



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

BOARD MEETING DATE: March 5, 2021

AGENDA NO. 33

PROPOSAL: Approve Annual RECLAIM Audit Report for 2019 Compliance Year

SYNOPSIS: The annual report on the NOx and SOx 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-sixth year of this program. Recent trends in trading future year RTCs are analyzed and presented in this report. A list of facilities that did not reconcile their emissions for the 2019 Compliance Year is also included in the report. This action is to approve the Annual RECLAIM Audit Report for 2019.

COMMITTEE: Stationary Source Committee, February 19, 2021, Reviewed

RECOMMENDED ACTION:

Approve the Annual RECLAIM Audit Report for 2019 Compliance Year.

APPROVED
by the
South Coast Air Quality
Management District Board
Date: <u>March 5, 2021</u>
<u>Wayne Natri</u>
Clerk of the Board

Wayne Natri
Executive Officer

AD:DO

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 South Coast AQMD's largest emitters of NOx and SOx. 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

Cleaning the air that we breathe...

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 and annual 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.

Although the NO_x RECLAIM program is transitioning to a command-and-control regulatory structure, RECLAIM Rule 2015 - Backstop Provisions, requires that staff conduct annual program audits to assess various aspects of the program and to verify that program objectives are met. Staff has completed audits of facility records and completed the annual audit of the RECLAIM program for Compliance Year 2019 (which encompasses the time period for Cycle 1 from January 1, 2019 to December 31, 2019 and for Cycle 2 from July 1, 2019 to June 30, 2020). Based on audited emissions in this report and previous annual reports, staff has determined that RECLAIM met its emissions goals for Compliance Year 2019, 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 percent) primarily due to emissions from electric generating facilities during the California energy crisis. For Compliance Year 2019, audited NO_x emissions were 20 percent less than programmatic NO_x allocations and audited SO_x emissions were 23 percent less than programmatic SO_x allocations.

Audit Findings

The audit of the RECLAIM Program's Compliance Year 2019 and trades of RTCs that occurred during calendar year 2020 show:

- **Overall Compliance** – Audited NO_x and SO_x emissions from RECLAIM facilities were significantly below programmatic allocations.
- **Universe** – The RECLAIM universe consisted of 253 facilities as of June 30, 2019. No new facilities were included, no facilities were excluded, and seven facilities in the RECLAIM universe shut down during Compliance Year 2019. Thus, 246 active facilities were in the RECLAIM universe on June 30, 2020, the end of Compliance Year 2019.

Of the seven facilities that shut down, three facilities cited financial reasons, one facility relocated outside the South Coast AQMD, two facilities sold to new owners and removed their equipment, and one facility underwent a corporate merger and consolidation. All seven facilities permanently ceasing operations were in NO_x RECLAIM.

- Facility Compliance** – The vast majority of RECLAIM facilities complied with their allocations during the 2019 compliance year (95 percent of NOx facilities and 97 percent of SOx facilities). Thirteen facilities (five percent of total facilities) exceeded their allocations (12 facilities exceeded their NOx allocations, and one facility exceeded its SOx allocations) during Compliance Year 2019. The 12 facilities that exceeded their NOx allocations had total NOx emissions of 339.9 tons and did not have adequate allocations to offset 213.6 of those tons. The exceedances represent 2.60 percent of total RECLAIM NOx universe allocations and 62.8 percent of total NOx emissions from the 12 facilities. The one SOx facility that exceeded its SOx allocation had total SOx emissions of 1.22 tons and did not have adequate allocations to offset 0.27 tons. This exceedance represents 0.01 percent of total RECLAIM SOx universe allocations and 22.1 percent of total SOx emissions from the facility. Pursuant to Rule 2010(b)(1)(A), all 13 facilities had their respective exceedances deducted from their annual allocations for the compliance year subsequent to South Coast AQMD staff determination that the facilities exceeded their Compliance Year 2019 allocations.
- Job Impacts** – Based on a survey of RECLAIM facilities, the RECLAIM program had minimal impact on employment during the 2019 compliance year, which is consistent with previous years. RECLAIM facilities reported an overall net loss of 4,167 jobs, representing 4.0 percent of their total employment. A comparison of reported job impacts between Cycle 1 and Cycle 2 facilities suggests that the coronavirus (COVID-19) global pandemic affected Cycle 2 facility job losses. One facility cited RECLAIM as a factor contributing to the addition of one job during Compliance Year 2019. No RECLAIM facility reported job losses due to RECLAIM during Compliance Year 2019. The job loss and job gain data are compiled strictly from reports submitted by RECLAIM facilities, and staff is not able to verify the accuracy of the reported job impacts data.
- Trading Activity** – The RTC trading market activity during calendar year 2020 was slightly lower in terms of number of trades (1.3 percent), lower with respect to total value (46.9 percent), slightly lower in volume for discrete-year RTCs (9.4 percent) and lower in volume of infinite-year block (IYB) RTCs excluding swaps (69.6 percent), when compared to calendar year 2019. A total of \$1.54 billion in RTCs has been traded since the adoption of RECLAIM, of which \$18.2 million occurred in calendar year 2020 (compared to \$34.2 million in calendar year 2019), excluding swaps.

The annual average prices of discrete-year NOx and SOx RTCs for Compliance Years 2019, 2020, and 2021 and IYB NOx and SOx RTCs traded in calendar year 2020 were below the applicable review thresholds for average RTC prices. The annual average prices of RTCs traded during calendar years 2019 and 2020 are summarized and compared to the applicable thresholds in Tables 1 and 2.

Table 1 – Average Prices for Discrete-Year RTCs Traded during Calendar Years 2019 and 2020

Year Traded	Average Price (\$/ton)				Review Thresholds (\$/ton)	
	2018 NOx RTC	2019 NOx RTC	2020 NOx RTC	2021 NOx RTC	Rule 2015 (b)(6)	Health and Safety Code §39616(f)
2019	\$2,261	\$5,410	\$12,190	\$8,678	\$15,000	\$47,585
2020		\$4,287	\$8,323	\$9,418		
Year Traded	2018 SOx RTC	2019 SOx RTC	2020 SOx RTC	2021 SOx RTC	Rule 2015 (b)(6)	Health and Safety Code §39616(f)
2019	\$1,764	\$7,985	None traded	None traded	\$15,000	\$34,261
2020		\$4,387	\$2,300	None traded		

Table 2 – Average Prices for IYB RTCs Traded during Calendar Years 2019 and 2020

RTCs	Average Price (\$/ton)		Review Threshold (\$/ton) [Health and Safety Code §39616(f)]
	Traded in 2019	Traded in 2020	
NOx	\$94,183	\$116,405	\$713,777
SOx	\$13,213	\$32,251	\$513,919

- Role of Investors** – Investors remained active in the RTC market, and their involvement in 2020 was comparable to prior years. Investors were involved in 151 of the 189 discrete NOx trades with price, and 4 of the 5 discrete SOx trades with price. With respect to IYB trades, investors’ participation was notable, and were involved in 10 of the 18 IYB NOx trades with price, and both of the IYB SOx trades with price. Compared to calendar year 2019, investor holdings of total IYB NOx RTCs remained the same at 1.3 percent and decreased from 4.7 percent to 4.2 percent for IYB SOx RTCs at the end of calendar year 2020. Investors purchase RTCs, but are not RECLAIM facilities or brokers. (Brokers typically do not purchase RTCs but facilitate trades.)
- 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.

Attachments

1. Annual RECLAIM Audit Report for 2019 Compliance Year
2. Board Presentation

ATTACHMENT 1

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Annual RECLAIM Audit Report for 2019 Compliance Year

March 5, 2021

Executive Officer

Wayne Nastri

Deputy Executive Officer

Engineering & Permitting

Amir Dejbakhsh

Assistant Deputy Executive Officer

Engineering & Permitting

Jason Aspell

Senior Air Quality Engineering Manager

RECLAIM Administration

David Ono

Authors: George Illes, Supervising Air Quality Engineer
Bob Sanford, Senior Air Quality Engineer
Chris Hynes, Air Quality Specialist
Bettina Burleigh Sanchez, Air Quality Engineer II
Ryan Maxwell, Air Quality Engineer II
Benny Char, Air Quality Engineer I

Contributors: Mark Bassett, Air Quality Specialist
Louis Fan, Air Quality Engineer II

Reviewed by: Amir Dejbakhsh, Deputy Executive Officer
Jason Aspell, Assistant Deputy Executive Officer
David Ono, Senior Air Quality Engineering Manager
Barbara Baird, Chief Deputy Counsel
William Wong, Principal Deputy District Counsel

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

GOVERNING BOARD

Chairman: Dr. William A. Burke
Speaker of the Assembly
Appointee

Vice Chairman: Ben Benoit
Mayor Pro Tem, Wildomar
Cities of Riverside County

Members:

Lisa Bartlett
Supervisor, Fifth District
County of Orange

Joe Buscaino
Council Member, Fifteenth District
City of Los Angeles Representative

Michael A. Cacciotti
Mayor Pro Tem, South Pasadena
Cities of Los Angeles County/Eastern Region

Vanessa Delgado
Senate Rules Committee
Appointee

Gideon Kracov
Governor's Appointee

Sheila Kuehl
Supervisor, Third District
County of Los Angeles

Larry McCallon
Mayor Pro Tem, Highland
Cities of San Bernardino County

V. Manuel Perez
Supervisor, Fourth District
County of Riverside

Rex Richardson
Vice Mayor, Long Beach
Cities of Los Angeles County/Western Region

Carlos Rodriguez
Mayor Pro Tem, Yorba Linda
Cities of Orange County

Janice Rutherford
Supervisor, Second District
County of San Bernardino

EXECUTIVE OFFICER

Wayne Nastri

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 2019	1-5
Figure 2-1: NOx RTC Supply	2-7
Figure 2-2: SOx RTC Supply	2-8
Figure 2-3: Annual Trading Values for NOx and SOx (Excluding Swaps)	2-10
Figure 2-4: Calendar Year 2020 Overall Trading Activity (Excluding Swaps)	2-11
Figure 2-5: Calendar Year 2020 Trading Activity for Discrete-Year RTCs (Excluding Swaps)	2-13
Figure 2-6: Calendar Year 2020 Trading Activity for IYB RTCs (Excluding Swaps)	2-15
Figure 2-7: Discrete-Year NOx RTC Trades (Excluding Swaps)	2-16
Figure 2-8: Discrete-Year SOx RTC Trades (Excluding Swaps)	2-17
Figure 2-9: IYB NOx RTC Trades (Excluding Swaps)	2-18
Figure 2-10: IYB SOx RTC Trades (Excluding Swaps)	2-19
Figure 2-11: Bi-Monthly Average Prices for NOx RTCs near Expiration	2-26
Figure 2-12: Calendar Year 2020 Investor-Involved Discrete-Year NOx and SOx Trades Based on Value Traded	2-31
Figure 2-13: Calendar Year 2020 Investor-Involved Discrete-Year NOx and SOx Trades Based on Volume Traded with Price	2-31
Figure 2-14: Calendar Year 2020 Investor-Involved IYB NOx and SOx Trades Based on Value Traded	2-32
Figure 2-15: Calendar Year 2020 Investor-Involved IYB NOx and SOx Trades Based on Volume Traded with Price	2-32
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 2019 NOx Quarterly Emissions	7-5
Figure 7-4: Quarterly NOx Emissions from Calendar Years 2008 through 2019	7-6
Figure 7-5: Calendar Year 2019 SOx Quarterly Emissions	7-7
Figure 7-6: Quarterly SOx Emissions from Calendar Years 2008 through 2019	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 2019 (tons/year) _____	2-6
Table 2-2:	Trade Registrations in Calendar Years 2020 and 2019, Including Swaps _____	2-9
Table 2-3:	Value Traded in Calendar Years 2020 and 2019, Excluding Swaps (millions of dollars) _____	2-10
Table 2-4:	Volume of Discrete-Year RTCs Traded in Calendar Years 2020 and 2019, Excluding Swaps (tons) _____	2-11
Table 2-5:	Volume of IYB RTCs Traded in Calendar Years 2020 and 2019, Excluding Swaps (tons) _____	2-11
Table 2-6:	Discrete-Year Trade Registrations in Calendar Years 2020 and 2019 by Price, Excluding Swaps _____	2-12
Table 2-7:	Discrete-Year RTC Value Traded in 2020 and 2019, Excluding Swaps (millions of dollars) _____	2-12
Table 2-8:	Discrete-Year RTC Volume Traded in Calendar Years 2020 and 2019 by Price, Excluding Swaps (tons) _____	2-13
Table 2-9:	IYB Trade Registrations in Calendar Years 2020 and 2019 by Price _____	2-14
Table 2-10:	IYB RTC Value Traded in 2020 and 2019, Excluding Swaps (millions of dollars) _____	2-14
Table 2-11:	IYB RTC Volume Traded in Calendar Years 2020 and 2019 by Price, Excluding Swaps (tons) _____	2-14
Table 2-12:	NOx Trade Registrations Involving Swaps _____	2-21
Table 2-13:	SOx Trade Registrations Involving Swaps _____	2-22
Table 2-14:	Annual Average Prices for Discrete-Year NOx RTCs during Calendar Years 2015 through 2020 (price per ton) _____	2-23
Table 2-15:	Annual Average Prices for Discrete-Year SOx RTCs during Calendar Years 2015 through 2020 (price per ton) _____	2-23
Table 2-16:	Twelve-Month Rolling Average Prices of Compliance Year 2020 Discrete-Year NOx RTCs _____	2-24
Table 2-17:	Three-Month Rolling Average Prices of Compliance Year 2020 Discrete-Year NOx RTCs _____	2-25
Table 2-18:	Twelve-Month Rolling Average Prices of Compliance Year 2020 Discrete-Year SOx RTCs _____	2-25
Table 2-19:	IYB NOx Pricing (Excluding Swaps) _____	2-27
Table 2-20:	IYB SOx Pricing (Excluding Swaps) _____	2-28
Table 3-1:	Annual NOx Emissions for Compliance Years 1994 through 2019 _____	3-3
Table 3-2:	Annual SOx Emissions for Compliance Years 1994 through 2019 _____	3-5
Table 3-3:	Summary of Landing Rules _____	3-11
Table 3-4:	Breakdown Emission Comparison for Compliance Year 2019 _____	3-18
Table 3-5:	NOx Emissions Impact from the Changes in Universe (Tons) _____	3-19
Table 3-6:	SOx Emissions Impact from the Changes in Universe (Tons) _____	3-19
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 2019 _____	5-8
Table 5-4:	Passing Rates Based on RATAs of Certified CEMS in 2020 _____	5-9
Table 6-1:	Job Impacts at RECLAIM Facilities for Compliance Year 2019 _____	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

TABLE OF CONTENTS

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 2019 __	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
AQMD	Air Quality Management District
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
CEMS	Continuous Emissions Monitoring System(s)
CEQA	California Environmental Quality Act
CGA	Cylinder Gas Audit
COVID-19	Coronavirus Disease 2019
CPMS	Continuous Process Monitoring System(s)
EDR	Electronic Data Reporting
ERC	Emission Reduction Credit
GHG	Greenhouse Gas
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
SIP	State Implementation Plan
SOx	Oxides of Sulfur
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 (South Coast AQMD) 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 2019 (January 1 through December 31, 2019 for Cycle 1 and July 1, 2019 through June 30, 2020 for Cycle 2 facilities). This annual audit report covers activities for the twenty-sixth 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, 2019, the overall changes in RECLAIM participants were 134 facilities included into the program, 73 facilities excluded from the program, and 202 facilities ceased operation. Thus, the RECLAIM universe consisted of 253 active facilities at the end of Compliance Year 2018 (December 31, 2018 for Cycle 1 facilities and June 30, 2019 for Cycle 2 facilities). During Compliance Year 2019 (January 1, 2019 through December 31, 2019 for Cycle 1 facilities and July 1, 2019 through June 30, 2020 for Cycle 2 facilities), no facilities were included into the RECLAIM universe, no facilities were excluded, and seven facilities (all in the NOx universe) shut down and are no longer in the active RECLAIM universe. These changes resulted in a net decrease of seven facilities in the universe, bringing the total number of active RECLAIM facilities to 246 as of the end of Compliance Year 2019.

