based calculations for either a concentration limit or an emission factor specified in the Facility Permit. Similar to large sources, variables used in emission calculations for process units are dependent on the equipment's specific process, but generally include fuel usage,

applicable dry F-factor, and the higher heating value of the fuel used. Process units that are permitted with concentration limits are also required to be source-tested, but within specified five-year windows rather than three-year windows. Emissions for equipment exempt from obtaining a written permit pursuant to Rule 219 are quantified using emission factors and fuel usage. No source testing is required for such exempt equipment. Since emissions calculations are fuel-based for both process units and exempt equipment, the monitoring equipment required to quantify emissions is a non-resettable fuel meter, corrected to standard temperature and pressure. Alternately, a timer may be used to record operational time. In such cases, fuel usage is determined based on maximum rated capacity of the source. Process units and exempt equipment must submit emission reports electronically on a quarterly basis.

Emissions Reporting

Requirements

RECLAIM uses electronic reporting technology to streamline reporting requirements for both facilities and SCAQMD, and to help automate compliance tracking. Under RECLAIM, facilities report their emissions electronically on a per device basis to SCAQMD's Central Station computer as follows:

- Major sources must use a Remote Terminal Unit (RTU) to telecommunicate emission data to SCAQMD's Central Station. The RTU collects data, performs calculations, generates the appropriate data files, and transmits the data to the Central Station. This entire process is required to be performed by the RTU on a daily basis without human intervention.
- Emission data for all equipment other than major sources may be transmitted via RTU or compiled manually and transmitted to the Central Station via modem. Alternatively, operators of non-major sources may use SCAQMD's internet based application, Web Access To Electronic Reporting System (WATERS) to transmit emission data for non-major sources via internet connection. The data may be transmitted directly by the facility or through a third party.

Compliance Status

The main concern for emission reporting is the timely submittal of accurate daily emissions reports from major sources. If daily reports are not submitted by the specified deadlines, RECLAIM rules may require that emissions from CEMS be ignored and the emissions be calculated using MDP. Daily emission reports are submitted by the RTU of the CEMS to SCAQMD's Central Station via telephone lines. Often communication errors between the two points are not readily detectable by facility operators. Undetected errors can cause facility operators to believe that daily reports were submitted when they were not received by the Central Station. In addition to providing operators a means to confirm the receipt of their reports, the WATERS application can also display electronic reports that were submitted to, and received by, the Central Station. This system helps reduce instances where MDP must be used for late or missing daily reports, because the operators can verify that the Central Station received their daily reports, and can resubmit them if there were communication errors.

Protocol Review

Even though review of MRR protocols was only required by Rule 2015(b)(1) for the first three compliance years of the RECLAIM program, staff continues to review the effectiveness of enforcement and MRR protocols. Based on such review, occasional revisions to the protocols may be needed to achieve improved measurement and enforcement of RECLAIM emission reductions, while minimizing administrative costs to RECLAIM facilities and SCAQMD.

Since the RECLAIM program was adopted, staff has produced rule interpretations and implementation guidance documents to clarify and resolve specific concerns about the protocols raised by RECLAIM participants or observed by SCAQMD staff. In situations where staff could not interpret existing rule requirements to adequately address the issues at hand, the protocols and/or rules have been amended.

When the RECLAIM program first began, the ability to electronically transmit emissions data to SCAQMD's Central Station via modem was considered state-of-the-art technology. However, that technology is now antiquated and finding replacement components (e.g., slower baud-rate modems) is becoming increasingly difficult. As such, SCAQMD is evaluating options to either upgrade or replace the current Central Station. SCAQMD plans to initiate a Working Group during 2016. Key factors that need to be considered include ease of implementation and cost impacts on RECLAIM facilities and SCAQMD. Any proposed alternative must be broadly applicable, be capable to support automatic daily transmission of reports without any human intervention, and allow adequate time for testing and implementation. Progress on this effort will be presented in future annual program audit reports.

CHAPTER 6 REPORTED JOB IMPACTS

Summary

This chapter compiles data as reported by RECLAIM facilities in their Annual Permit Emissions Program (APEP) reports. The analysis focuses exclusively on job impacts at RECLAIM facilities and determination if those job impacts were directly attributable to RECLAIM as reported by those facilities. Additional benefits to the local economy (e.g., generating jobs for consulting firms, source testing firms and CEMS vendors) attributable to the RECLAIM program, as well as factors outside of RECLAIM (e.g., the prevailing economic climate), impact the job market. However, these factors are not evaluated in this report. Also, job losses and job gains are strictly based on RECLAIM facilities' reported information. SCAQMD staff is not able to independently verify the accuracy of the reported job impact information.

According to the Compliance Year 2014 employment survey data gathered from APEP reports, RECLAIM facilities reported a net gain of 266 jobs, representing 0.26% of their total employment. None of the four RECLAIM facilities that shut down during Compliance Year 2014 cited RECLAIM as a factor contributing to the decision to shutdown. No facilities reported a gain or loss of jobs due to RECLAIM.

Background

The APEP reports submitted by RECLAIM facilities include survey forms that are used to evaluate the socioeconomic impacts of the program. Facilities were asked to indicate the number of jobs at the beginning of Compliance Year 2014 and any changes in the number of jobs that took place during the compliance year in each of three categories: manufacturing, sale of products, and non-manufacturing. The numbers of jobs gained and lost reported by facilities in each category during the compliance year were tabulated.

Additionally, APEP reports ask facilities that shut down during Compliance Year 2014 to provide the reasons for their closure. APEP reports also allow facilities to indicate whether the RECLAIM program led to the creation or elimination of jobs during Compliance Year 2014.

Since data regarding job impacts and facility shutdowns are derived from the APEP reports, the submittal of these reports is essential to assessing the influence that the RECLAIM program has on these issues. The following discussion represents data obtained from APEP reports submitted to SCAQMD for Compliance Year 2014 and clarifying information collected by SCAQMD staff. SCAQMD staff is not able to verify the accuracy of the reported job impact information.

Job Impacts

Table 6-1 summarizes job impact data gathered from Compliance Year 2014 APEP reports and follow-up contacts with facilities. A total of 128 facilities reported 7,052 job gains, while 131 facilities reported a total of 6,786 job losses.

Net job gains were reported in two of the three categories: sales of products (34), and manufacturing (382), whereas net job losses were reported in the remaining category: non-manufacturing (150). Table 6-1 shows a total net gain of 266 jobs, which represents a net jobs increase of 0.26% at RECLAIM facilities during Compliance Year 2014.

Table 6-1
Job Impacts at RECLAIM Facilities for Compliance Year 2014

Description	Manufacture	Sales of Products	Non-Manufacture	Total ¹
Initial Jobs	35,945	885	66,368	103,198
Overall Job Gain	2,631	163	4,258	7,052
Overall Job Loss	2,249	129	4,408	6,786
Final Jobs	36,327	919	66,218	103,464
Net Job Change	382	34	-150	266
Percent (%) Job Change	1.06%	3.84%	-0.23%	0.26%
Facilities Reporting Job Gains	87	20	76	128
Facilities Reporting Job Losses	98	22	72	131

¹ The total number of facilities reporting job gains or losses does not equal the sum of the number of facilities reporting job changes in each category (*i.e.*, the manufacture, sales of products, and non-manufacture categories) due to the fact that some facilities may report changes under more than one of these categories.

Data in Table 6-1 include four RECLAIM facilities that were reported to have shut down or ceased operations in Compliance Year 2014 as listed in Appendix C. One facility was sold and consolidated its operations with its parent company. A second facility had all equipment removed from the site and abandoned the property. Staff attempted to contact the owners, but were unable to obtain further clarification regarding the reason for shutdown. The third facility's representative was unwilling to provide any reason for the shutdown other than it was because they are no longer making rocket engines. The property was sold for development. The fourth facility shut down and filed for bankruptcy. Again, staff attempted to contact the owners, but were unable to obtain further clarification regarding the reason for shutdown. These shutdowns led to a loss of 29 manufacturing jobs and 38 non-manufacturing jobs according to the submitted APEP reports. However, none of the Compliance Year 2014 job losses were attributed to RECLAIM (refer to Appendix E). None of the operating RECLAIM facilities attributed job gains or losses to RECLAIM for Compliance Year 2014.

The analysis in this report only considers job gains and losses at RECLAIM facilities. It should be noted that this analysis of socioeconomic impacts based on APEP reports and follow-up interviews is focused exclusively on changes in employment that occurred at RECLAIM facilities. The effect of the program on the local economy outside of RECLAIM facilities, including consulting and source testing jobs, is not considered.

It is not possible to compare the impact of the RECLAIM program on the job market *vis-à-vis* a scenario without RECLAIM. This is because factors other than RECLAIM (*e.g.*, the prevailing economic climate), also impact the job market.