Chapter 2: RTC Allocations and Trading

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 resulted in an overall reduction of 48.4% (or 5.7 tons/day) in SOx allocations. On December 4, 2015, the Governing Board adopted amendments to NOx

RECLAIM to phase in additional NOx reductions which began in Compliance Year 2016 and continue through Compliance Year 2022. The amendments will result in an overall NOx reduction of 45% (or 12 tons/day) when fully implemented for Compliance Year 2022 and beyond. For Compliance Year 2019, the fourth year of implementation, the NOx allocation supply was reduced by 15.1 % (or 4.0 tons/day). The only remaining changes in RTC supply during Compliance Year 2019 were due to allocation adjustments for clean fuel production pursuant to Rule 2002(c)(12) which increased overall NOx RTC supply by 13.2 tons and SOx RTC supply by 2.6 tons.

Since the inception of the RECLAIM program in 1994, a total value of \$1.54 billion dollars has been traded in the RTC trading market, excluding swap trades. During calendar year 2020, there were 300 RTC trade registrations, including swap trades. There were 277 RTC trade registrations with a total value of \$18.2 million traded, excluding swap trades. RTC trades are reported to South Coast AQMD as either discrete-year RTC trades or infinite-year block (IYB) trades (trades that involve blocks of RTCs with a specified start year and continuing into perpetuity).

Excluding swap trades, in calendar year 2020 a total of 1,854 tons of discrete-year NOx RTCs, 377 tons of discrete-year SOx RTCs, 156 tons of IYB NOx RTCs and 20 tons of IYB SOx RTCs were traded. The RTC trading market activity decreased during calendar year 2020 compared to calendar year 2019, in number of trades (by 1.3%), in total value (by 46.9%), and in volume both for discrete-year RTCs (by 9.4%) and IYB RTCs (by 69.6%).

Discrete-year RTC trades with price (*i.e.*, price >\$0.00) registered during calendar year 2020 include trades for Compliance Years 2019, 2020, and 2021 NOx RTCs, and Compliance Years 2019 and 2020 SOx RTCs, excluding swap trades. The annual average prices of discrete-year NOx RTCs traded during calendar year 2020 were \$4,287, \$8,323, and \$9,418 per ton for Compliance Years 2019, 2020, and 2021 RTCs, respectively. The annual average prices for discrete-year SOx RTCs traded during the same period were \$4,387, and \$2,300 per ton for Compliance Years 2019 and 2020 RTCs, respectively.

Prices for discrete-year NOx and SOx RTCs for all compliance years are still well below the \$47,585 per ton of NOx and \$34,261 per ton of SOx discrete-year RTCs pre-determined overall program review thresholds established by the Governing Board pursuant to Health and Safety Code §39616(f), as well as the \$15,000 per ton threshold pursuant to Rule 2015(b)(6).

The annual average price during calendar year 2020 for IYB NOx RTCs was \$116,405 per ton and the annual average price for IYB SOx RTCs was \$32,251 per ton. Therefore, annual average IYB RTC prices did not exceed the \$713,777 per ton of IYB NOx RTCs or the \$513,919 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). IYB NOx RTC trade activities were concentrated towards the first half of calendar year 2020, during which petroleum refining companies acquired from investors 74 tons of IYB NOx RTCs.

Investors were active in the RTC market during calendar year 2020. They were involved in 151 of the 189 discrete-year NOx trade registrations and 4 of the 5 discrete-year SOx trade registrations with price. Investors were also involved in

10 of the 18 IYB NO_x and both of the IYB SO_x trades with price. Investors were involved in 72% of total value and 66% of total volume for discrete-year NO_x trades, and 62% of the total value and 71% of the total volume for discrete-year SO_x trades. At the end of calendar year 2020, investors' holdings of IYB NO_x RTCs stayed consistent at 1.3% of total NO_x RECLAIM RTCs, while investors' holdings of IYB SO_x RTCs decreased slightly to 4.2% of the total SO_x RECLAIM RTCs, compared to investor's holdings of 4.7% in calendar year 2019.

Chapter 3: Emission Reductions Achieved

For Compliance Year 2019, aggregate NO_x emissions were below total allocations by 20% 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 2019. 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 2019. With respect to the Rule 2015 backstop provisions, Compliance Year 2019 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 2019, a total of three NO_x RECLAIM facilities had NSR NO_x emission increases, and no SO_x RECLAIM facilities had an NSR SO_x emission increase 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 2019, RECLAIM demonstrated federal equivalency with a programmatic NO_x offset ratio of 1,504-to-1 based on the compliance year's total unused allocations and total NSR emission increases for NO_x. There were no SO_x NSR emission increases that resulted from starting operations of new or modified permitted sources during the compliance year. 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 (Table 3-2 and Figure 3-2), there was a surplus of SO_x RTCs during Compliance Year 2019. Therefore, RECLAIM more than complied with the federally-required SO_x offset ratio and further quantification of the SO_x offset ratio is unnecessary. Also, the NNI is satisfied by the program's 1-to-1 offset ratio. 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) for major sources. The same

BACT guidelines are used to determine BACT applicable to RECLAIM and non-RECLAIM facilities.

Chapter 5: Compliance

Based on South Coast AQMD Compliance Year 2019 audit results, 247 of the 259 (95%) NO_x RECLAIM facilities complied with their NO_x allocations, and 31 of the 32 SO_x facilities (97%) complied with their SO_x allocations based on South Coast AQMD audit results. So, thirteen facilities exceeded their allocations (12 facilities exceeded their NO_x allocations, and one facility exceeded its SO_x allocation). The 12 facilities that exceeded their NO_x allocations had aggregate NO_x emissions of 339.9 tons and did not have adequate allocations to offset 213.6 tons (or 62.8%) of their combined emissions. The facility that exceeded its SO_x allocations had total SO_x emissions of 1.22 tons and did not have adequate allocations to offset 0.27 tons (or 22.1%). The NO_x and SO_x exceedance amounts are relatively small compared to the overall NO_x and SO_x allocations for Compliance Year 2019 (2.60% of total NO_x allocations and 0.01% of total SO_x allocations). The exceedances from these facilities did not impact the overall RECLAIM emission reduction goals. The overall RECLAIM NO_x and SO_x emission reduction targets and goals were met for Compliance Year 2019 (*i.e.*, aggregate emissions for all RECLAIM facilities were well below aggregate allocations). 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 South Coast AQMD's determination that the facilities exceeded their Compliance Year 2019 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. South Coast AQMD staff is not able to independently verify the accuracy of the facility reported job impact information.

According to the Compliance Year 2019 employment survey data gathered from APEP reports, RECLAIM facilities reported a net loss of 4,167 jobs, representing 4.0% of their total employment. A comparison of reported job impacts between Cycle 1 and Cycle 2 facilities suggests that the coronavirus (COVID-19) global pandemic affected Cycle 2 facility job losses. One RECLAIM facility cited RECLAIM as a factor contributing to the addition of one job during Compliance Year 2019. No facility reported job losses due to RECLAIM, during Compliance Year 2019.

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 2019 NO_x and SO_x emissions decreased

2.1% and 20.3%, respectively, relative to Compliance Year 2018. Quarterly calendar year 2019 NOx emissions fluctuated within five percent of the mean NOx emissions for the year. Quarterly calendar year 2019 SOx emissions fluctuated within fifteen 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 2020, 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 South Coast AQMD. Those emissions reports are used to identify candidates for the Air 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, than would occur under command-and-control, because RECLAIM facilities must comply with the same toxics rules as non-RECLAIM facilities.

INTRODUCTION

The South Coast Air Quality Management District (South Coast AQMD) 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. South Coast AQMD staff has completed the initial tri-annual program audit and each individual annual program audit report through the 2019 Compliance Year Audit.

This report presents the annual program audit and progress report of RECLAIM's twenty-sixth compliance year (January 1 through December 31, 2019 for Cycle 1 and July 1, 2019 through June 30, 2020 for Cycle 2 RECLAIM facilities), also known as Compliance Year 2019. 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 summarizes changes to the universe of RECLAIM sources that occurred up until July 1, 2019 (covered under the Annual RECLAIM Audit Report for 2018 Compliance Year), then discusses changes to the RECLAIM universe of sources in detail through the end of Compliance Year 2019.
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 South Coast AQMD's compliance program, as well as the monitoring, reporting, and recordkeeping (MRR) protocols for NO_x and SO_x.
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, 2019, the overall changes in RECLAIM participants were 134 facilities included into the program, 73 facilities excluded from the program, and 202 facilities ceased operation. Thus, the RECLAIM universe consisted of 253 active facilities at the end of Compliance Year 2018 (December 31, 2018 for Cycle 1 facilities and June 30, 2019 for Cycle 2 facilities). During Compliance Year 2019 (January 1, 2019 through December 31, 2019 for Cycle 1 facilities and July 1, 2019 through June 30, 2020 for Cycle 2 facilities), no facilities were included into the RECLAIM universe, no facilities were excluded, and seven facilities (all in the NOx universe) shut down and are no longer in the active RECLAIM universe. These changes resulted in a net decrease of seven facilities in the universe, bringing the total number of active RECLAIM facilities to 246 as of the end of Compliance Year 2019.

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 were 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 were not automatically included but did 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; publicly-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 was not in a category specifically excluded from the program could voluntarily join RECLAIM regardless of its emission level. Additionally, a facility could be required to enter the RECLAIM universe if:

- It increased its NO_x and/or SO_x emissions from permitted sources above the four ton per year threshold; or
- It ceased to be categorically excluded and its reported NO_x and/or SO_x emissions were greater than or equal to four tons per year; or
- It was determined by 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 was 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).

2016 AQMP Control Measure CMB-05

Up until March 2017, staff conducted a process of identifying facilities to be included in RECLAIM pursuant to Rule 2001(b) – Criteria for Inclusion in RECLAIM. As part of the adoption Resolution of the Final 2016 AQMP in March 2017, staff was directed by the Governing Board to modify Control Measure CMB-05 – Further NO_x Reductions from RECLAIM Assessment to achieve an additional five tons per day NO_x emission reductions as soon as feasible but no later than 2025, and to transition the RECLAIM program to a command-and-control regulatory structure requiring Best Available Retrofit Control Technology (BARCT) level controls as soon as practicable. Additionally, California State Assembly Bill (AB) 617, approved in July 2017, required an expedited schedule for implementing BARCT at cap-and-trade facilities, under which many RECLAIM facilities are also subject, and required that the implementation of BARCT be no later than December 31, 2023.

2018 Rule Amendments

On January 5, 2018, the Governing Board amended two rules, Rule 2001 – Applicability, and Rule 2002 – Allocations for Oxides of Nitrogen (NO_x) and Oxides of Sulfur (SO_x), to initiate the transition of the NO_x and SO_x RECLAIM program to a command-and-control regulatory structure as soon as practicable. The amendments also precluded new or existing facilities from entering the NO_x and SO_x RECLAIM programs. On October 5, 2018, the Governing Board further amended Rule 2001, opening a pathway for a facility to opt out of the RECLAIM program should their equipment qualify. Shortly thereafter, the United States Environmental Protection Agency (USEPA) recommended that facilities be kept in RECLAIM until all the rules associated with the transition to a command-and-control regulatory structure are adopted, so that the full transitioning of the

RECLAIM Program can be evaluated for incorporation into the State Implementation Plan (SIP) as a package with all the accompanying rules in place. In order to address USEPA's concerns, the Governing Board amended Rule 2001 on July 12, 2019 to remove the opt-out provision so that facilities cannot exit RECLAIM (see further discussion in Chapter 3).

Following approval of these Rule 2001 amendments, the only allowable changes to the RECLAIM Universe result from facilities that cease operations, as indicated by removing all equipment requiring a South Coast AQMD permit to operate, or by rendering such equipment permanently inoperable (*i.e.*, from facility shutdowns).

Universe Changes

In the early years of the RECLAIM program, some 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, some facilities that were not part of the original universe were subsequently added to the program based on the original inclusion criteria mentioned above. On the other hand, RECLAIM facilities that permanently go out of business are removed from the active emitting RECLAIM universe.

The overall changes to the RECLAIM universe from the date of adoption (October 15, 1993) through June 30, 2019 (the last day of Compliance Year 2018 for Cycle 2 facilities) were: the inclusion of 134 facilities (including 34 facilities created by partial change of operator of existing RECLAIM facilities), the exclusion of 73 facilities, and the shutdown of 202 facilities. Thus, the net change in the RECLAIM universe from October 15, 1993 through June 30, 2018 was a decrease of 141 facilities from 394 to 253 facilities. In Compliance Year 2019 (January 1, 2019 through December 31, 2019 for Cycle 1 facilities and July 1, 2019 through June 30, 2020 for Cycle 2 facilities), no facilities were included, no facilities were excluded, and seven facilities shut down. These changes brought the total number of facilities in the RECLAIM universe to 246 facilities. The Compliance Year 2019 RECLAIM universe includes 216 NO_x-only, no SO_x-only, and 30 both NO_x and SO_x RECLAIM facilities. The list of active facilities in the RECLAIM universe as of the end of Compliance Year 2019 is provided in Appendix A.

Facility Inclusions and Exclusions

No RECLAIM facilities were included in or excluded from the RECLAIM universe during Compliance Year 2019.