Furthermore, there is no way to directly compare job impacts attributed to RECLAIM to job impacts attributed to command-and-control rules that would have been adopted in RECLAIM's absence, because these command-and-control rules do not exist for these facilities. As mentioned previously, the effect of the RECLAIM program on the local economy outside of RECLAIM facilities (*e.g.*, generating jobs for consulting firms, source testing firms and CEMS vendors) is also not considered in this report.

CHAPTER 7

AIR QUALITY AND PUBLIC HEALTH IMPACTS

Summary

Audited RECLAIM emissions have been in an overall downward trend since the program's inception. Compliance Year 2014 NOx emissions increased 1.7% relative to Compliance Year 2013, and Compliance Year 2014 SOx emissions were 5.3% more than the previous year. Quarterly calendar year 2014 NOx emissions fluctuated within 6 percent of the mean NOx emissions for the year. Quarterly calendar year 2014 SOx emissions fluctuated within 11 percent of the year's mean SOx emissions. There was no significant shift in seasonal emissions from the winter season to the summer season for either pollutant.

The California Clean Air Act (CCAA) required a 50% reduction in population exposure to ozone, relative to a baseline averaged over three years (1986 through 1988), by December 31, 2000. The Basin achieved the December 2000 target for ozone well before the deadline. In calendar year 2014, the per capita exposure to ozone (the average length of time each person is exposed) continued to be well below the target set for December 2000.

Air toxic health risk is primarily caused by emissions of certain volatile organic compounds (VOCs) and fine particulates, such as metals. RECLAIM facilities are subject to the same air toxic, VOC, and particulate matter regulations as other sources in the Basin. All sources are subject, where applicable, to the NSR rule for toxics (Rule 1401 and/or Rule 1401.1). In addition, new or modified sources with NOx or SOx emission increases are required to be equipped with BACT, which minimizes to the extent feasible the increase of NOx and SOx emissions. RECLAIM and non-RECLAIM facilities that emit toxic air contaminants are required to report those emissions to SCAQMD. Those emissions reports are used to identify candidates for the Toxics Hot Spots program (AB2588). This program requires emission inventories and, depending on the type and amount of emissions, facilities may be required to do public notice and/or prepare and implement a plan to reduce emissions. There is no evidence that RECLAIM has caused or allowed higher toxic risk in areas adjacent to RECLAIM facilities.

Background

RECLAIM is designed to achieve the same, or higher level of, air quality and public health benefits as would have been achieved from implementation of the control measures and command-and-control rules that RECLAIM subsumed. Therefore, as a part of each annual program audit, SCAQMD staff evaluates per capita exposure to air pollution, toxic risk reductions, emission trends, and seasonal fluctuations in emissions. SCAQMD staff also generates quarterly emissions maps depicting the geographic distribution of RECLAIM emissions. These maps are generated and posted quarterly on SCAQMD's website¹, and

¹ The quarterly emission maps can be found at: <http://www.aqmd.gov/home/programs/business/about-reclaim/quarterly-emission-maps>.

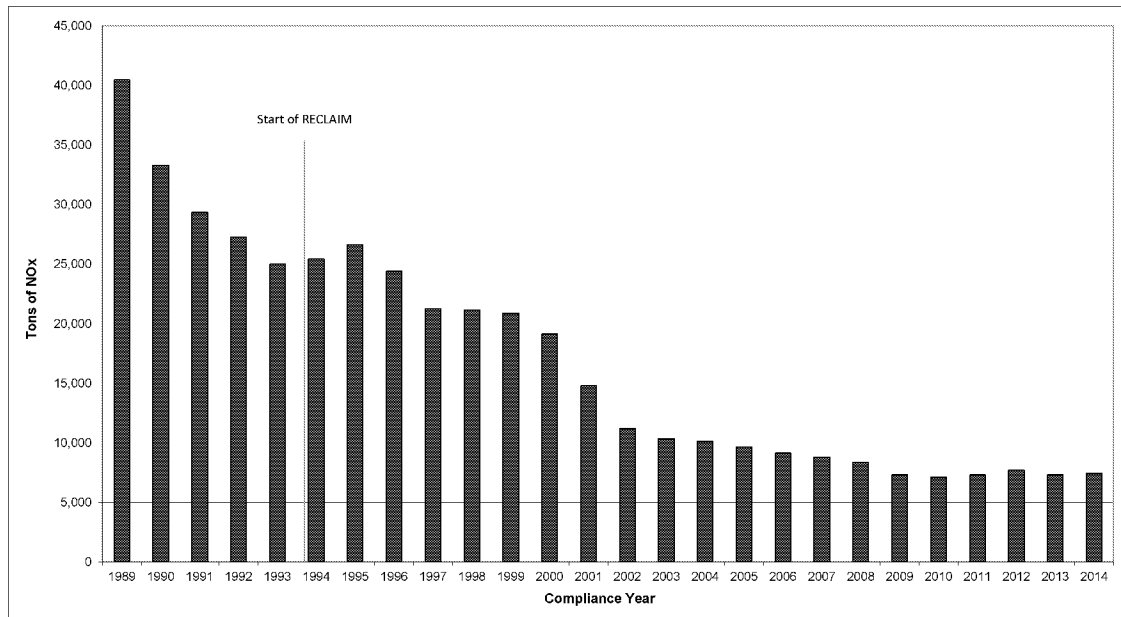
include all the quarterly emissions maps presented in previous annual program audit reports. This chapter addresses:

- Emission trends for RECLAIM facilities;
- Seasonal fluctuations in emissions;
- Per capita exposure to air pollution; and
- Toxics impacts.

Emission Trends for RECLAIM Sources

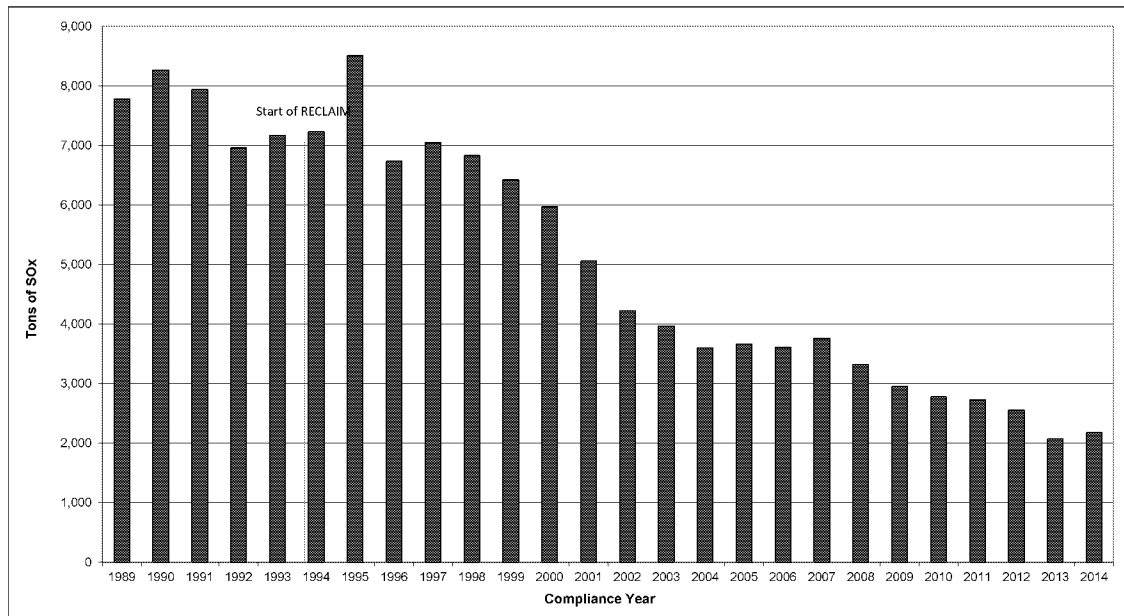
Concerns were expressed during program development that RECLAIM might cause sources to increase their aggregate emissions during the early years of the program due to perceived over-allocation of emissions. As depicted in Figures 7-1 and 7-2, which show NOx and SOx emissions from RECLAIM sources since 1989, the analysis of emissions from RECLAIM sources indicates that overall, RECLAIM emissions have been in a downward trend since program inception, and the emission increases during early years of RECLAIM that were anticipated by some did not materialize.

Figure 7-1
NOx Emission Trend for RECLAIM Sources



Note: 1989-1993 emissions presented in this figure are the emissions from the facilities in the 1994 NOx universe.

Figure 7-2
SOx Emission Trend for RECLAIM Sources



Note: 1989-1993 emissions presented in this figure are the emissions from the facilities in the 1994 SOx universe.

NOx emissions decreased every year from Compliance Year 1995 through Compliance Year 2009, and the emissions from Compliance Year 2009 to Compliance Year 2014 have fluctuated within a narrow range (7,121 – 7,691 ton/yr, or $\pm 4\%$ of the mid point). As shown in Table 3-2 and Figure 3-1, these emission levels are much lower than the programmatic goals. Since Compliance Year 1995, annual SOx emissions have also followed a general downward trend, except for slight increases in Compliance Years 1997, 2005, 2007, and now in 2014 compared to each respective previous compliance year.