Facilities Permanently Ceasing Operations

Seven NO_x RECLAIM facilities permanently ceased operations in Compliance Year 2019. Three of these facilities shut down due to financial reasons. One facility relocated outside of the South Coast AQMD. Two facilities shut down when they sold to new owners and removed all equipment requiring a South Coast AQMD permit to operate. The last facility permanently ceased operations

as a result of a corporate merger and consolidation. Appendix C lists these facilities and provides brief descriptions of the reported reasons for their closures.

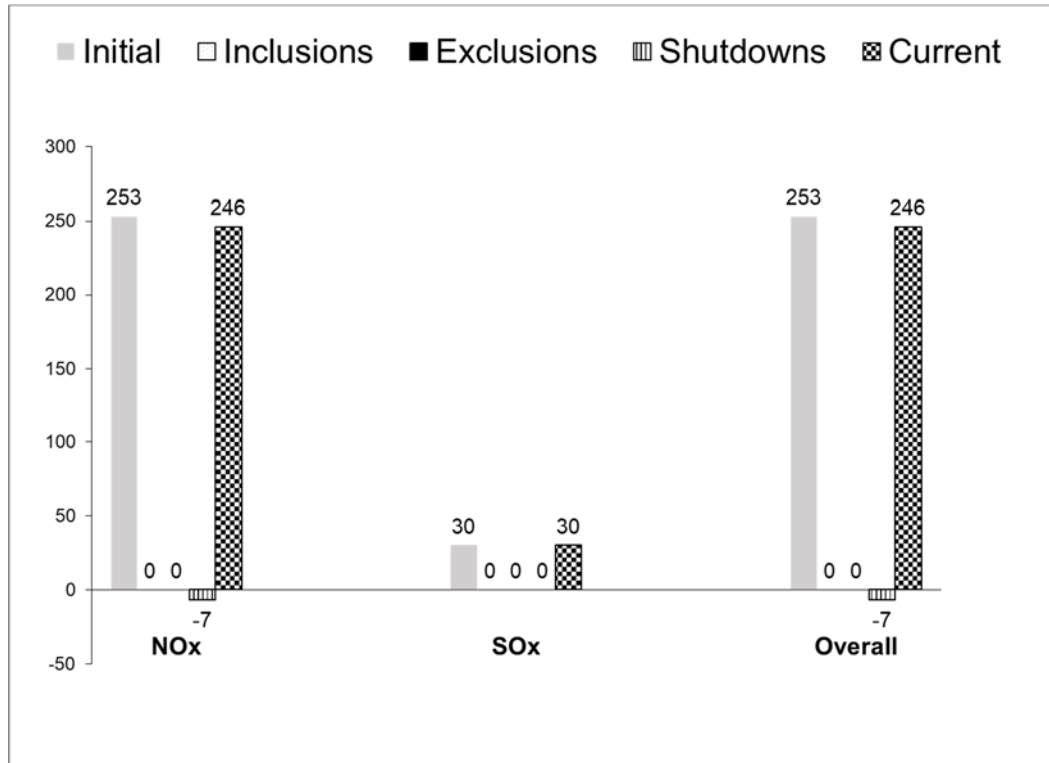
The above-mentioned changes to the RECLAIM universe resulted in a net decrease of seven facilities in the RECLAIM universe during Compliance Year 2019. Table 1-1 summarizes overall changes in the RECLAIM universe between the start of the program and end of Compliance Year 2019 (December 31, 2019 for Cycle 1 facilities and June 30, 2020 for Cycle 2 facilities). Changes to the RECLAIM universe that occurred in Compliance Year 2019 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 2018	134	13	134
Exclusions – October 15, 1993 through Compliance Year 2018	-72	-4	-73
Shutdowns – October 15, 1993 through Compliance Year 2018	-201	-20	-202
Universe – June 30, 2019	253	30	253
Inclusions – Compliance Year 2019	0	0	0
Exclusions – Compliance Year 2019	0	0	0
Shutdowns – Compliance Year 2019	-7	0	-7
Universe – End of Compliance Year 2019	246	30	246

* "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 2019



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 resulted in an overall reduction of 48.4% (or 5.7 tons/day) in SOx allocations. On December 4, 2015, the Governing Board adopted amendments to NOx RECLAIM to phase in additional NOx reductions which began in Compliance Year 2016 and continue through Compliance Year 2022. The amendments will result in an overall NOx reduction of 45% (or 12 tons/day) when fully implemented for Compliance Year 2022 and beyond. For Compliance Year 2019, the fourth year of implementation, the NOx allocation supply was reduced by 15.1 % (or 4.0 tons/day). The only remaining changes in RTC supply during Compliance Year 2019 were due to allocation adjustments for clean fuel production pursuant to Rule 2002(c)(12) which increased overall NOx RTC supply by 13.2 tons and SOx RTC supply by 2.6 tons.

Since the inception of the RECLAIM program in 1994, a total value of \$1.54 billion dollars has been traded in the RTC trading market, excluding swap trades. During calendar year 2020, there were 300 RTC trade registrations, including swap trades. There were 277 RTC trade registrations with a total value of \$18.2 million traded, excluding swap trades. RTC trades are reported to South Coast AQMD as either discrete-year RTC trades or infinite-year block (IYB) trades (trades that involve blocks of RTCs with a specified start year and continuing into perpetuity).

Excluding swap trades, in calendar year 2020 a total of 1,854 tons of discrete-year NOx RTCs, 377 tons of discrete-year SOx RTCs, 156 tons of IYB NOx RTCs and 20 tons of IYB SOx RTCs were traded. The RTC trading market activity decreased during calendar year 2020 compared to calendar year 2019, in number of trades (by 1.3%), in total value (by 46.9%), and in volume both for discrete-year RTCs (by 9.4%) and IYB RTCs (by 69.6%).

Discrete-year RTC trades with price (i.e., price >\$0.00) registered during calendar year 2020 include trades for Compliance Years 2019, 2020, and 2021 NOx RTCs, and Compliance Years 2019 and 2020 SOx RTCs, excluding swap trades. The annual average prices of discrete-year NOx RTCs traded during calendar year 2020 were \$4,287, \$8,323, and \$9,418 per ton for Compliance Years 2019, 2020, and 2021 RTCs, respectively. The annual average prices for discrete-year SOx RTCs traded during the same period were \$4,387, and \$2,300 per ton for Compliance Years 2019 and 2020 RTCs, respectively.

Prices for discrete-year NOx and SOx RTCs for all compliance years are still well below the \$47,585 per ton of NOx and \$34,261 per ton of SOx discrete-year RTCs pre-determined overall program review thresholds established by the Governing Board pursuant to Health and Safety Code §39616(f), as well as the \$15,000 per ton threshold pursuant to Rule 2015(b)(6).

The annual average price during calendar year 2020 for IYB NOx RTCs was \$116,405 per ton and the annual average price for IYB SOx RTCs was \$32,251 per ton. Therefore, annual average IYB RTC prices did not exceed the \$713,777 per ton of IYB NOx RTCs or the \$513,919 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). IYB NOx RTC trade activities were concentrated towards the first half of calendar year 2020, during which petroleum refining companies acquired from investors 74 tons of IYB NOx RTCs.

Investors were active in the RTC market during calendar year 2020. They were involved in 151 of the 189 discrete-year NOx trade registrations and 4 of the 5 discrete-year SOx trade registrations with price. Investors were also involved in 10 of the 18 IYB NOx and both of the IYB SOx trades with price. Investors were involved in 72% of total value and 66% of total volume for discrete-year NOx trades, and 62% of the total value and 71% of the total volume for discrete-year SOx trades. At the end of calendar year 2020, investors' holdings of IYB NOx RTCs stayed consistent at 1.3% of total NOx RECLAIM RTCs, while investors' holdings of IYB SOx RTCs decreased slightly to 4.2% of the total SOx RECLAIM RTCs, compared to investor's holdings of 4.7% in calendar year 2019.

Background

South Coast AQMD issues each RECLAIM facility at the time of inclusion into RECLAIM 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 that existed prior to January 1, 1993, the allocation is calculated based on each facility's historic production levels as reported to South Coast AQMD in its annual emission reports (AERs), NOx emission factors listed in Tables 1, 3, and 6 of Rule 2002 or SOx emission factors in Tables 2 and 4 of Rule 2002 for the appropriate equipment category, any qualified¹ external offsets previously provided by the facility, and any unused 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 sole 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

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

needed RTCs through trade registrations (or a combination of the two), based on their operational needs.

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 2019 data, RTC trading and price data discussed in this chapter are for calendar year 2020.

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 RTCs allocated by South Coast AQMD, RTCs may have been 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 South Coast AQMD Governing Board may adopt additional rules that affect RTC supply. Changes in the RTC supply during Compliance Year 2019 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.

² Per Rule 2002(c)(4), the window of opportunity for non-RECLAIM facilities to convert ERCs to RTCs other than during the process of a non-RECLAIM facility entering the program closed June 30, 1994.

As discussed in Chapter 1, the South Coast AQMD Governing Board amended Rule 2001 on October 5, 2018 to allow qualifying facilities to opt-out of the RECLAIM program. Based on continuing conversations with USEPA, the Governing Board subsequently amended Rule 2001 on July 12, 2019 to remove the opt-out provision so that facilities can no longer exit RECLAIM. Facilities that were excluded by means of this opt-out provision, as opposed to the normal exclusion criteria described in the preceding paragraph, retained their initially-allocated RTCs³. No facilities were excluded during Compliance Year 2019. Therefore, there were no changes to the NOx or SOx supplies in Compliance Year 2019 due to facility exclusions from RECLAIM.

On January 5, 2018, the South Coast AQMD Governing Board amended Rule 2001 – Applicability to discontinue facility inclusions into RECLAIM. The Executive Officer could only include a facility into RECLAIM up until January 5, 2018, and no facility can elect to enter RECLAIM after January 5, 2018. No facilities were included in the RECLAIM program in Compliance Year 2019. Therefore, there are no changes to the NOx or SOx RTC supplies in Compliance Year 2019 due to facility inclusions into RECLAIM.

Allocations Adjustments Due to Facility Shutdowns

Prior to an October 7, 2016 amendment of Rule 2002, shutdown facilities were allowed to retain all of their RTC holdings and participate in the trading market. For NOx RECLAIM facilities listed in Tables 7 and 8 that shut down on or after October 7, 2016, the Rule 2002 amendment established a BARCT-based RTC discounting methodology that is more closely aligned to the ERC discounting methodology under command-and-control rules. A shutdown facility may trade future year RTCs that remain after the RTC adjustment is completed, if any. If the calculated reduction amount exceeds a facility's holdings for any future compliance year, the facility must purchase and surrender sufficient RTCs to fulfill the entire reduction requirement. This situation may result if the facility previously sold its future year allocations.

Seven RECLAIM facilities shut down during Compliance Year 2019, none of which were listed in Tables 7 and 8 of Rule 2002. Therefore, there were no changes to the NOx RTC supplies in Compliance Year 2019 due to facility shutdowns. Most of these shutdown facilities sold their RTC credits.

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 NOx and 42.3 tons of SOx for Compliance Year 1999, 101.8 tons of NOx and 41.4 tons of SOx for Compliance Year 2000, and 98.4 tons of NOx and 40.2 tons of SOx for each subsequent Compliance Year on the basis of those projections. These refineries are required to submit, at the end of

³ Except for shutdown facilities that are subject to Rule 2002(i); see discussion in the next section.

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 2019, 13.2 tons of NO_x RTCs (0.16% of total NO_x allocation for Compliance Year 2019) and 2.6 tons of SO_x RTCs (0.12% of total SO_x allocation for Compliance Year 2019) were added to refineries' Compliance Year 2019 RTC holdings at the end of the compliance year.

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 accordingly⁴. There were no changes in RTC allocations due to activity corrections in Compliance Year 2019.

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 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 2019.

Net Changes in RTC Supplies

The changes to RTC supplies described in the above sections resulted in a net increase of 13.2 tons of NO_x RTCs (0.16% of the total) and an increase of 2.6 tons of SO_x RTCs (0.12% of the total) for Compliance Year 2019. Table 2-1

⁴ 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.

summarizes the changes in NOx and SOx RTC supplies that occurred in Compliance Year 2019 pursuant to Rule 2002.

**Table 2-1
Changes in NOx and SOx RTC Supplies during Compliance Year 2019 (tons/year)**

Source	NOx	SOx
Universe changes	0	0
Clean Fuel/Reformulated Gasoline	13.2	2.6
Activity corrections	0	0
MSERCs	0	0
Net change	13.2	2.6

Note: The data in this table represents the changes that occurred over the course of Compliance Year 2019 to the Compliance Year 2019 aggregate NOx and SOx RTC supplies originally issued pursuant to Rule 2002, not the difference between 2019 aggregate RTC supply and that for any other compliance year.

Allocation Reduction Resulting from BARCT Review

Pursuant to California Health and Safety Code §40440, South Coast AQMD 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 CMB-10 – Additional NOx Reductions for RECLAIM (NOx) calling for additional NOx reductions from RECLAIM sources. South Coast AQMD 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, CARB, and 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.

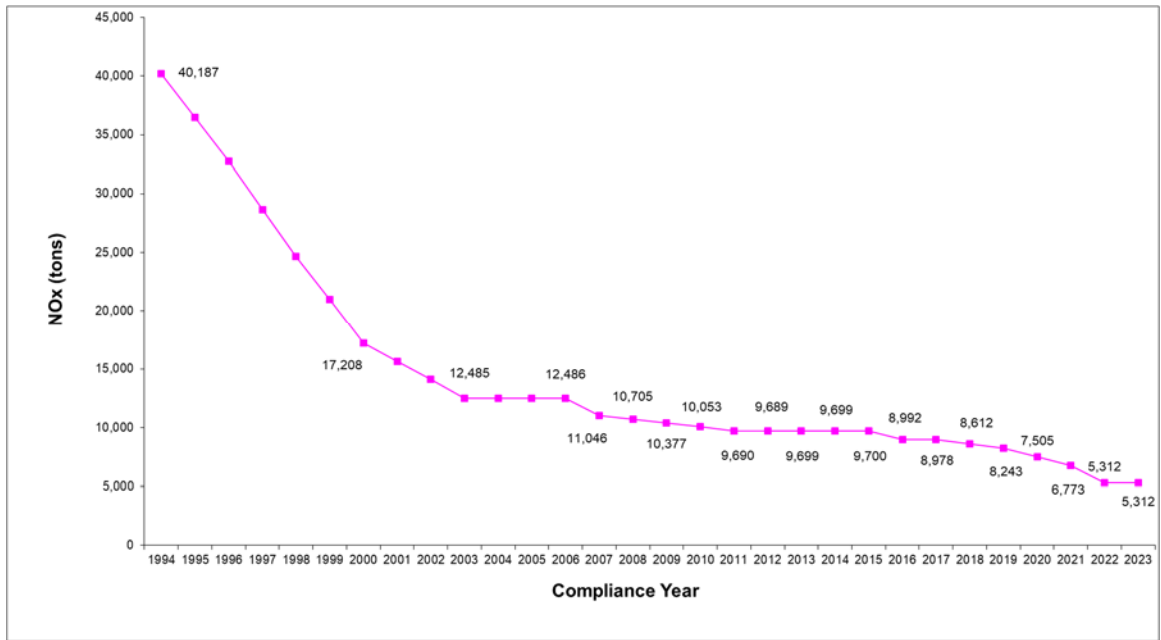
On November 5, 2010, the Governing Board adopted changes to the RECLAIM program implementing the 2007 AQMP Control Measure CMB-02 – Further SOx Reductions for RECLAIM (SOx). These amendments resulted in a BARCT-based overall reduction of 5.7 tons SOx per day when fully implemented in Compliance Year 2019 (the reductions were 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.

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 rulemaking 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

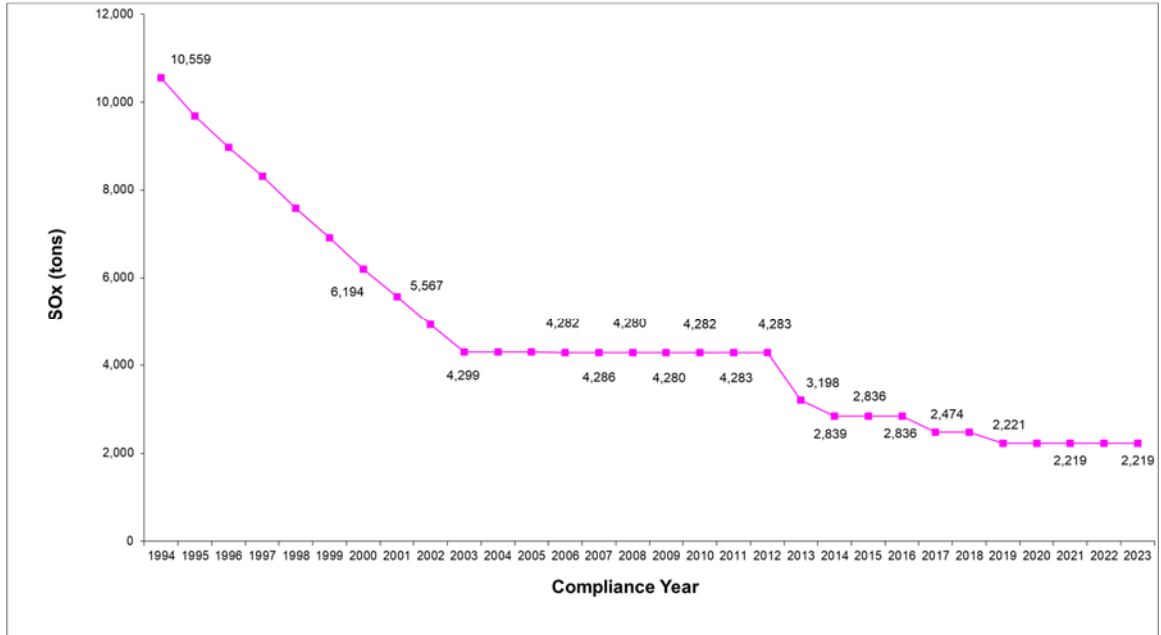
additional reduction of 12 tons of NOx per day (45% reduction) when fully implemented in Compliance Year 2022. The reductions are being phased-in with 2 tons per day in Compliance Year 2016 and 2017, 3 tons per day in Compliance Year 2018, 4 tons per day in Compliance Year 2019, 6 tons per day in Compliance Year 2020, 8 tons per day in Compliance Year 2021 and 12 tons per day in Compliance Year 2022 and thereafter.

Figures 2-1 and 2-2 illustrate the total NOx and SOx RTC supplies, respectively, through the end of Compliance Year 2023, incorporating all the changes discussed above.

Figure 2-1
NOx RTC Supply



**Figure 2-2
SOx RTC Supply**



RTC Trades

RTC Price Reporting Methodology

RTC trades are reported to South Coast AQMD 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 may be 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. Annual average prices for discrete-year RTCs are determined by averaging prices of RTCs for each compliance year, while the annual average prices for IYB RTCs are determined based on the amount of IYB RTCs (*i.e.*, the amount of RTCs in the infinite stream) regardless of the start year.

RTC Price Thresholds for Program Review

Rule 2015(b)(6) specifies that, if the annual average price of discrete-year NOx or SOx 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)(R), if the annual average price of discrete-year SOx RTCs for any compliance year from 2017 through 2019 exceeds \$50,000 per ton, the Governing Board has the discretion to convert facilities' Non-tradable/Non-usable RTCs to Tradable/Usable RTCs. Similarly, Rule 2002(f)(1)(H) specifies that in the event that the NOx RTC prices exceed \$22,500 per ton (current compliance year credits) based on the 12-month rolling average, or exceed \$35,000 per ton (current compliance year credits) based on the 3-month rolling average calculated pursuant to subparagraph (f)(1)(E), the Executive Officer will report the determination to the Governing Board. If the Governing Board finds that the 12-month rolling average RTC price exceeds \$22,500 per ton or the 3-month rolling average RTC price exceeds \$35,000 per ton, then the Non-tradable/Non-usable NOx RTCs, as specified in subparagraphs (f)(1)(B) and (f)(1)(C) valid for the period in which the RTC price is found to have exceeded the applicable threshold, shall be converted to Tradable/Usable NOx RTCs upon Governing Board concurrence. For RTC trades occurring in calendar year 2020, the overall program review thresholds⁵ in 2020 dollars, pursuant to Health and Safety Code §39616(f), are \$47,585 per ton of discrete-year NOx RTCs, \$34,261 per ton of discrete-year SOx RTCs, \$713,777 per ton of IYB NOx RTCs, and \$513,919 per ton of IYB SOx RTCs.

RTC Trading Activity Excluding Swaps

Overall Trading Activity

RTC trades include discrete-year and IYB RTCs traded with prices, discrete-year and IYB RTC trades with zero price, and discrete-year and IYB RTC swap trades. The RTC market activity in calendar year 2020 was comparable to the market activity in calendar year 2019 in terms of the number of trades. Table 2-2 compares NOx and SOx trade registrations for calendar years 2020 and 2019.

**Table 2-2
Trade Registrations in Calendar Years 2020 and 2019, Including Swaps**

RTC	2020	2019
NOx	279	273
SOx	21	31
Total	300	304

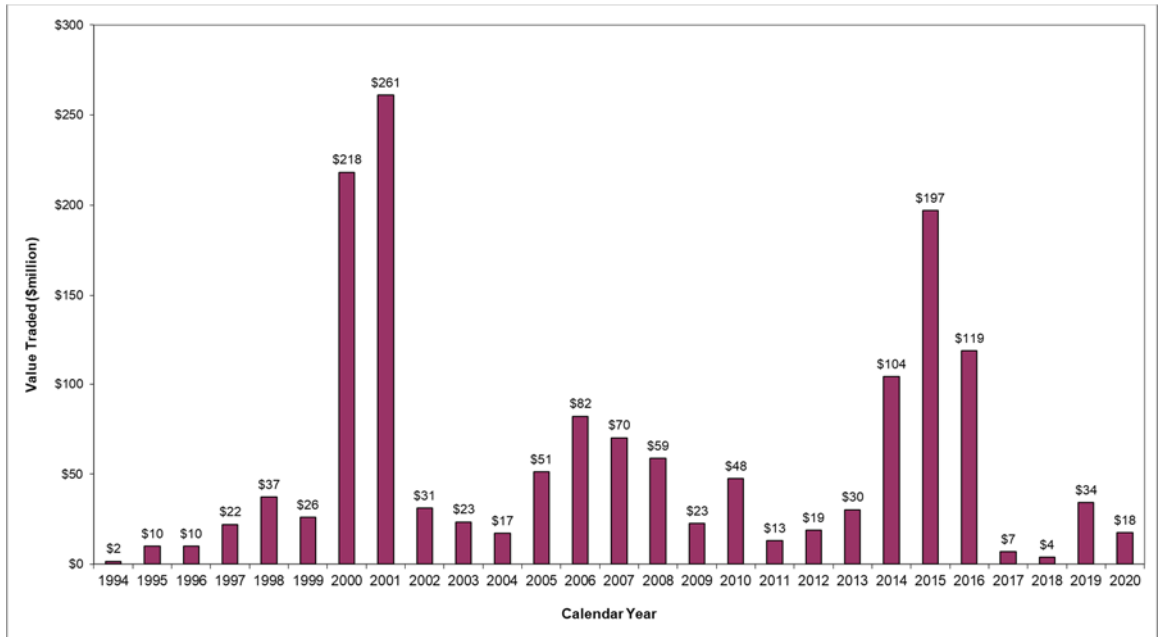
The \$18.19 million traded in calendar year 2020 was significantly less compared to calendar year 2019, excluding swap trades. Table 2-3 compares the value of NOx and SOx RTCs traded in calendar years 2020 and 2019. Figure 2-3 illustrates the annual value of RTCs traded in RECLAIM since the inception of the program.

⁵ These program review thresholds were adjusted using the October 2020 Consumer Price Index (CPI), due to the unavailability of the December 2020 CPI by the end of January 2021 when this report was compiled.

Table 2-3
Value Traded in Calendar Years 2020 and 2019, Excluding Swaps (millions of dollars)

RTC	2020	2019
NOx	\$17.52	\$32.33
SOx	\$0.67	\$1.91
Total	\$18.19	\$34.24

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



With respect to total volume traded (excluding swap trades), trades of discrete-year RTCs were slightly higher for NOx but significantly lower for SOx in calendar year 2020 than in calendar year 2019, while trades of IYB RTCs in calendar year 2020 were significantly lower than the trading volume in 2019. Tables 2-4 and 2-5 compare 2020 and 2019 for NOx and SOx trade volume for discrete-year and IYB trades, respectively. Figure 2-4 summarizes overall trading activity (excluding swaps) in calendar year 2020 by pollutant. Additional information on the discrete-year and IYB trading activities, value, and volume are discussed later in this chapter.

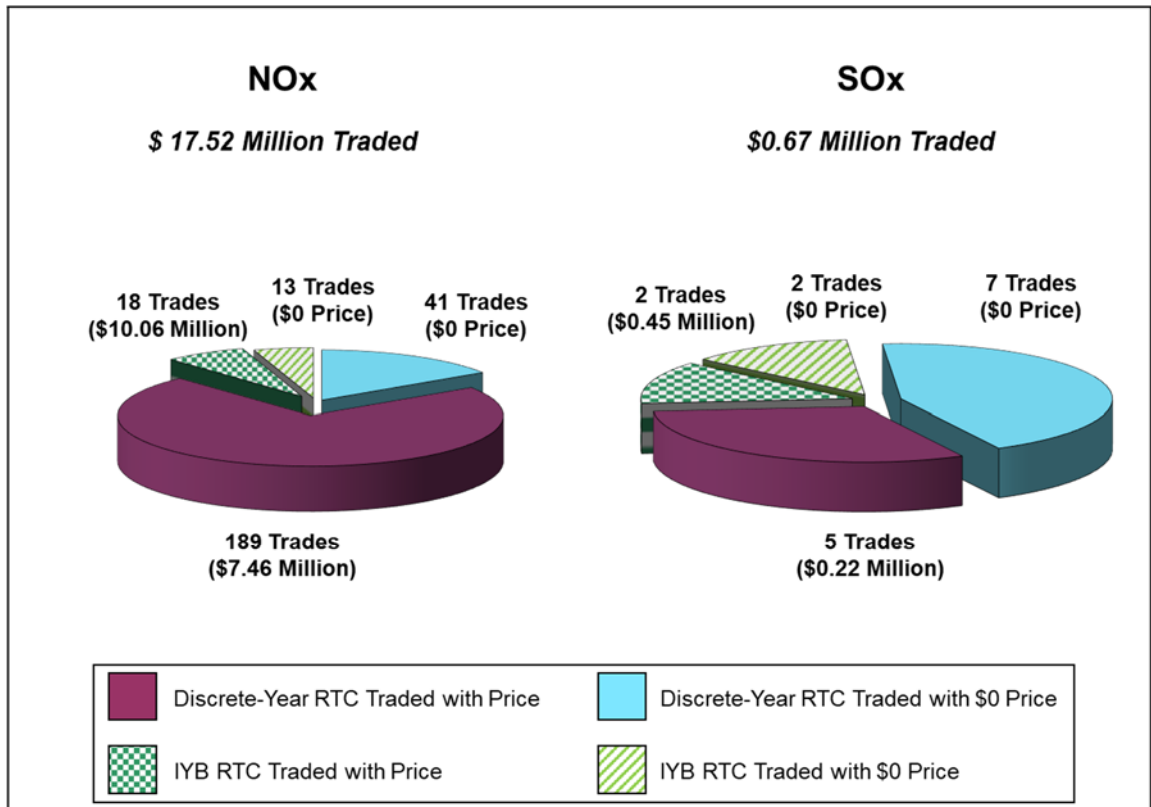
Table 2-4
Volume of Discrete-Year RTCs Traded in Calendar Years 2020 and 2019, Excluding Swaps (tons)

RTC	2020	2019
NOx	1,854	1,796
SOx	377	666
Total	2,231	2,462

Table 2-5
Volume of IYB RTCs Traded in Calendar Years 2020 and 2019, Excluding Swaps (tons)

RTC	2020	2019
NOx	156	526
SOx	20	55
Total	176	581

Figure 2-4
Calendar Year 2020 Overall Trading Activity (Excluding Swaps)



There were 63 trades with zero price in calendar year 2020. 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 2020, the majority of trades with zero price were transfers between facilities under common ownership and facilities that underwent a change of operator.

Discrete-Year RTC Trading Activity

In calendar year 2020, there were a total of 230 discrete-year NOx RTC trades and 12 discrete-year SOx RTC trades, excluding swap trades. The trading of discrete-year NOx RTCs included RTCs for Compliance Years 2019 through 2021 (see Table 2-14). The trading of discrete-year SOx RTCs included RTCs for Compliance Years 2019 and 2020 (see Table 2-15). Table 2-6 compares the number of trade registrations in 2020 and 2019, both with price and with zero price.

Table 2-6
Discrete-Year Trade Registrations in Calendar Years 2020 and 2019 by Price, Excluding Swaps

Year	RTC	With Price	With \$0 Price	Total
2020	NOx	189	41	230
	SOx	5	7	12
	Total	194	48	242
2019	NOx	178	46	224
	SOx	17	7	24
	Total	195	53	248

Total discrete-year RTC trading values significantly increased for NOx and significantly decreased for SOx on a relative basis in calendar year 2020 when compared to calendar year 2019. Table 2-7 compares the total value of the discrete-year RTC trades in 2020 and 2019.