The increase in NOx and SOx emissions from Compliance Year 1994 to 1995 can be attributed to the application of MDP at the onset of RECLAIM implementation. RECLAIM provides for emissions from each major source's first year in the program to be quantified using an emission factor and fuel throughput (interim reporting) while they certify their CEMS. However, at the beginning of the program (Compliance Year 1994), many facilities had difficulties certifying their CEMS within this time frame, and consequently reported their Compliance Year 1995 emissions using MDP. As discussed in Chapter 5, since CEMS for these major sources had no prior data, MDP required the application of the most conservative procedure to calculate substitute data. As a result, the application of MDP during this time period yielded substitute data that may have been much higher than the actual emissions. In addition, emissions after Compliance Year 1995 decreased steadily through 2000. Thus, RECLAIM facilities did not increase their actual aggregate emissions during the early years of the program.

Seasonal Fluctuation in Emissions for RECLAIM Sources

Another concern during program development was that RECLAIM might cause facilities to shift emissions from the winter season into the summer ozone season and exacerbate poor summer air quality since RECLAIM emission goals are structured on an annual basis. To address this concern, “seasonal fluctuations” were added as part of the analysis required by Rule 2015. Accordingly, SCAQMD staff performed a two-part analysis of the quarterly variation in RECLAIM emissions:

1. In the first part, staff qualitatively compared the quarterly variation in Compliance Year 2014 RECLAIM emissions to the quarterly variation in emissions from the RECLAIM universe prior to the implementation of RECLAIM.
2. In the second part, staff analyzed quarterly audited emissions during calendar year 2014 and compared them with quarterly audited emissions for prior years to assess if there had been such a shift in emissions. This analysis is reflected in Figures 7-3 through 7-6.²

Quarterly emissions data from the facilities in RECLAIM before they were in the program is not available. Therefore, a quantitative comparison of the seasonal variation of emissions from these facilities while operating under RECLAIM with their seasonal emissions variation prior to RECLAIM is not feasible. However, a qualitative comparison has been conducted, as follows:

- NO_x emissions from RECLAIM facilities are dominated by refineries and power plants.
- SO_x emissions from RECLAIM facilities are especially dominated by refineries.
- Prior to RECLAIM, refinery production was generally highest in the summer months because more people travel during summer; thus, increasing demand for gasoline and other transportation fuels.
- Electricity generation prior to RECLAIM was generally highest in the summer months because of increased demand for electricity to drive air conditioning units.

Emissions from refineries (NO_x and SO_x) and from power plants (NO_x) are typically higher in the summer months, which was the trend prior to implementation of RECLAIM for the reasons described above. Therefore, provided a year’s summer quarter RECLAIM emissions do not exceed that year’s quarterly average emissions by a substantial amount, it can be concluded that, for that year, RECLAIM has not resulted in a shift of emissions to the summer months relative to the pre-RECLAIM emission pattern.

Figure 7-3 shows the 2014 mean quarterly NO_x emission level, which is the average of the aggregate audited emissions for each of the four quarters, and the 2014 audited quarterly emissions. Figure 7-4 compares the 2014 quarterly NO_x emissions with the quarterly emissions from 2003 through 2013. During calendar year 2014, quarterly NO_x emissions varied from 4 percent below the mean in the

² Data used to generate these figures were derived from audited data. Similar figures for calendar years 1994 through 2007 in previous annual reports were generated from a combination of audited and reported data available at the time the reports were written.

first quarter (January through March) to about 6 percent above the mean in the third quarter (July through September). Figure 7-4 shows that the calendar year 2014 quarterly emissions profile is consistent with previous years under RECLAIM, with calendar year 2013 being the only notable exception. Figures 7-3 and 7-4, along with the qualitative analysis performed above, show that in calendar year 2014 there has not been a significant shift in NOx emissions from the winter months to the summer months.

Figure 7-3
Calendar Year 2014 NOx Quarterly Emissions

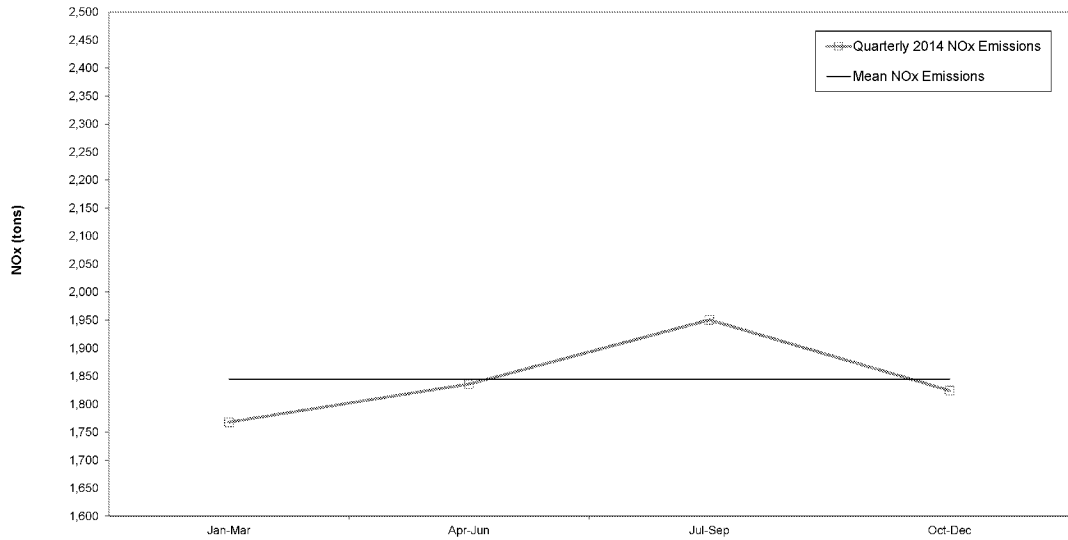
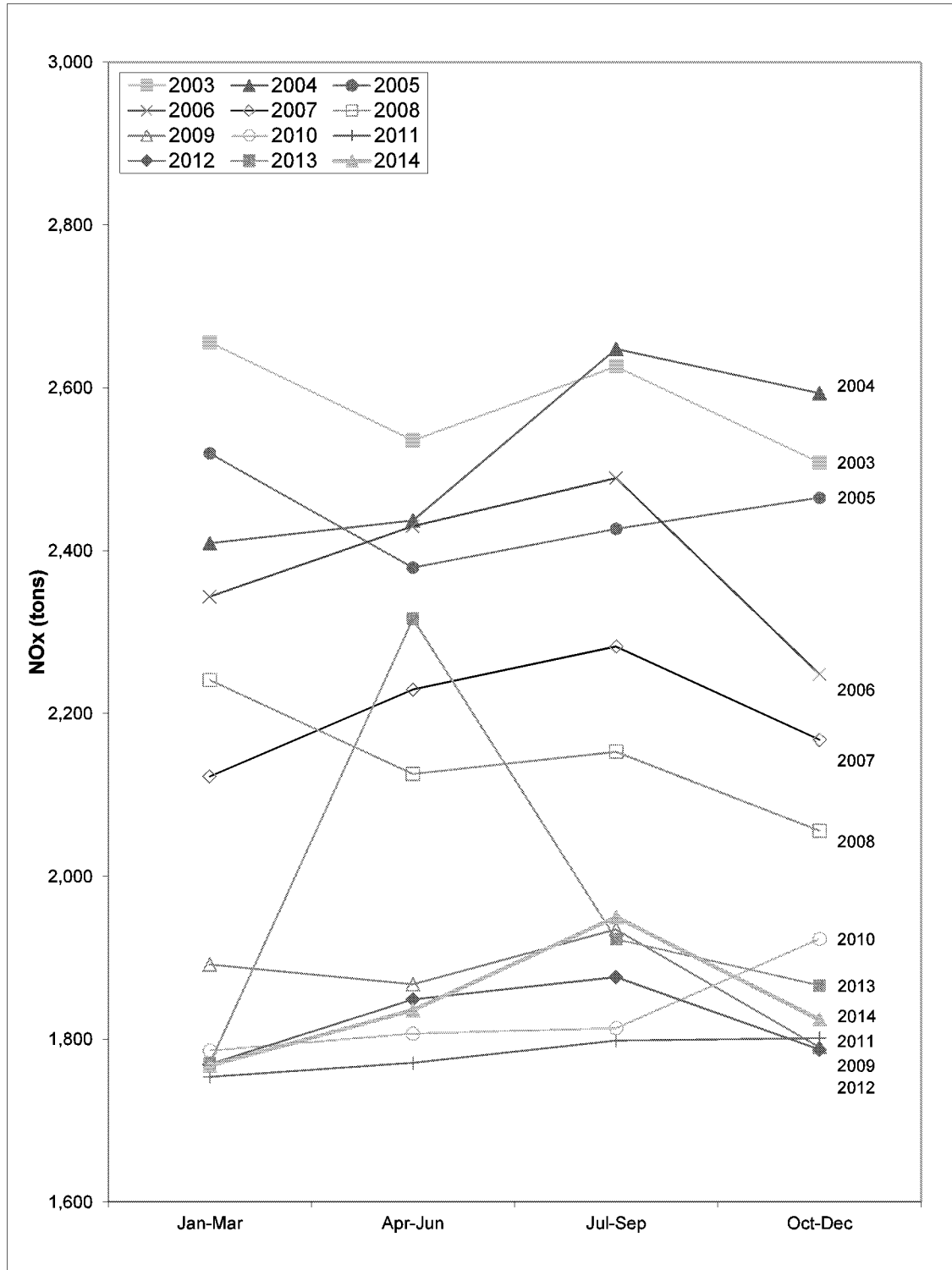