Table 2-7
Discrete-Year RTC Value Traded in 2020 and 2019, Excluding Swaps (millions of dollars)

RTC	2020	2019
NOx	\$7.46	\$4.23
SOx	\$0.22	\$1.19
Total	\$7.68	\$5.41

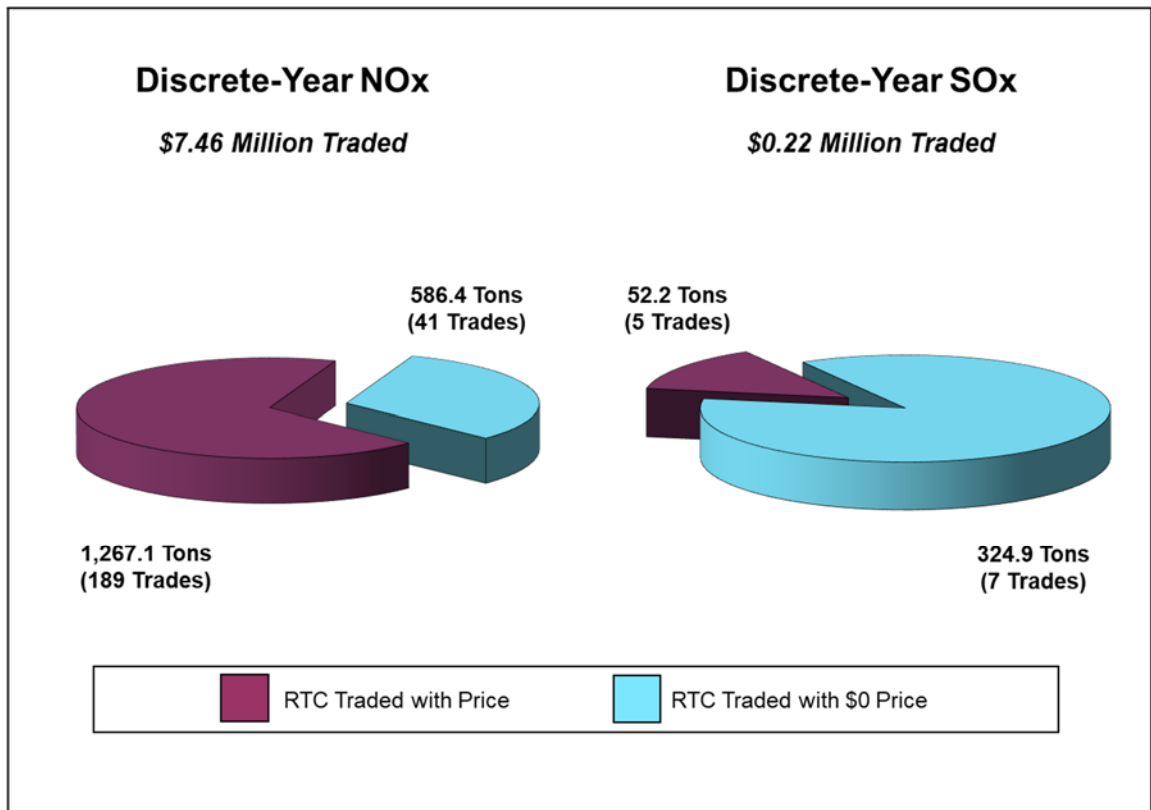
In calendar year 2020, the overall quantities of discrete-year NOx RTCs traded slightly increased compared to calendar year 2019, while the quantities of discrete-year SOx RTCs traded significantly decreased. Table 2-8 compares the volume of NOx and SOx RTCs traded in calendar years 2020 and 2019,

excluding swap trades. Figure 2-5 illustrates the trading activity of discrete-year RTCs (excluding swaps) for calendar year 2020.

Table 2-8
Discrete-Year RTC Volume Traded in Calendar Years 2020 and 2019 by Price, Excluding Swaps (tons)

Year	RTC	With Price	With \$0 Price	Total
2020	NOx	1,267	586	1,854
	SOx	52	325	377
	Total	1,319	911	2,231
2019	NOx	1,124	672	1,796
	SOx	230	436	666
	Total	1,354	1,108	2,462

Figure 2-5
Calendar Year 2020 Trading Activity for Discrete-Year RTCs (Excluding Swaps)



IYB RTC Trading Activity

In calendar year 2020, there were 31 IYB NOx trades and four (4) IYB SOx trades, excluding swaps. The IYB NOx trades included RTCs with Compliance Years 2019 through 2022 as start years, while the IYB SOx trades included

RTCs with Compliance Years 2020 and 2021 as start years. Table 2-9 compares the number of RTC trade registrations from 2020 and 2019.

Table 2-9
IYB Trade Registrations in Calendar Years 2020 and 2019 by Price

Year	RTC	With Price	With \$0 Price	Total
2020	NOx	18	13	31
	SOx	2	2	4
	Total	20	15	35
2019	NOx	33	9	42
	SOx	6	0	6
	Total	39	9	48

Total IYB RTC trade values significantly decreased in calendar year 2020 compared to calendar year 2019. Table 2-10 compares the NOx and SOx IYB RTC trade values in calendar years 2020 and 2019.

Table 2-10
IYB RTC Value Traded in 2020 and 2019, Excluding Swaps (millions of dollars)

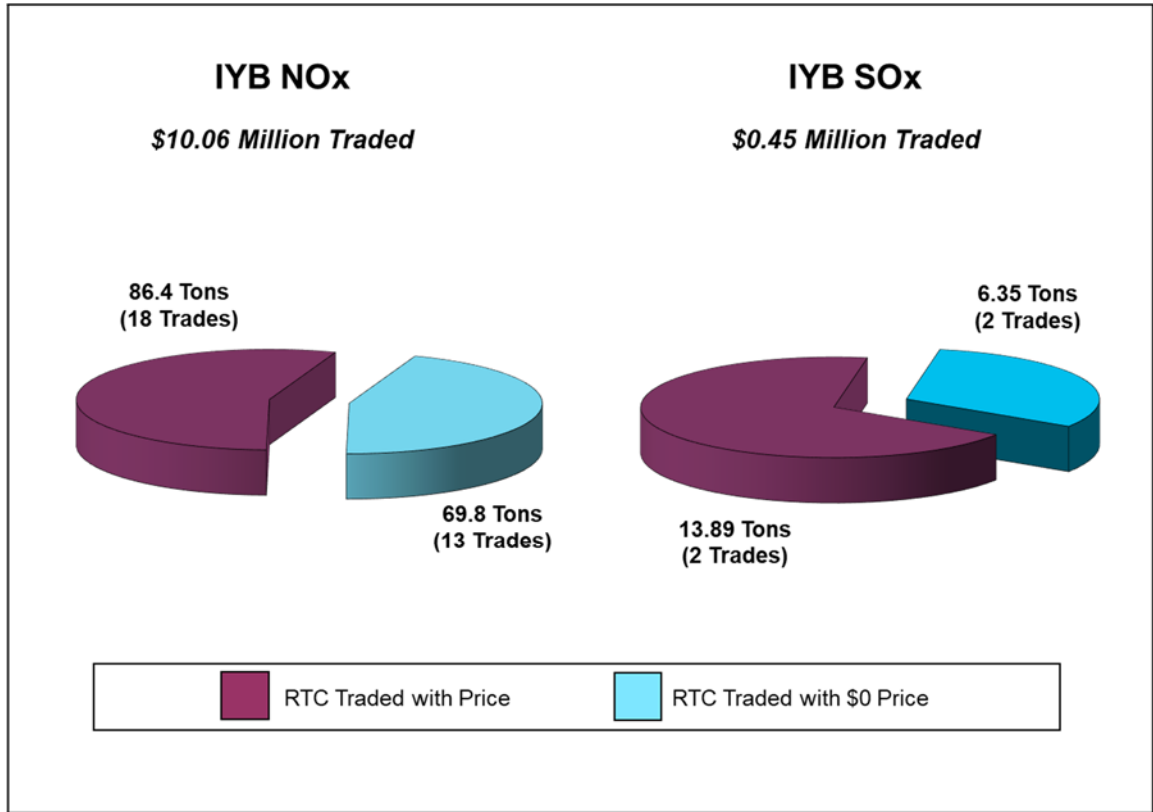
RTC	2020	2019
NOx	\$10.06	\$28.10
SOx	\$0.45	\$0.73
Total	\$10.51	\$28.83

In calendar year 2020, the total volume of IYB RTCs traded (excluding swap trades) decreased significantly compared to calendar year 2019. Despite the large decrease, the amount of IYB RTCs traded is well within the range of historic values. Table 2-11 compares the NOx and SOx IYB RTCs trade volumes in calendar years 2020 and 2019. As described earlier, the majority of trades with zero price were between facilities under common ownership and facilities that had a change of operator. Figure 2-6 illustrates the calendar year 2020 IYB RTC trading activity excluding swap trades.

Table 2-11
IYB RTC Volume Traded in Calendar Years 2020 and 2019 by Price, Excluding Swaps (tons)

Year	RTC	With Price	With \$0 Price	Total
2020	NOx	86	70	156
	SOx	14	6	20
	Total	100	76	176
2019	NOx	298	227	526
	SOx	55	0	55
	Total	353	227	581

Figure 2-6
Calendar Year 2020 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-year 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-year NOx trades, discrete-year SOx trades, IYB NOx trades, and IYB SOx trades, respectively) based on the trade reporting methodology described earlier in this chapter.

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

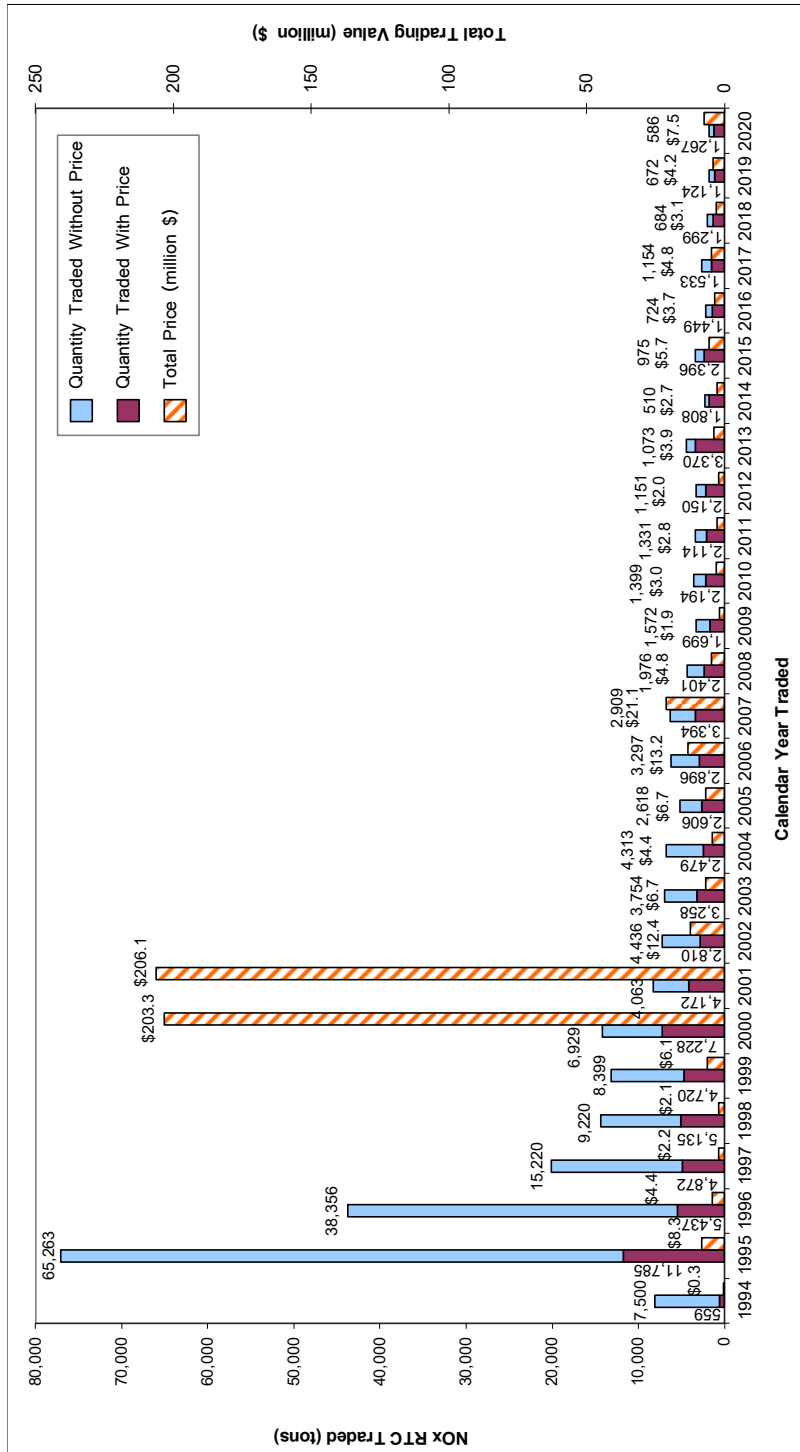


Figure 2-8
Discrete-Year SOx RTC Trades (Excluding Swaps)