Figure 7-4
Quarterly NOx Emissions from Calendar Years 2003 through 2014



Similar to Figure 7-3 and 7-4 for NOx quarterly emissions, Figure 7-5 presents the 2014 mean quarterly SOx emissions and the 2014 audited quarterly emissions, while Figure 7-6 compares the 2014 quarterly SOx emissions with the quarterly emissions from 2003 through 2013. Figure 7-5 shows that quarterly SOx emissions during calendar year 2014 varied from about 11 percent above the mean in the third quarter (July to September) to 5 percent below the mean in the fourth quarter (October through December). Figure 7-6 shows that the calendar year 2014 quarterly emissions profile is roughly consistent with previous years under RECLAIM. Both Figures 7-5 and 7-6, along with the qualitative analysis performed above, show that in calendar year 2014 there was not a significant shift in SOx emissions from the winter months to the summer months.

Figure 7-5
Calendar Year 2014 SOx Quarterly Emissions

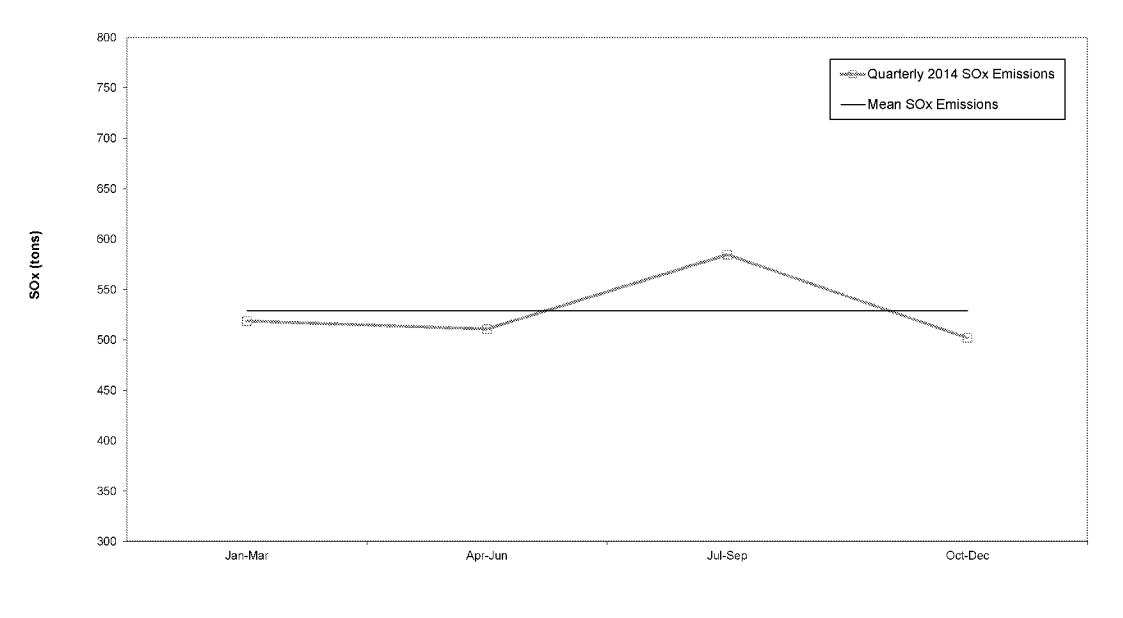
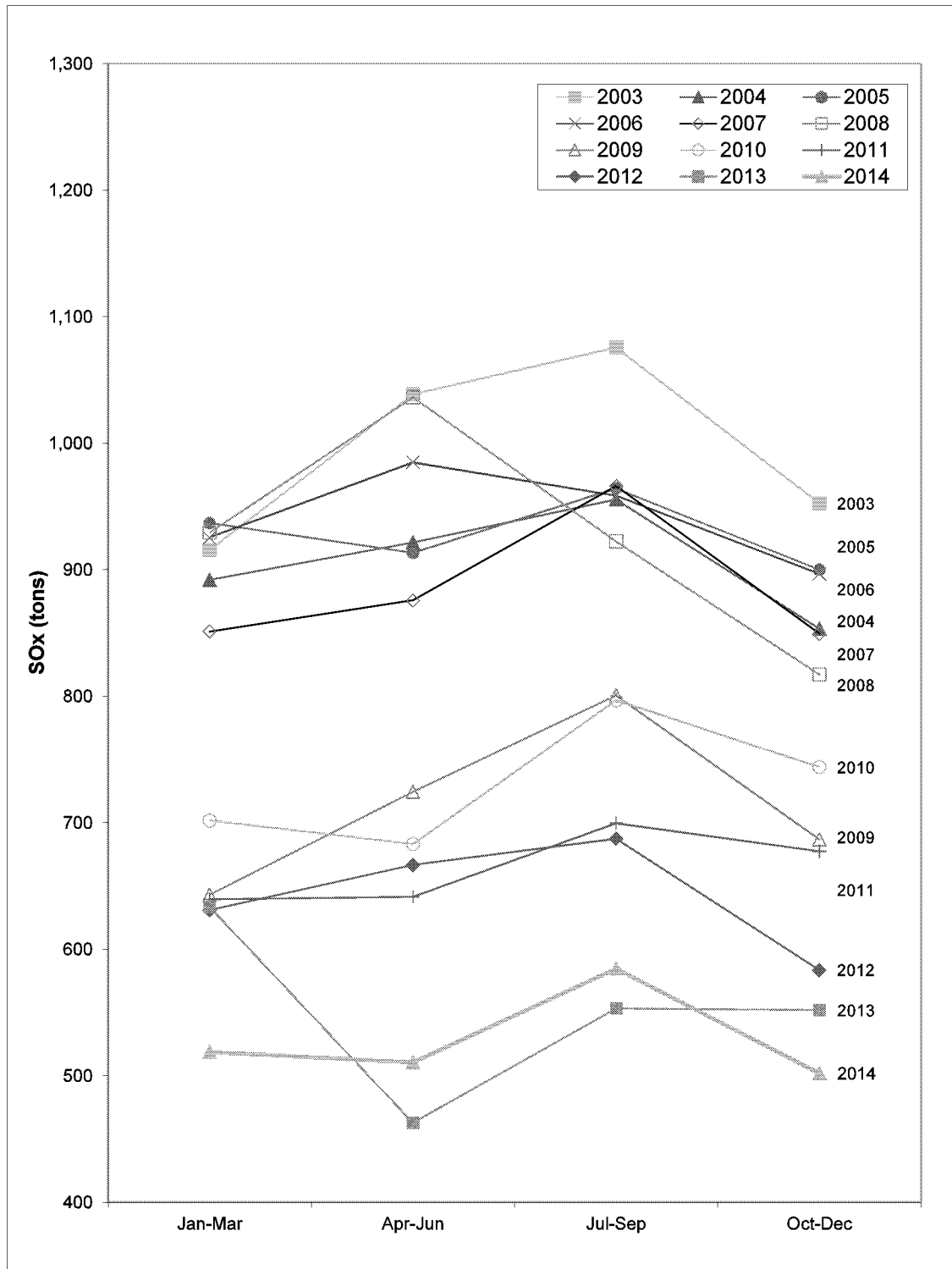


Figure 7-6
Quarterly SOx Emissions from Calendar Years 2003 through 2014



Per Capita Exposure to Pollution

The predicted effects of RECLAIM on air quality and public health were thoroughly analyzed through modeling during program development. The results were compared to the projected impacts from continuing traditional command-and-control regulations and to implementing control measures in the 1991 AQMP. One of the criteria examined in the analysis was per capita population exposure.

Per capita population exposure reflects the length of time each person is exposed to unhealthful air quality. The modeling performed in the program development analysis projected that the reductions in per capita exposure under RECLAIM in calendar year 1994 would be nearly identical to the reductions projected for implementation of the control measures in the 1991 AQMP, and the reductions resulting from RECLAIM would be greater in calendar years 1997 and 2000. As reported in previous annual reports, actual per capita exposures to ozone for 1994 and 1997 were below the projections.

As part of the Children's Environmental Health Protection Act that was passed in 1999, and in consultation with the OEHHA, CARB is to "review all existing health-based ambient air quality standards to determine whether these standards protect public health, including infants and children, with an adequate margin of safety." As a result of that requirement, CARB adopted a new 8-hour ozone standard (0.070 ppm), which became effective May 17, 2006, in addition to the 1-hour ozone standard (0.09 ppm) already in place. Table 7-1 shows the number of days that both the new state 8-hour ozone standard of 0.070 ppm and the 1-hour standard of 0.09 ppm were exceeded.

In July 1997, the USEPA established a new ozone National Ambient Air Quality Standard (NAAQS) of 0.085 ppm based on an 8-hour average measurement. As part of the Phase I implementation that was finalized in June 2004, the federal 1-hour ozone standard (0.12 ppm) was revoked effective June 2005. Effective May 27, 2008, the 8-hour NAAQS for ozone was reduced to 0.075 ppm. Table 7-1 shows monitoring results based on this revised 8-hour federal standard. As of December 28, 2015, the 8-hour NAAQS for ozone has been further reduced to 0.070 ppm, the level of the current California Ambient Air Quality Standard. Table 7-1 shows that the Basin exceeded the federal 8-hour 0.07 ppm standard 113 days and the state 0.07 ppm standard 116 days in 2015. The number of days of exceedance of the federal and state standards differ even though the standards are numerically equal due to differing language and methods for deriving exceedance days in the federal and state rules.

Table 7-1 summarizes ozone data for calendar years 2001 through 2015 in terms of the number of days that exceeded the state's 1-hour and 8-hour ozone standards, the 2008 and 2015 federal ambient 8-hour ozone standard, and both the Basin's maximum 1-hour and 8-hour ozone concentrations in each calendar year. This table shows that the number of days that exceeded the 1-hour state and 8-hour federal ambient ozone standards in calendar year 2015 were the lowest since calendar year 2001. The Basin's maximum ozone concentrations were very close to the lowest levels since 2001, based on both the 1-hour and 8-hour averaging periods.

Table 7-1
Summary of Ozone Data

Year	Days exceeding state 1-hour standard (0.09 ppm)	Days exceeding state 8-hour standard (0.07 ppm)	Days exceeding old federal 8-hour standard (0.075 ppm)	Days exceeding new federal 8-hour standard (0.07 ppm)	Basin Maximum 1-hour ozone concentration (ppm)	Basin Maximum 8-hour ozone concentration (ppm)
2001	121	156	132	N/A	0.191	0.146
2002	118	149	135	N/A	0.169	0.148
2003	133	161	141	N/A	0.216	0.200
2004	110	161	126	N/A	0.163	0.148
2005	111	142	116	N/A	0.163	0.145
2006	102	121	114	N/A	0.175	0.142
2007	99	128	108	N/A	0.171	0.137
2008	98	136	121	N/A	0.176	0.131
2009	100	131	113	N/A	0.176	0.128
2010	83	128	109	N/A	0.143	0.123
2011	94	127	107	N/A	0.160	0.136
2012	97	140	111	N/A	0.147	0.112
2013	92	123	106	N/A	0.151	0.122
2014	76	134	93	N/A	0.142	0.114
2015	72	116	83	113	0.144	0.127

The CCAA, which was enacted in 1988, established targets for reducing overall population exposure to severe non-attainment pollutants in the Basin—a 25% reduction by December 31, 1994, a 40% reduction by December 31, 1997, and a 50% reduction by December 31, 2000 relative to a calendar years 1986-88 baseline. These targets are based on the average number of hours a person is exposed (“per capita exposure”³) to ozone concentrations above the state 1-hour standard of 0.09 ppm. Table 7-2 shows the 1986-88 baseline per capita exposure, the actual per capita exposures each year since 1994 (RECLAIM’s initial year), and the 1997 and 2000 targets set by the CCAA for each of the four counties in the district and the Basin overall. As shown in Table 7-2, the CCAA reduction targets were achieved as early as 1994 (actual 1994 Basin per capita exposure was 37.6 hours, which is below the 2000 target of 40.2 hours). The per capita exposure continues to remain much lower than the CCAA targets. For calendar year 2015, the actual per capita exposure for the Basin was 1.96 hours, which represents a 97.6% reduction from the 1986-88 baseline level.

³ SCAQMD staff divides the air basin into a grid of square cells and interpolates recorded ozone data from ambient air quality monitors to determine ozone levels experienced in each of these cells. The total person-hours in a county experiencing ozone higher than the state ozone standard is determined by summing over the whole county the products of the number of hours exceeding the state ozone standard per grid cell with the number of residents in the corresponding cell. The per capita ozone exposures are then calculated by dividing the sum of person-hours by the total population within a county. Similar calculations are used to determine the Basin-wide per capita exposure by summing and dividing over the whole Basin.

Table 7-2
Per Capita Exposure to Ozone above the State One-Hour Standard of 0.09 ppm (hours)

Calendar Year	Basin	Los Angeles	Orange	Riverside	San Bernardino
1986-88 baseline ¹	80.5	75.8	27.2	94.1	192.6
1994 actual	37.6	26.5	9	71.1	124.9
1995 actual	27.7	20	5.7	48.8	91.9
1996 actual	20.3	13.2	4	42.8	70
1997 actual	5.9	3	0.6	13.9	24.5
1998 actual	12.1	7.9	3.1	25.2	40.2
2000 actual	3.8	2.6	0.7	8.5	11.4
2001 actual	1.73	0.88	0.15	6	5.68
2002 actual	3.87	2.16	0.13	11.12	12.59
2003 actual	10.92	6.3	0.88	20.98	40.21
2004 actual	3.68	2.26	0.50	6.82	12.34
2005 actual	3.11	1.43	0.03	6.06	12.54
2006 actual	4.56	3.08	0.68	8.02	13.30
2007 actual	2.90	1.50	0.35	4.65	10.53
2008 actual	4.14	2.04	0.26	7.50	14.71
2009 actual	2.872	1.538	0.078	3.884	10.539
2010 actual	1.184	0.377	0.107	2.451	4.476
2011 actual	2.099	0.848	0.015	3.456	8.125
2012 actual	2.366	1.050	0.050	2.587	9.776
2013 actual	1.314	0.519	0.067	1.609	5.497
2014 actual	1.837	1.263	0.293	1.472	6.022
2015 actual	1.962	0.760	0.101	2.135	8.473
1997 target ²	48.3	45.5	16.3	56.5	115.6
2000 target ³	40.2	37.9	13.6	47	96.3

¹ Average over three years, 1986 through 1988.

² 60% of the 1986-88 baseline exposures.

³ 50% of the 1986-88 baseline exposures.

Table 7-2 shows that actual per capita exposures during all the years mentioned were well under the 1997 and 2000 target exposures limits. It should also be noted that air quality in the Basin is a complex function of meteorological conditions and an array of different emission sources, including mobile, area, RECLAIM stationary sources, and non-RECLAIM stationary sources. Therefore, the reduction of per capita exposure beyond the projected level is not necessarily wholly attributable to implementation of the RECLAIM program in lieu of the command-and-control regulations.

Toxic Impacts

Based on a comprehensive toxic impact analysis performed during program development, it was concluded that RECLAIM would not result in any significant impacts on air toxic emissions. Nevertheless, to ensure that the implementation of RECLAIM does not result in adverse toxic impacts, each annual program audit is required to assess any increase in the public health exposure to air toxics potentially caused by RECLAIM.

One of the safeguards to ensure that the implementation of RECLAIM does not result in adverse air toxic health impacts is that RECLAIM sources are subject to

the same air toxic statutes and regulations (e.g., SCAQMD Regulation XIV, State AB 2588, State Air Toxics Control Measures, Federal National Emissions Standards for Hazardous Air Pollutants, etc.) as other sources in the Basin. Additionally, air toxic health risk is primarily caused by emissions of VOCs and fine particulates such as certain metals. VOC sources at RECLAIM facilities are subject to source-specific command-and-control rules the same way as are non-RECLAIM facilities, in addition to the toxics requirements described above. Sources of fine particulates and toxic metal emissions are also subject to the above-identified regulations pertaining to toxic emissions. Moreover, new or modified RECLAIM sources with NO_x or SO_x emission increases are also required to be equipped with BACT, which minimizes to the extent feasible NO_x and SO_x emissions, which are precursors to particulate matter.

There have been concerns raised that trading RTCs could allow for higher production at a RECLAIM facility, which may indirectly cause higher emissions of toxic air contaminants, and thereby make the health risk in the vicinity of the facility worse. Other SCAQMD rules and programs for toxic air contaminants apply to facilities regardless of them being in RECLAIM or under traditional command and control rules. Emission increases at permit units are subject to new source review. RECLAIM facilities must also comply with any applicable Regulation XIV rules for toxics. Permits generally include limiting throughput conditions for new source review or applicable source specific rules. AB2588 and Rule 1402 could also be triggered based on risk, which would require the facility to take appropriate risk reduction measures.