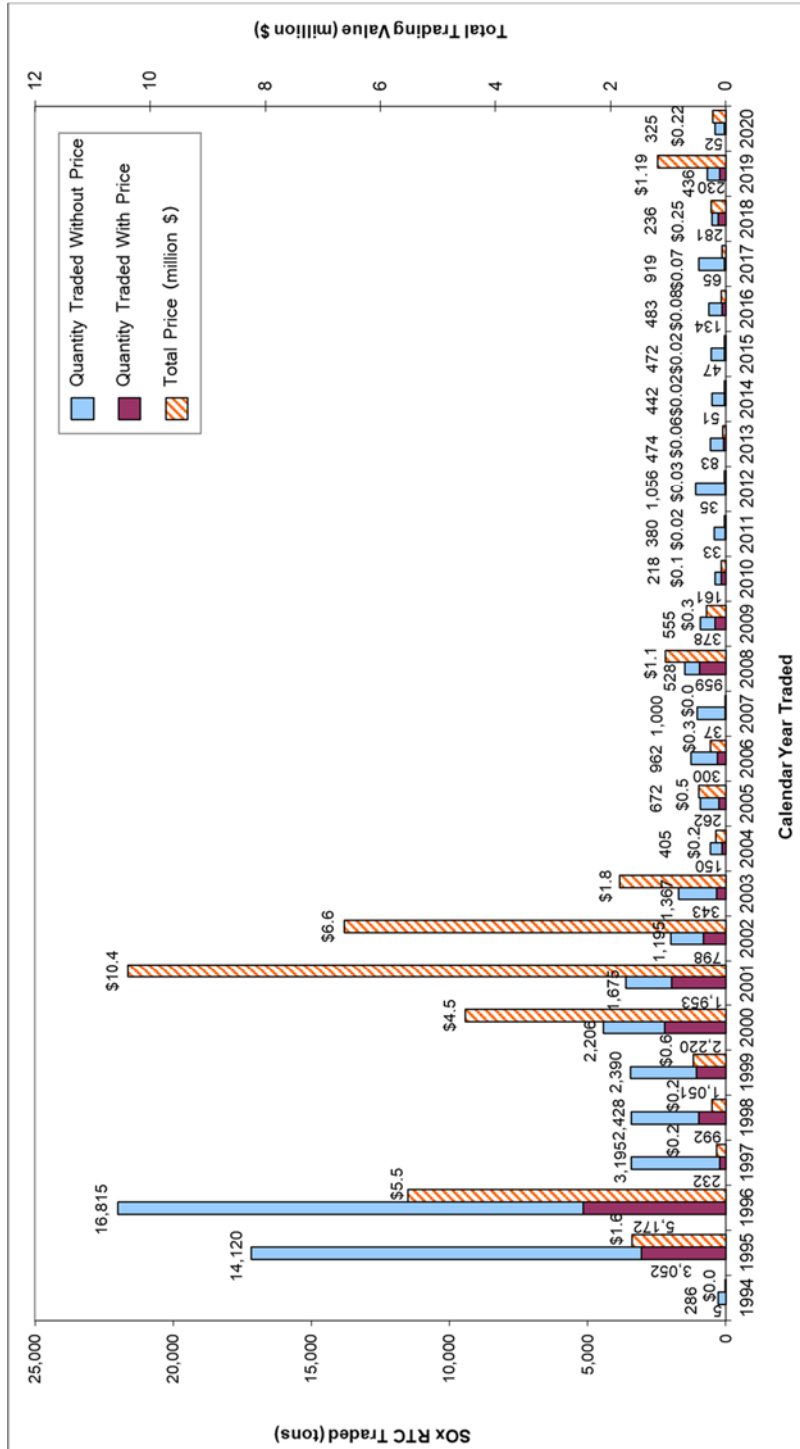


Figure 2-9
IYB NOx RTC Trades (Excluding Swaps)

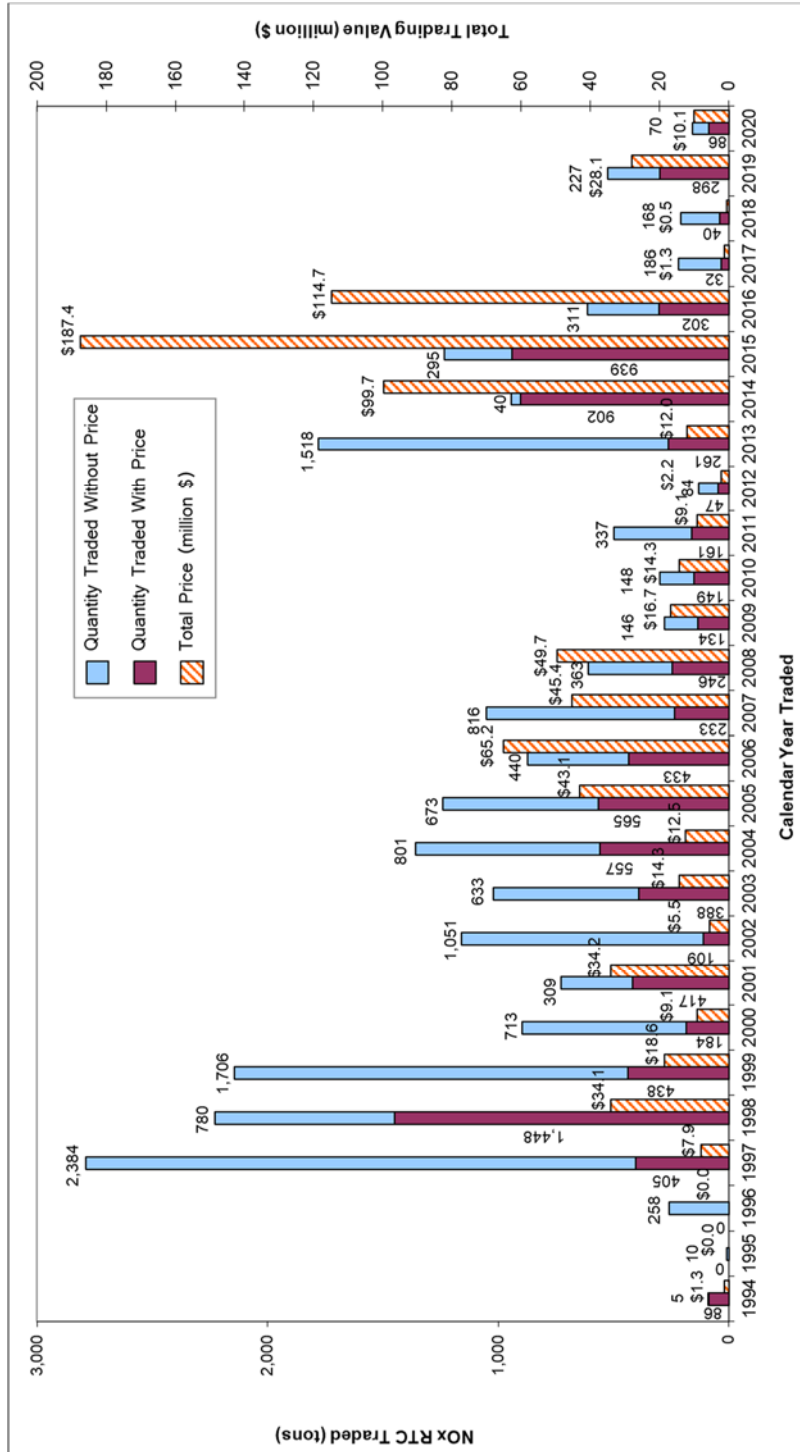
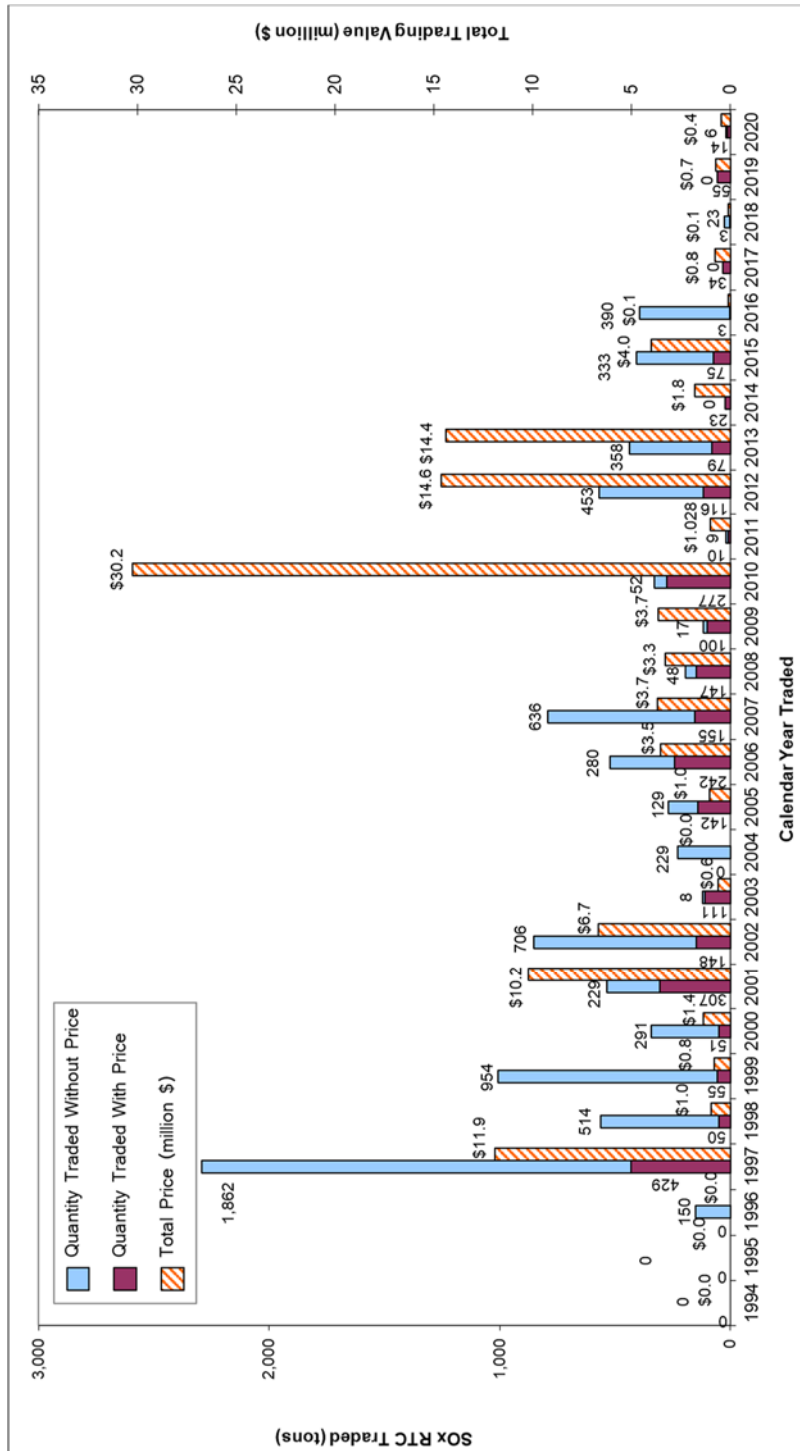


Figure 2-10
IYB SOx RTC Trades (Excluding Swaps)



Swap Trades

In addition to traditional trades of RTCs for a price, RTC swaps also occur between trading partners. Most 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 are 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.

During calendar year 2020, twenty-three trade registrations included RTC swaps with a total value of about \$2.3 million. Fourteen swap trades involved swapping a larger quantity of discrete-year RTCs for a smaller quantity of discrete-year RTCs with a later expiration date. These trades were collectively valued at \$2.1 million. Four trades involved swapping coastal credits for a larger quantity of inland credits. The total value of these trades was \$0.1 million. Two swap trades involved a forward contract, in which one party agreed to purchase RTCs during 2020 and sell the same volume and vintage of RTCs back to the other party in 2022 at zero price. Total value of these trades is \$0.1 million. The three remaining trades were between facilities or RTC holders under common ownership. The total value of the remaining three trades is \$18,426. Upon further investigation, staff concluded that these three transactions were not at arm's-length, and that the prices reported for the transfer of RTCs for these three trades should not be regarded as market prices but "swap trades." 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 these 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 trades with large values (e.g., 2009), the inclusion of swap trades in the average trade price calculations would have resulted in calculated annual average prices dominated by swap trades, 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 or a true market-based price. Tables 2-12 and 2-13 present the calendar years' 2001 through 2020 RTC swaps for NOx and SOx, respectively.

Table 2-12
NOx Registrations Involving Swaps*

Year	Total Value (\$ millions)	IYB RTC Swapped with Price (tons)	Discrete-Year 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
2016	\$2.18	1.8	622.8	22	22
2017	\$0.87	3.6	31.0	9	9
2018	\$0.51	0	178.5	4	4
2019	\$0.37	0	128.8	7	7
2020	\$1.79	0	324.6	18	18

* 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 2-13
SOx Registrations Involving Swaps*

Year	Total Value (\$ millions)	IYB RTC Swapped with Price (tons)	Discrete-Year 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
2016	\$3.68	39.6	44.2	3	3
2017	\$0.73	5.0	5.9	4	4
2018	\$0	0	0	0	0
2019	\$0.02	0	1.4	1	1
2020	\$0.51	0	80.2	5	5

* 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 (Excluding Swaps)

Discrete-Year RTC Prices

Tables 2-14 and 2-15 list the annual average prices for discrete-year NOx and SOx RTCs traded from calendar years 2015 through 2020. The table shows that all annual average prices for discrete-year NOx and SOx RTCs were well below the \$47,585 per ton of NOx and \$34,261 per ton of SOx discrete-year RTCs pre-determined overall program review thresholds established by the Governing Board pursuant to Health and Safety Code §39616(f), and the \$15,000 threshold specified under Rule 2015(b)(6) for reviews of the compliance aspects of the program.

Table 2-14
Annual Average Prices for Discrete-Year NOx RTCs during Calendar Years 2015 through 2020 (price per ton)

RTC Compliance Year	Calendar Year during which RTCs Traded					
	2015	2016	2017	2018	2019	2020
2011						
2012						
2013						
2014	1,038.82					
2015	1,642.05	1,625.75				
2016	2,833.39	2,926.90	2,202.90			
2017	4,019.76	6,606.21	4,181.75	1,871.76		
2018	6,006.11		10,639.19	3,788.31	2,261.39	
2019	8,066.67			5,645.67	5,409.79	4,286.74
2020				5,673.91	12,189.81	8,322.89
2021					8,677.54	9,417.56

Table 2-15
Annual Average Prices for Discrete-Year SOx RTCs during Calendar Years 2015 through 2020 (price per ton)

RTC Compliance Year	Calendar Year during which RTCs Traded					
	2015	2016	2017	2018	2019	2020
2011						
2012						
2013						
2014	483.40					
2015	380.00	540.29				
2016		1,254.55	635.83			
2017			1,385.71	785.56		
2018				954.61	1,764.20	
2019			4,800.00		7,984.79	4,386.87
2020			4,800.00			2,300.00
2021						

Rolling Average NOx and SOx RTCs Price Report

On December 4, 2015, the Governing Board amended Rule 2002 to change the 12-month rolling average price of NOx RTCs for all trades for the current compliance year, excluding RTC trades reported at no price and swap transactions, to a \$22,500 per ton threshold. It also established a new \$35,000 per ton threshold for the three-month rolling average price of current compliance year NOx RTCs and a \$200,000 per ton “price-floor” threshold for the twelve-month rolling average price of IYB NOx RTCs that would have become effective in 2019. The price floor in 2002(f)(1)(I) was subsequently removed by the Governing Board on October 5, 2018. The reporting of the three-month rolling average prices for current compliance year’s NOx RTCs and the twelve-month rolling average prices of IYB NOx RTCs started on May 1, 2016. The October 5, 2018 amendment to Rule 2002 eliminated the requirement to calculate IYB NOx RTC prices. The October 2018 report to the South Coast

AQMD Stationary Source Committee was the last time the twelve-month rolling average prices of IYB NOx RTCs report was generated.