Under the AER program, facilities that emit either: 1) four tons per year or more of VOC, NO_x, SO_x, or PM, or 100 tons per year or more of CO; or 2) any one of 24 toxic air contaminants (TACs) and ozone depleting compounds (ODCs) emitted above specific thresholds (Rule 301 Table IV), are required to report their emissions annually to SCAQMD. Beginning with the FY 2000-01 reporting cycle, toxics emission reporting for the AB2588 Program was incorporated into SCAQMD's AER Program. The data collected in the AER program is used to determine which facilities will be required to take further actions under the AB2588 Hot Spots Program.

Facilities in the AB2588 Program are required to submit a comprehensive toxics inventory, which is then prioritized using Board-approved procedures⁴ into one of three categories: low, intermediate, or high priority. Facilities ranked with low priority are exempt from future reporting. Facilities ranked with intermediate priority are classified as District tracking facilities, which are then required to submit a complete toxics inventory once every four years. In addition to reporting their toxic emissions quadrennially, facilities designated as high priority are required to submit a health risk assessment (HRA) to determine their impacts to the surrounding community.

According to SCAQMD's 2014 Annual Report on the AB2588 Air Toxics "Hot Spots" program⁵, staff has reviewed and approved 335 facility HRAs as of the end calendar year 2014. About 95 percent of the facilities have cancer risks

⁴ The toxics prioritization procedures can be found at: <http://www.aqmd.gov/home/regulations/compliance/toxic-hot-spots-ab-2588>

⁵ The 2014 AB2588 Annual Report can be found at: http://www.aqmd.gov/docs/default-source/planning/risk-assessment/annual_report_2014.pdf

below 10 in a million and 97 percent of the facilities have acute and chronic non-cancer hazard indices less than 1. Facilities with cancer risks above 10 in a million or a non-cancer hazard index above 1 are required to issue public notices informing the community. A public meeting is held during which SCAQMD discusses the health risks from the facility. SCAQMD has conducted such public notification meetings for 50 facilities under the AB2588 Program.

The Board has also established the following action risk levels in Rule 1402 – Control of Toxic Air Contaminants from Existing Sources: a cancer burden of 0.5, a cancer risk of 25 in a million, and a hazard index of 3.0. Facilities above any of the action risk levels must reduce their risks below the action risk levels within three years. To date, 24 facilities have been required to reduce risks and all of these facilities have reduced risks well below the action risk levels mandated by Rule 1402.

The impact of the above rules and measures are analyzed in Multiple Air Toxic Exposure Studies (MATES), which SCAQMD staff conducts periodically to assess cumulative air toxic impacts to the residents and workers of southern California. The fourth version of MATES (*i.e.*, MATES IV) was conducted over a one year period from July 2012 to June 2013, and the final MATES IV report was released on May 1, 2015⁶. Monitoring conducted at that time indicated that the basin-wide population-weighted air toxics exposure was reduced by 57 percent since MATES III (conducted from April 2004 to March 2006). The results of these recent MATES studies continue to show that the region-wide cumulative air toxic impacts on residents and workers in southern California have been declining. Therefore, staff has not found any evidence that would suggest that the substitution of NO_x and SO_x RECLAIM for the command-and-control rules and the measures RECLAIM subsumes caused a significant increase in public exposure to air toxic emissions relative to what would have happened if the RECLAIM program was not implemented. Staff will continue to monitor and assess toxic impacts as part of future annual program audits.

⁶ The Final MATES IV Report can be found at: <http://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf>

APPENDIX A

RECLAIM UNIVERSE OF SOURCES

The RECLAIM universe of active sources as of the end of Compliance Year 2014 is provided below.

Facility ID	Cycle	Facility Name	Program
800088	2	3M COMPANY	NOx
23752	2	AEROCRAFT HEAT TREATING CO INC	NOx
115394	1	AES ALAMITOS, LLC	NOx
115389	2	AES HUNTINGTON BEACH, LLC	NOx/SOx
115536	1	AES REDONDO BEACH, LLC	NOx
148236	2	AIR LIQUIDE LARGE INDUSTRIES U.S., LP	NOx/SOx
3417	1	AIR PROD & CHEM INC	NOx
101656	2	AIR PRODUCTS AND CHEMICALS, INC.	NOx
5998	1	ALL AMERICAN ASPHALT	NOx
114264	1	ALL AMERICAN ASPHALT	NOx
3704	2	ALL AMERICAN ASPHALT, UNIT NO.01	NOx
800196	2	AMERICAN AIRLINES INC	NOx
145836	2	AMERICAN APPAREL DYEING & FINISHING, INC	NOx
156722	1	AMERICAN APPAREL KNIT AND DYE	NOx
21598	2	ANGELICA TEXTILE SERVICES	NOx
74424	2	ANGELICA TEXTILE SERVICES	NOx
16642	1	ANHEUSER-BUSCH LLC., (LA BREWERY)	NOx/SOx
117140	2	AOC, LLC	NOx
124619	1	ARDAGH METAL PACKAGING USA INC.	NOx
167066	1	ARLON GRAPHICS L.L.C.	NOx
174406	1	ARLON GRAPHICS LLC	NOx
12155	1	ARMSTRONG WORLD INDUSTRIES INC	NOx
122666	2	A'S MATCH DYEING & FINISHING	NOx
117290	2	B BRAUN MEDICAL, INC	NOx
800016	2	BAKER COMMODITIES INC	NOx
800205	2	BANK OF AMERICA NT & SA, BREA CENTER	NOx
40034	1	BENTLEY PRINCE STREET INC	NOx
119907	1	BERRY PETROLEUM COMPANY	NOx
166073	1	BETA OFFSHORE	NOx
155474	2	BICENT (CALIFORNIA) MALBURG LLC	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	Program
132068	1	BIMBO BAKERIES USA INC	NOx
1073	1	BORAL ROOFING LLC	NOx
174544	2	BREITBURN OPERATING LP	NOx
25638	2	BURBANK CITY, BURBANK WATER & POWER	NOx
128243	1	BURBANK CITY,BURBANK WATER & POWER,SCPPA	NOx
800344	1	CALIFORNIA AIR NATIONAL GUARD, MARCH AFB	NOx
22607	2	CALIFORNIA DAIRIES, INC	NOx
138568	1	CALIFORNIA DROP FORGE, INC	NOx
800181	2	CALIFORNIA PORTLAND CEMENT CO	NOx/SOx
46268	1	CALIFORNIA STEEL INDUSTRIES INC	NOx
107653	2	CALMAT CO	NOx
107654	2	CALMAT CO	NOx
107655	2	CALMAT CO	NOx
107656	2	CALMAT CO	NOx
119104	1	CALMAT CO	NOx/SOx
153992	1	CANYON POWER PLANT	NOx
94930	1	CARGILL INC	NOx
22911	2	CARLTON FORGE WORKS	NOx
118406	1	CARSON COGENERATION COMPANY	NOx
141555	2	CASTAIC CLAY PRODUCTS, LLC	NOx
14944	1	CENTRAL WIRE, INC.	NOx/SOx
42676	2	CES PLACERITA INC	NOx
148925	1	CHERRY AEROSPACE	NOx
800030	2	CHEVRON PRODUCTS CO.	NOx/SOx
56940	1	CITY OF ANAHEIM/COMB TURBINE GEN STATION	NOx
172077	1	CITY OF COLTON	NOx
129810	1	CITY OF RIVERSIDE PUBLIC UTILITIES DEPT	NOx
139796	1	CITY OF RIVERSIDE PUBLIC UTILITIES DEPT	NOx
164204	2	CITY OF RIVERSIDE, PUBLIC UTILITIES DEPT	NOx
16978	2	CLOUGHERTY PACKING LLC/HORMEL FOODS CORP	NOx
38440	2	COOPER & BRAIN - BREA	NOx
68042	2	CORONA ENERGY PARTNERS, LTD	NOx
152707	1	CPV SENTINEL LLC	NOx
50098	1	D&D DISPOSAL INC,WEST COAST RENDERING CO	NOx
63180	1	DARLING INGREDIENTS INC.	NOx
3721	2	DART CONTAINER CORP OF CALIFORNIA	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	Program
7411	2	DAVIS WIRE CORP	NOx
143738	2	DCOR LLC	NOx
143739	2	DCOR LLC	NOx
143740	2	DCOR LLC	NOx
143741	1	DCOR LLC	NOx
132071	1	DEAN FOODS CO. OF CALIFORNIA	NOx
47771	1	DELEO CLAY TILE CO INC	NOx
800037	2	DEMENNO/KERDOON	NOx
125579	1	DIRECTV	NOx
800189	1	DISNEYLAND RESORT	NOx
174371	2	DP3 HANGARS, LLC	NOx
142536	2	DRS SENSORS & TARGETING SYSTEMS, INC	NOx
178639	1	ECO SERVICES OPERATIONS LLC	NOx/SOx
800264	2	EDGINGTON OIL COMPANY	NOx/SOx
115663	1	EL SEGUNDO POWER, LLC	NOx
800372	2	EQUILON ENTER. LLC, SHELL OIL PROD. US	NOx/SOx
124838	1	EXIDE TECHNOLOGIES	NOx/SOx
17344	1	EXXONMOBIL OIL CORP	NOx
25058	2	EXXONMOBIL OIL CORP	NOx
800089	1	EXXONMOBIL OIL CORPORATION	NOx/SOx
800094	1	EXXONMOBIL OIL CORPORATION	NOx
95212	1	FABRICA	NOx
11716	1	FONTANA PAPER MILLS INC	NOx
175154	2	FREEPORT-MCMORAN OIL & GAS	NOx
175191	1	FREEPORT-MCMORAN OIL & GAS	NOx
346	1	FRITO-LAY, INC.	NOx
2418	2	FRUIT GROWERS SUPPLY CO	NOx
142267	2	FS PRECISION TECH LLC	NOx
5814	1	GAINNEY CERAMICS INC	NOx
153033	2	GEORGIA-PACIFIC CORRUGATED LLC	NOx
176934	1	GI TC IMPERIAL HIGHWAY, LLC	NOx
124723	1	GREKA OIL & GAS, INC	NOx
137471	2	GRIFOLS BIOLOGICALS INC	NOx
156741	2	HARBOR COGENERATION CO, LLC	NOx
157359	1	HENKEL ELECTRONIC MATERIALS, LLC	NOx
123774	1	HERAEUS PRECIOUS METALS NO. AMERICA, LLC	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	Program
113160	2	HILTON COSTA MESA	NOx
800066	1	HITCO CARBON COMPOSITES INC	NOx
2912	2	HOLLIDAY ROCK CO INC	NOx
800003	2	HONEYWELL INTERNATIONAL INC	NOx
124808	2	INEOS POLYPROPYLENE LLC	NOx/SOx
129816	2	INLAND EMPIRE ENERGY CENTER, LLC	NOx
157363	2	INTERNATIONAL PAPER CO	NOx
169678	1	ITT CANNON, LLC	NOx
16338	1	KAISER ALUMINUM FABRICATED PRODUCTS, LLC	NOx
21887	2	KIMBERLY-CLARK WORLDWIDE INC.-FULT. MILL	NOx/SOx
1744	2	KIRKHILL - TA COMPANY	NOx
36909	2	LA CITY, DEPARTMENT OF AIRPORTS	NOx
800335	2	LA CITY, DEPT OF AIRPORTS	NOx
800170	1	LA CITY, DWP HARBOR GENERATING STATION	NOx
800074	1	LA CITY, DWP HAYNES GENERATING STATION	NOx
800075	1	LA CITY, DWP SCATTERGOOD GENERATING STN	NOx
800193	2	LA CITY, DWP VALLEY GENERATING STATION	NOx
61962	1	LA CITY, HARBOR DEPT	NOx
550	1	LA CO., INTERNAL SERVICE DEPT	NOx
173904	2	LAPEYRE INDUSTRIAL SANDS, INC	NOx
141295	2	LEKOS DYE AND FINISHING, INC	NOx
144455	2	LIFOAM INDUSTRIES, LLC	NOx
83102	2	LIGHT METALS INC	NOx
151394	2	LINN OPERATING INC	NOx
151532	2	LINN OPERATING, INC	NOx
152054	1	LINN WESTERN OPERATING INC	NOx
151415	2	LINN WESTERN OPERATING, INC	NOx
115314	2	LONG BEACH GENERATION, LLC	NOx
17623	2	LOS ANGELES ATHLETIC CLUB	NOx
58622	2	LOS ANGELES COLD STORAGE CO	NOx
125015	2	LOS ANGELES TIMES COMMUNICATIONS LLC	NOx
800080	2	LUNDAY-THAGARD COMPANY	NOx/SOx
38872	1	MARS PETCARE U.S., INC.	NOx
14049	2	MARUCHAN INC	NOx
3029	2	MATCHMASTER DYEING & FINISHING INC	NOx
2825	1	MCP FOODS INC	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	Program
173290	1	MEDICLEAN	NOx
94872	2	METAL CONTAINER CORP	NOx
155877	1	MILLERCOORS, LLC	NOx
12372	1	MISSION CLAY PRODUCTS	NOx
11887	2	NASA JET PROPULSION LAB	NOx
115563	1	NCI GROUP INC., DBA, METAL COATERS OF CA	NOx
40483	2	NELCO PROD. INC	NOx
172005	2	NEW- INDY ONTARIO, LLC	NOx
12428	2	NEW NGC, INC.	NOx
131732	2	NEWPORT FAB, LLC	NOx
18294	1	NORTHROP GRUMMAN CORP, AIRCRAFT DIV	NOx
800408	1	NORTHROP GRUMMAN SYSTEMS	NOx
800409	2	NORTHROP GRUMMAN SYSTEMS CORPORATION	NOx
112853	2	NP COGEN INC	NOx
115315	1	NRG CALIFORNIA SOUTH LP, ETIWANDA GEN ST	NOx
89248	2	OLD COUNTRY MILLWORK INC	NOx
47781	1	OLS ENERGY-CHINO	NOx
35302	2	OWENS CORNING ROOFING AND ASPHALT, LLC	NOx/SOx
7427	1	OWENS-BROCKWAY GLASS CONTAINER INC	NOx/SOx
169754	1	OXY USA INC	NOx
151594	1	OXY USA, INC	NOx
151601	1	OXY USA, INC.	NOx
45746	2	PABCO BLDG PRODUCTS LLC,PABCO PAPER, DBA	NOx/SOx
17953	1	PACIFIC CLAY PRODUCTS INC	NOx
59618	1	PACIFIC CONTINENTAL TEXTILES, INC.	NOx
2946	1	PACIFIC FORGE INC	NOx
130211	2	PAPER-PAK INDUSTRIES	NOx
800183	1	PARAMOUNT PETR CORP	NOx/SOx
800168	1	PASADENA CITY, DWP	NOx
168088	1	PCCR USA	NOx
171107	2	PHILLIPS 66 CO/LA REFINERY WILMINGTON PL	NOx/SOx
171109	1	PHILLIPS 66 COMPANY/LOS ANGELES REFINERY	NOx/SOx
137520	1	PLAINS WEST COAST TERMINALS LLC	NOx
800416	1	PLAINS WEST COAST TERMINALS LLC	NOx
800417	2	PLAINS WEST COAST TERMINALS LLC	NOx
800419	2	PLAINS WEST COAST TERMINALS LLC	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	Program
800420	2	PLAINS WEST COAST TERMINALS LLC	NOx
176708	2	POMONA POWER GENERATION LLC	NOx
11435	2	PQ CORPORATION	NOx/SOx
7416	1	PRAXAIR INC	NOx
42630	1	PRAXAIR INC	NOx
152501	1	PRECISION SPECIALTY METALS, INC.	NOx
136	2	PRESS FORGE CO	NOx
105903	1	PRIME WHEEL	NOx
132191	1	PUREENERGY OPERATING SERVICES, LLC	NOx
132192	1	PUREENERGY OPERATING SERVICES, LLC	NOx
173392	1	QUAD/GRAPHICS MARKETING, LLC	NOx
8547	1	QUEMETCO INC	NOx/SOx
19167	2	R J. NOBLE COMPANY	NOx
3585	2	R. R. DONNELLEY & SONS CO, LA MFG DIV	NOx
20604	2	RALPHS GROCERY CO	NOx
115041	1	RAYTHEON COMPANY	NOx
114997	1	RAYTHEON COMPANY	NOx
115172	2	RAYTHEON COMPANY	NOx
800371	2	RAYTHEON SYSTEMS COMPANY - FULLERTON OPS	NOx
20203	2	RECONSERVE OF CALIFORNIA-LOS ANGELES INC	NOx
15544	2	REICHHOLD INC	NOx
52517	1	REXAM BEVERAGE CAN COMPANY	NOx
61722	2	RICOH ELECTRONICS INC	NOx
800182	1	RIVERSIDE CEMENT CO	NOx/SOx
800113	2	ROHR, INC.	NOx
18455	2	ROYALTY CARPET MILLS INC	NOx
4242	2	SAN DIEGO GAS & ELECTRIC	NOx
161300	2	SAPA EXTRUDER, INC	NOx
155221	2	SAVE THE QUEEN LLC (DBA QUEEN MARY)	NOx
15504	2	SCHLOSSER FORGE COMPANY	NOx
14926	1	SEMPRA ENERGY (THE GAS CO)	NOx
800129	1	SFPP, L.P.	NOx
37603	1	SGL TECHNIC INC, POLYCARBON DIVISION	NOx
131850	2	SHAW DIVERSIFIED SERVICES INC	NOx
117227	2	SHCI SM BCH HOTEL LLC, LOEWS SM BCH HOTE	NOx
16639	1	SHULTZ STEEL CO	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	Program
54402	2	SIERRA ALUMINUM COMPANY	NOx
85943	2	SIERRA ALUMINUM COMPANY	NOx
101977	1	SIGNAL HILL PETROLEUM INC	NOx
119596	2	SNAK KING CORPORATION	NOx
43201	2	SNOW SUMMIT INC	NOx
4477	1	SO CAL EDISON CO	NOx
5973	1	SO CAL GAS CO	NOx
800127	1	SO CAL GAS CO	NOx
800128	1	SO CAL GAS CO	NOx
8582	1	SO CAL GAS CO/PLAYA DEL REY STORAGE FACI	NOx
14871	2	SONOCO PRODUCTS CO	NOx
160437	1	SOUTHERN CALIFORNIA EDISON	NOx
800338	2	SPECIALTY PAPER MILLS INC	NOx
1634	2	STEELCASE INC, WESTERN DIV	NOx
126498	2	STEELSCAPE, INC	NOx
105277	2	SULLY MILLER CONTRACTING CO	NOx
19390	1	SULLY-MILLER CONTRACTING CO.	NOx
2083	1	SUPERIOR INDUSTRIES INTERNATIONAL INC	NOx
3968	1	TABC, INC	NOx
18931	2	TAMCO	NOx/SOx
174591	1	TESORO REF & MKTG CO LLC,CALCINER	NOx/SOx
174655	2	TESORO REFINING & MARKETING CO, LLC	NOx/SOx
151798	1	TESORO REFINING AND MARKETING CO, LLC	NOx/SOx
800436	1	TESORO REFINING AND MARKETING CO, LLC	NOx/SOx
96587	1	TEXOLLINI INC	NOx
148340	2	THE BOEING COMPANY-BUILDING 800 COMPLEX	NOx
14736	2	THE BOEING COMPANY-SEAL BEACH COMPLEX	NOx
16660	2	THE BOEING COMPANY	NOx
115241	1	THE BOEING COMPANY	NOx
800067	1	THE BOEING COMPANY	NOx
800038	2	THE BOEING COMPANY - C17 PROGRAM	NOx
11119	1	THE GAS CO./ SEMPRA ENERGY	NOx
153199	1	THE KROGER CO/RALPHS GROCERY CO	NOx
97081	1	THE TERMO COMPANY	NOx
109914	1	THERMAL REMEDIATION SOLUTIONS, LLC	NOx
800330	1	THUMS LONG BEACH	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	Program
129497	1	THUMS LONG BEACH CO	NOx
800325	2	TIDELANDS OIL PRODUCTION CO	NOx
68118	2	TIDELANDS OIL PRODUCTION COMPANY ETAL	NOx
171960	2	TIN, INC. DBA INTERNATIONAL PAPER	NOx
137508	2	TONOGA INC, TACONIC DBA	NOx
53729	1	TREND OFFSET PRINTING SERVICES, INC	NOx
165192	2	TRIUMPH AEROSTRUCTURES, LLC	NOx
43436	1	TST, INC.	NOx
800026	1	ULTRAMAR INC	NOx/SOx
9755	2	UNITED AIRLINES INC	NOx
73022	2	US AIRWAYS INC	NOx
800149	2	US BORAX INC	NOx
800150	1	US GOVT, AF DEPT, MARCH AIR RESERVE BASE	NOx
800393	1	VALERO WILMINGTON ASPHALT PLANT	NOx
9053	1	VEOLIA ENERGY LOS ANGELES, INC	NOx
11034	2	VEOLIA ENERGY LOS ANGELES, INC	NOx
14502	2	VERNON CITY, LIGHT & POWER DEPT	NOx
148896	2	CALIFORNIA RESOURCES PRODUCTION CORP	NOx
148897	2	CALIFORNIA RESOURCES PRODUCTION CORP	NOx
151899	2	CALIFORNIA RESOURCES PRODUCTION CORP	NOx
14495	2	VISTA METALS CORPORATION	NOx
146536	1	WALNUT CREEK ENERGY, LLC	NOx/SOx
42775	1	WEST NEWPORT OIL CO	NOx/SOx
17956	1	WESTERN METAL DECORATING CO	NOx
51620	1	WHEELABRATOR NORWALK ENERGY CO INC	NOx
127299	2	WILDFLOWER ENERGY LP/INDIGO GEN., LLC	NOx