The December 2015 amendments directed the Executive Officer to report to the Governing Board if (a) the cost of current compliance year NOx RTCs exceeds \$22,500 per ton based on the twelve-month rolling average price, or (b) \$35,000 per ton based on the three-month rolling average price. If either (a) or (b) above occurs, the Governing Board may convert the Non-tradable/Non-usable NOx RTCs valid for the period in which the RTC price(s) exceeded an applicable threshold to Tradable/Usable NOx RTCs pursuant to Rule 2002(f)(1)(H). Additionally, the Executive Officer’s report to the Governing Board will include a “commitment and schedule to conduct a more rigorous control technology implementation, emission reduction, cost-effectiveness, market analysis, and socioeconomic impact assessment of the RECLAIM program.”

Starting January 2017, the Executive Officer calculates and reports the twelve-month rolling average prices for current compliance year SOx RTCs as required by the November 5, 2010 amendment to Rule 2002, which established the \$50,000 per ton of SOx RTC threshold. In the event that the SOx RTC price threshold is exceeded, the Governing Board will decide whether or not to convert any portion of the Non-tradable/Non-usable SOx RTCs to Tradable/Usable SOx RTCs. Tables 2-16 through 2-18 list the various rolling average prices described above. The average NOx and SOx discrete-year RTC prices have all remained well below the applicable reporting thresholds,

**Table 2-16
Twelve-Month Rolling Average Prices of Compliance Year 2020 Discrete-Year NOx RTCs**

Reporting Month	12-Month Period	Average Price (\$/ton)
January 2020	January 2019 through December 2019	\$12,190
February 2020	February 2019 through January 2020	\$10,770
March 2020	March 2019 through February 2020	\$8,220
April 2020	April 2019 through March 2020	\$8,186
May 2020	May 2019 through April 2020	\$7,921
June 2020	June 2019 through May 2020	\$7,975
July 2020	July 2019 through June 2020	\$9,620
August 2020	August 2019 through July 2020	\$9,781
September 2020	September 2019 through August 2020	\$9,758
October 2020	October 2019 through September 2020	\$9,755
November 2020	November 2019 through October 2020	\$9,447
December 2020	December 2019 through November 2020	\$9,607
January 2021	January 2020 through December 2020	\$8,323

Table 2-17
Three-Month Rolling Average Prices of Compliance Year 2020 Discrete-Year NOx RTCs

Reporting Month	3-Month Period	Average Price (\$/ton)
January 2020	October 2019 through December 2019	\$12,190
February 2020	November 2019 through January 2020	\$10,890
March 2020	December 2019 through February 2020	\$8,438
April 2020	January 2020 through March 2020	\$6,024
May 2020	February 2020 through April 2020	\$5,054
June 2020	March 2020 through May 2020	\$6,179
July 2020	April 2020 through June 2020	\$12,232
August 2020	May 2020 through July 2020	\$13,720
September 2020	June 2020 through August 2020	\$13,261
October 2020	July 2020 through September 2020	\$11,128
November 2020	August 2020 through October 2020	\$8,286
December 2020	September 2020 through November 2020	\$8,057
January 2021	October 2020 through December 2020	\$6,659

Table 2-18
Twelve-Month Rolling Average Prices of Compliance Year 2020 Discrete-Year SOx RTCs

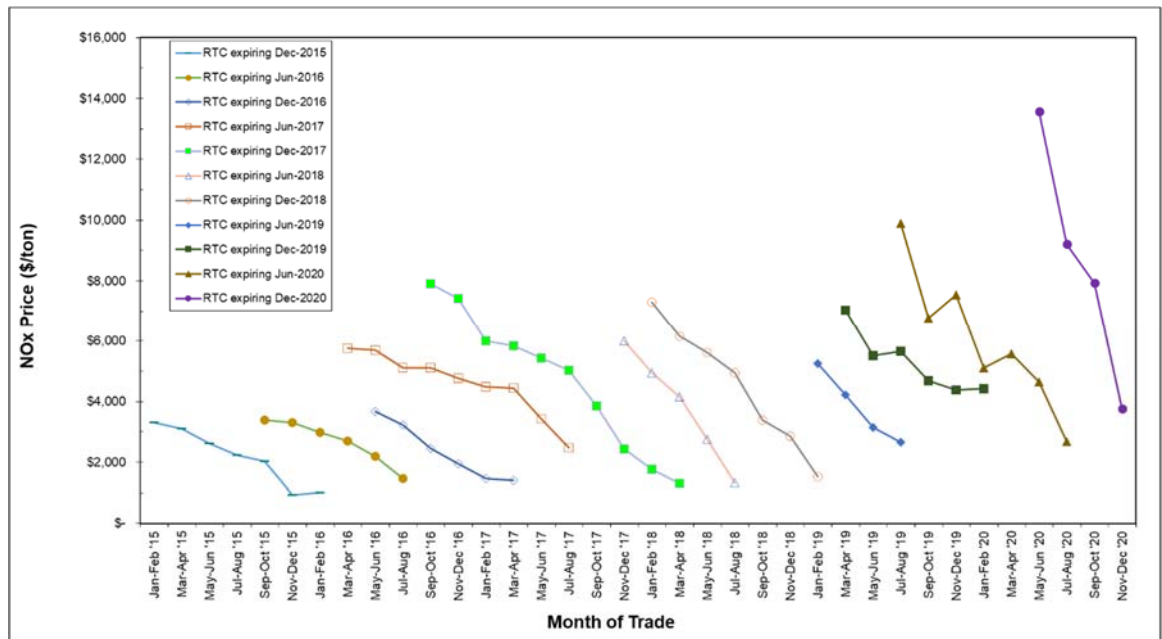
Reporting Month	12-Month Period	Average Price (\$/ton)
January 2020	January 2019 through December 2019	-
February 2020	February 2019 through January 2020	-
March 2020	March 2019 through February 2020	-
April 2020	April 2019 through March 2020	-
May 2020	May 2019 through April 2020	-
June 2020	June 2019 through May 2020	-
July 2020	July 2019 through June 2020	-
August 2020	August 2019 through July 2020	-
September 2020	September 2019 through August 2020	-
October 2020	October 2019 through September 2020	-
November 2020	November 2019 through October 2020	-
December 2020	December 2019 through November 2020	-
January 2021	January 2020 through December 2020	\$2,300

Average Price for NOx RTCs Nearing Expiration

Generally, RTC prices decrease as their expiration dates approach, and 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 2020 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 prices for these near-expiration NOx RTCs are shown in Figure 2-11 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 each compliance year. 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 2020, there were only five discrete-year SOx trades with price for Compliance Years' 2019 and 2020 RTCs. These prices ranged from \$800 per ton to \$5,600 per ton throughout the year.

**Figure 2-11
Bi-Monthly Average Prices 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 2020 was \$116,405 per ton, which is higher than the annual average price of \$94,183 per ton traded in calendar year 2019. The annual average price for IYB SOx RTCs

traded in calendar year 2020 was \$32,251 per ton, which is much higher than the \$13,213 per ton traded in calendar year 2019 but more consistent with IYB SOx RTC prices prior to calendar year 2019. 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 2-19 and 2-20, respectively. In calendar year 2019, the annual average IYB RTC prices did not exceed the \$713,777 per ton of NOx RTCs or the \$513,919 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).

Table 2-19
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
2016	\$114.7	301.9	20	\$380,057
2017	\$1.26	31.8	6	\$39,673
2018	\$0.52	39.6	5	\$13,223
2019	\$28.1	298.4	33	\$94,183
2020	\$10.1	86.4	18	\$116,405

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

Table 2-20
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
2016	\$0.13	2.5	1	\$50,000
2017	\$0.77	33.92	4	\$22,820
2018	\$0.09	3.16	2	\$30,000
2019	\$0.73	54.9	6	\$13,213
2020	\$0.45	13.89	2	\$32,251

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

Recent Program Amendments' Effect on IYB NOx RTC Trading Trend

With the planned transition to a command-and-control regulatory structure, the longevity and utility of IYB NOx RTCs would be expected to diminish. Therefore, it is reasonable for the values of volume traded and of IYB NOx RTCs to decrease as they did in calendar years 2017 and 2018. However, the volumes traded and values of IYB NOx RTCs increased significantly in calendar years 2019 and 2020 versus 2017 and 2018.

In subsequent working group meetings and discussion with USEPA, several issues were found in transitioning the New Source Review component of the program. Recent developments (see discussion on Program Amendments in Chapter 3) on RECLAIM transition have led to postponing the final transition of facilities out of RECLAIM until all necessary rules have been adopted and

approved into the SIP. This delay has apparently created volatility in the trends of IYB NOx RTC trades.

In calendar year 2020, the values of IYB NOx RTCs continued to increase as it did in calendar year 2019. The surge in IYB trading activity in the latter half of 2019 continued into calendar year 2020. While the volume traded and the total value traded of IYB NOx RTCs decreased as compared to calendar year 2019, the price per ton increased. From calendar year 2019 to 2020, the price per ton increased by 24%, which is not as substantial as the increase of 612% from calendar year 2018 to 2019. Calendar year 2020 IYB NOx price per ton is more comparable to the annual average prices in years prior to calendar year 2017.

This year, petroleum refining companies purchased 85.9% of the IYB NOx RTCs sold with price, down from the 98.6% of the IYB NOx RTCs bought by these facilities in calendar year 2019. In total, 74 tons of IYB NOx RTCs were bought by these refineries. In general, refineries tend not to sell RTCs, and instead tend to use the credits solely to reconcile their annual emissions. These recent purchases effectively removed 74 tons of IYB NOx RTCs from the market and reduced liquidity.

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 trades, 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 has 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 South Coast AQMD within five business days of reaching an agreement. These reports are posted on South Coast AQMD's website. There were two reports submitted in calendar year 2020 identifying an agreed upon contingent right to buy or sell RTCs. Neither of these reported rights were exercised in calendar year 2020.

In addition to reconciling emissions at RECLAIM facilities, RTCs are also used by RTC holders to satisfy variance conditions and offset other projects. During calendar year 2020, two such instances occurred. In the first case, a non-RECLAIM facility retired 7.5 tons of NOx RTCs to comply with a Supplemental Environmental Impact Report mandated Mitigation Monitoring Program. In the second case, a RECLAIM facility retired 0.2 tons of SOx RTCs to satisfy a variance condition.

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 only facilitate trades.

Investor Participation

In 2020, investors were actively involved in 151 of the 189 discrete-year NOx RTC trades with price and 4 of the 5 discrete-year SOx RTC trades with price. Investors were involved in 10 of the 18 IYB NOx trades with price, and both IYB SOx trades with price.

Investors’ involvement in discrete-year NOx and SOx trades registered with price in calendar year 2020 is illustrated in Figures 2-12 and 2-13. Figure 2-12 is based on total value of discrete-year NOx and SOx RTCs traded and shows that investors were involved in 72% and 62%, respectively, of the discrete-year NOx and SOx trades reported by value. Figure 2-13 is based on volume of discrete-year RTCs traded with price and shows that investors were involved in 66% and 71% of the discrete-year NOx and SOx trades by volume, respectively. Figures 2-14 and 2-15 provide similar data for IYB NOx and SOx trades. Investors were involved in 61% and 100% of IYB NOx and SOx trades by value, and in 63% and 100% of IYB NOx and SOx trades by volume, respectively.

Figure 2-12
Calendar Year 2020 Investor-Involved Discrete-Year NOx and SOx Trades Based on Value Traded

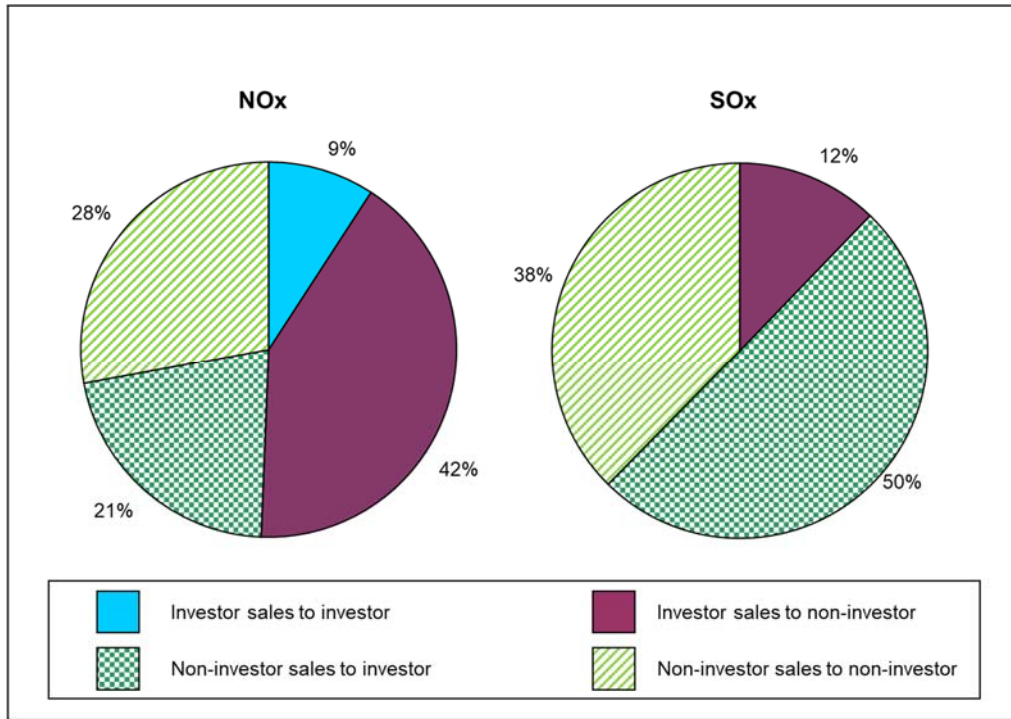


Figure 2-13
Calendar Year 2020 Investor-Involved Discrete-Year NOx and SOx Trades Based on Volume Traded with Price