APPENDIX B FACILITY INCLUSIONS

As discussed in Chapter 1, one facility was added to the RECLAIM universe in Compliance Year 2014. The included facility is identified below, and the reason for inclusion is also provided.

Facility ID	Cycle	Facility Name	Market	Date	Reason
109914	1	THERMAL REMEDIATION SOLUTIONS, LLC	NOx	4/1/2014	Reported emissions from permitted sources exceeded four tons NOx in a year

APPENDIX C

RECLAIM FACILITIES CEASING OPERATION OR EXCLUDED

SCAQMD staff is aware of the following RECLAIM facilities that permanently shut down all operations, inactivated all their RECLAIM permits, or were excluded from the RECLAIM universe during Compliance Year 2014. The reasons for shutdowns and exclusions cited below are based on the information provided by the facilities and other information available to SCAQMD staff.

Facility ID	10094
Facility Name	Atlas Carpet Mills Inc.
City and County	Commerce, Los Angeles County
SIC	2273
Pollutant(s)	NOx
1994 Allocation	9,114
Reason for Shutdown	This company was sold and consolidated its operation with its parent company. Of two Atlas Carpet Mills' facilities, this facility was the dyehouse operation, which is no longer being used. The other facility, which provides finishing operations, is still in business.
Facility ID	90957
Facility Name	J Pacific Inc, Delta Dyeing & Finishing
City and County	Los Angeles, Los Angeles County
SIC	2260
Pollutant(s)	NOx
1994 Allocation	0
Reason for Shutdown	Facility president reported to SCAQMD inspector that the facility had shut down. Per inspector's report dated on 1/22/2015, all equipment was removed and the building was abandoned. Staff was unable to obtain further clarification regarding the facility shutdown.
Facility ID	175124
Facility Name	Aerojet Rocketdyne of DE, Inc.
City and County	Canoga Park, Los Angeles County
SIC	3764
Pollutant(s)	NOx
1994 Allocation	7,048
Reason for Shutdown	Facility ceased making rocket engines and was permanently shut down. The company's representative was unwilling to provide information regarding the reason for shutdown. The land was sold for development.
Facility ID	800373
Facility Name	Lakeland Development Company
City and County	Santa Fe Springs, Los Angeles County
SIC	4953
Pollutant(s)	NOx/SOx
1994 Allocation	1,083,844 NOx / 739,296 SOx

ANNUAL RECLAIM AUDIT

Reason for
Shutdown

Facility filed for bankruptcy and was sold in 2013. The remaining land was sold to another party in June 2014. Staff was unable to obtain further clarification regarding the facility shutdown.

**APPENDIX D
FACILITIES THAT EXCEEDED THEIR ANNUAL ALLOCATION
FOR COMPLIANCE YEAR 2014**

The following is a list of facilities that did not have enough RTCs to cover their NOx and/or SOx emissions in Compliance Year 2014 based on the results of audits conducted by SCAQMD staff.

Facility ID	Facility Name	Compliance Year	Emittant
1744	KIRKHILL - TA COMPANY	2014	NOx
3585	R. R. DONNELLEY & SONS CO, LA MFG DIV	2014	NOx
7411	DAVIS WIRE CORP	2014	NOx
8582	SO CAL GAS CO/PLAYA DEL REY STORAGE FACILITY	2014	NOx
11119	THE GAS CO./ SEMPRA ENERGY	2014	NOx
53729	TREND OFFSET PRINTING SERVICES, INC	2014	NOx
115563	NCI GROUP INC., DBA, METAL COATERS OF CA	2014	NOx
119907	BERRY PETROLEUM COMPANY	2014	NOx
122666	A'S MATCH DYEING & FINISHING	2014	NOx
153033	GEORGIA-PACIFIC CORRUGATED LLC	2014	NOx
171109	PHILLIPS 66 COMPANY/LOS ANGELES REFINERY	2014	SOx
174371	DP3 HANGARS, LLC	2014	NOx

APPENDIX E

REPORTED JOB IMPACTS ATTRIBUTED TO RECLAIM

Each year, RECLAIM facility operators are asked to provide employment data in their APEP reports. The report asks company representatives to quantify job increases and/or decreases, and to report the positive and/or negative impacts of the RECLAIM program on employment at their facilities. This appendix is included in each Annual RECLAIM Audit Report to provide detailed information for facilities reporting that RECLAIM contributed to job gains or losses.

During Compliance Year 2014, no facility reported actual job gains or losses attributable to RECLAIM.