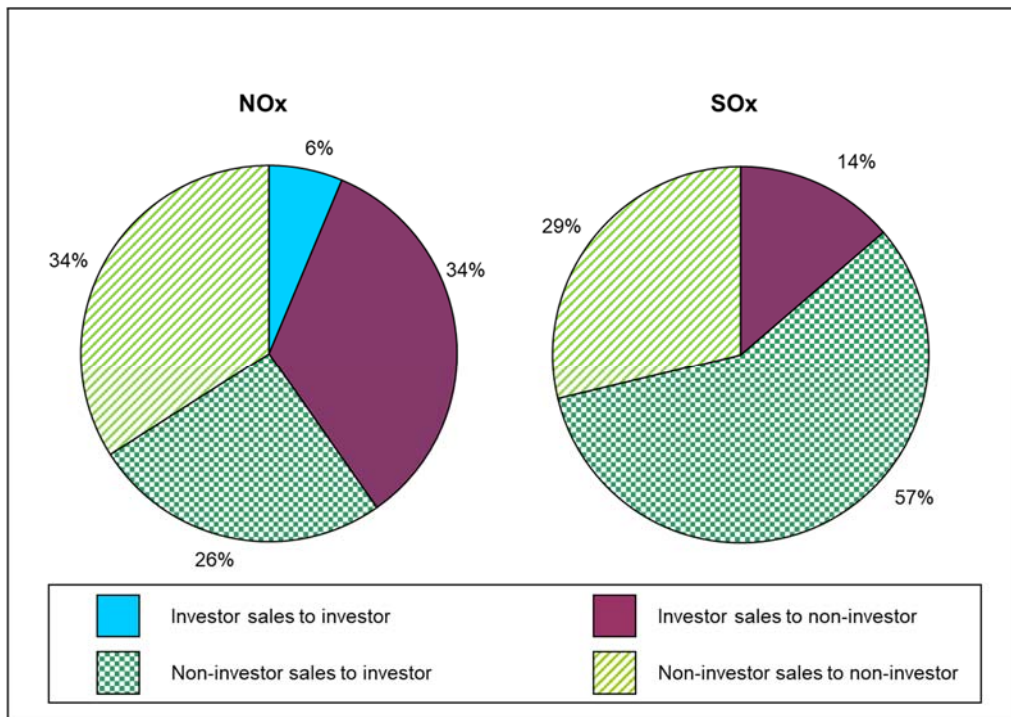
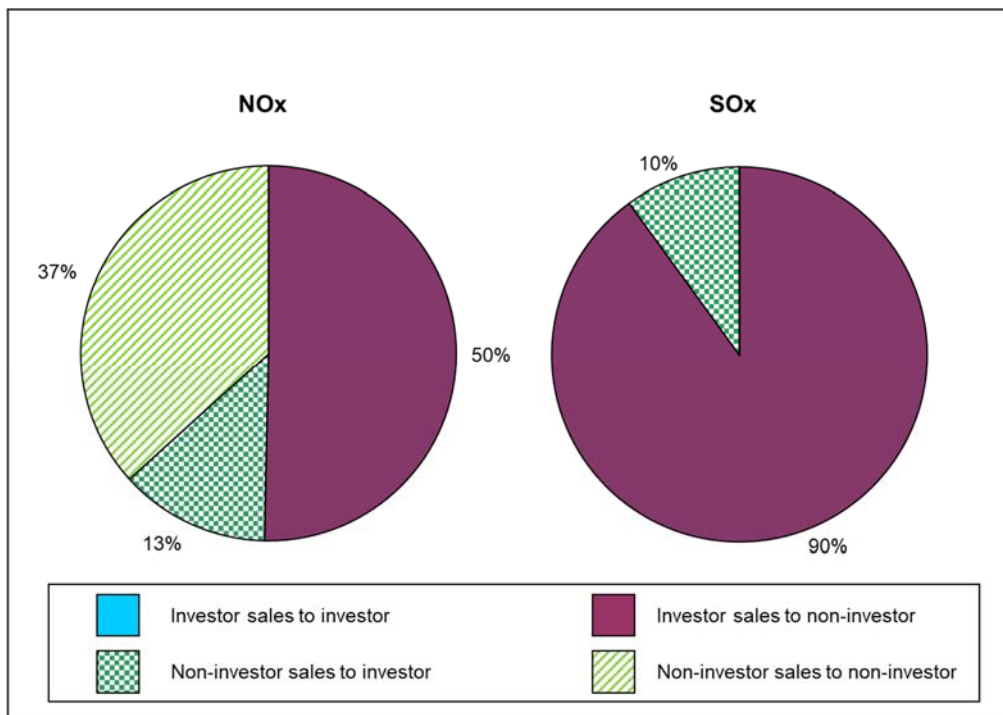


Figure 2-14
Calendar Year 2020 Investor-Involved IYB NOx and SOx Trades Based on Value Traded



Figure 2-15
Calendar Year 2020 Investor-Involved IYB NOx and SOx Trades Based on Volume Traded with Price



As of the end of calendar year 2020, investors' holding of IYB NOx RTCs had stayed consistent at 1.3% when compared to the end of calendar year 2019. Mutual fund investors are no longer holders of IYB NOx RTCs, down from highs 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 went slightly down to 4.2% when compared to the end of calendar year 2019 at 4.7%. 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. Seven NOx RECLAIM facilities shut down during Compliance Year 2019. One of these facilities bought RTCs year to year. Another facility had no emissions or RTCs for more than 10 years prior to shut down. The other five facilities held a total of 45.5 tons of IYB NOx RTCs prior to their shutdown. Three of the five facilities sold a total of 30.9 tons of IYB NOx RTCs to investors. The two remaining facilities transferred 9.3 tons IYB NOx RTCs to facilities under common ownership, leaving 5.3 tons in their allocation accounts.

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, they do not have the option to switch to another source of credits when RTCs become expensive because there is no alternative source of credits available to RECLAIM facilities. 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 RTCs 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 South Coast AQMD 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 2019, the total RECLAIM NOx emissions were 6,597 tons, while the total NOx RTC allocation was 8,243 tons. This NOx RTC surplus of 1,646 tons (20% of allocation, and 25% of emissions) is well above the 10% compliance margin reportedly held by RECLAIM facilities. If the future total NOx emissions stay constant, the difference between the NOx RTC allocation and NOx emissions would not decrease below 10% until Compliance Year 2021.

As shown in Table 3-1, there was an excess of 1,646 tons of NOx RTCs at the end of Compliance Year 2019. During calendar year 2020, 74 tons of IYB NOx RTCs were purchased by three petroleum refining companies. Based on the industry's historical practice of holding and not selling RTCs, this could result in less RTC availability even though there may be a surplus. If the refineries'

purchases are considered removed from the market, the surplus would effectively be 1,572 tons, representing an even more substantial decrease in unused RTCs.

In past annual audit reports, staff made comparisons between emissions and future available RTC supplies to highlight the potential of a seller's market for NOx RTCs if adequate emissions controls were not implemented in a timely manner. Despite the small percentage of RTCs held by investors (1.3% at the end of calendar year 2020), their impact on RTC availability and prices can be significant because of their participation in most of the trades, which may allow them to be in a strong position to influence prices. As evidenced in the trade of Compliance Year 2021 NOx RTCs, the price of RTCs purchased by facilities at the end of calendar year 2020 to comply with NSR requirements moderated relative to RTC prices paid at the end of calendar year 2019 for Compliance Year 2020 NOx RTCs

CHAPTER 3

EMISSION REDUCTIONS ACHIEVED

Summary

For Compliance Year 2019, aggregate NOx emissions were below total allocations by 20% 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 2019. 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 2019. With respect to the Rule 2015 backstop provisions, Compliance Year 2019 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, or 7.7 tons/day) 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 45.2% (4,380 tons/year, or 12.0 tons/day) by Compliance Year 2022. The reductions are phased-in from Compliance Year 2016 through Compliance Year 2022 with 4 tons/day of the NOx Allocation reduction occurring through Compliance Year 2019.

The Board also amended Rule 2002 in November 2010 to implement BARCT for SOx. Specifically, the November 2010 amendments called for certain facilities' RECLAIM SOx allocations to be adjusted to achieve a 48.4% (2,081 tons/year, or 5.7 tons/day) overall reduction, with the reductions phased-in from Compliance Year 2013 through Compliance Year 2019. The final 255.5 tons/year (0.7 tons/day) allocation reduction occurred in Compliance Year 2019.

Emissions Audit Process

Since the inception of the RECLAIM program, South Coast AQMD 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.

South Coast AQMD staff adjusts the APEP-reported emissions based on audit results, as necessary. Whenever South Coast AQMD 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 South Coast AQMD'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 pollutant are met each year.

Table 3-1 and Figure 3-1 show aggregate audited NOx emissions and the aggregate annual NOx RTC supply for Compliance Years 1994 through 2019. No facility audits for Compliance Years 1994 through 2017 were reopened during the past year, so the aggregate audited NOx and SOx emissions for these years are unchanged from the previous annual report. 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. Aggregate NOx allocations for Compliance Year 2019 were reduced by 1,470 tons from Compliance Year 2015 levels due to the 2015 BARCT-related amendment of Rule 2002.

Annual NOx emissions remained within a narrow range (7,246 tons to 7,691 tons annually) between Compliance Years 2011 and 2017. A trend of reduced NOx emissions is seen for the past two compliance years. Compliance Year 2019 NOx emissions were more than 600 tons below this range at 6,597 tons. Compliance Year 2019 NOx emissions were below total allocations by 20%.

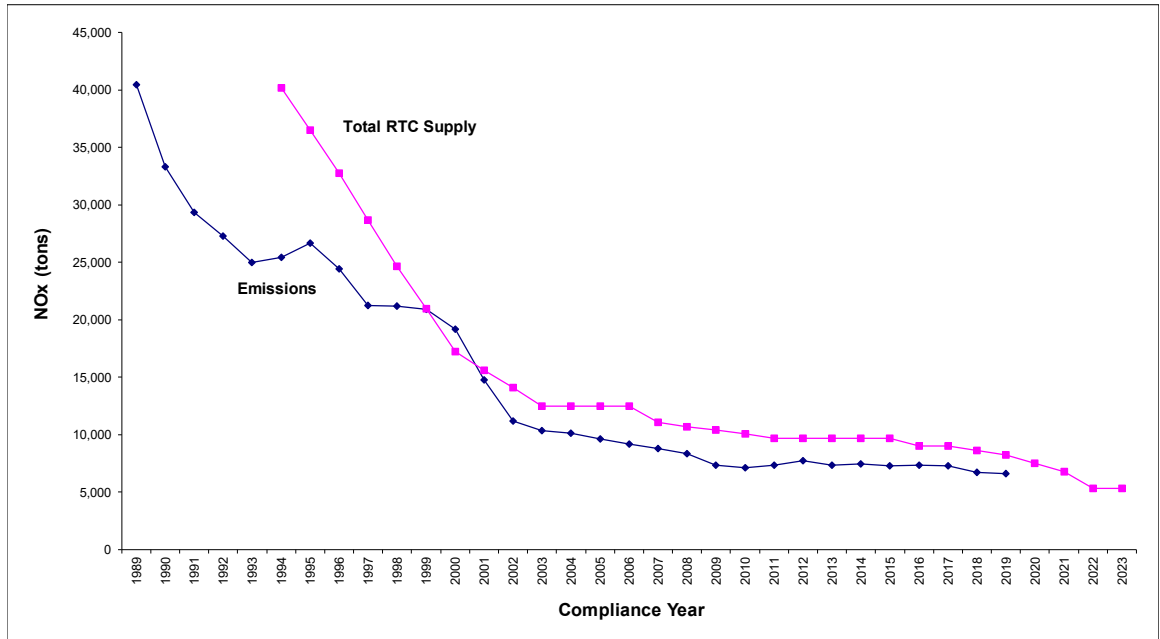
Table 3-1
Annual NOx Emissions for Compliance Years 1994 through 2019

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%	40,187	14,767	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%
2015	7,246	-71%	9,700	2,454	25%
2016	7,328	-71%	8,992	1,664	19%
2017	7,246	-71%	8,978	1,732	19%
2018	6,740	-73%	8,612	1,872	22%
2019	6,597	-74%	8,243	1,646	20%

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 3-1 and Figure 3-1 for NOx, Table 3-2 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 3-2 and Figure 3-2, RECLAIM facilities have not exceeded their SOx allocations on an aggregate basis in any compliance year since program inception. Aggregate SOx allocations from Compliance Year 2003 through Compliance Year 2012, prior to the 2010 BARCT-related amendment to Rule 2002, were relatively constant. At that time, the amount of unused RTCs peaked at 40%. Since then, Compliance Year 2019 SOx allocations were reduced by about 2,081 tons. On the other hand, annual SOx emissions steadily declined between Compliance Years 2007 and 2013, and remained within a narrow range between Compliance Year 2013 and 2018 (between 2,024 tons and 2,176 tons). For Compliance Year 2019, SOx emissions decreased by 433 tons compared to those in Compliance Year 2018 (from 2,134 tons to 1,701 tons). SOx emissions in Compliance Year 2019 were below total allocations by 23%, compared to 14% for Compliance Year 2018. 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.

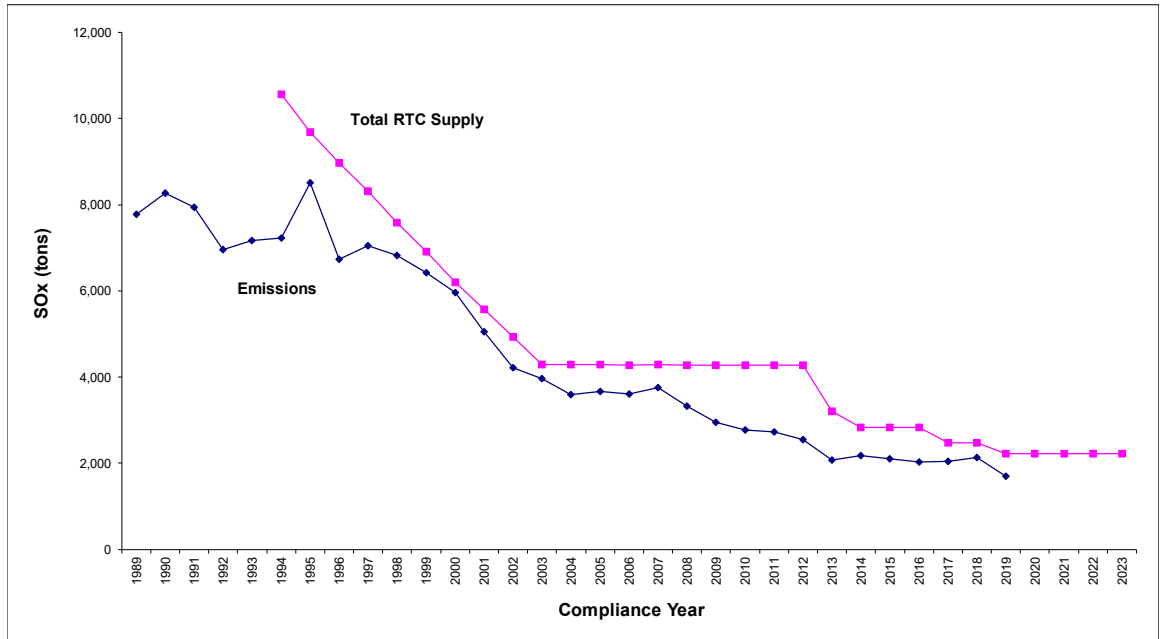
Table 3-2
Annual SOx Emissions for Compliance Years 1994 through 2019

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%	10,559	3,329	32%
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%
2015	2,096	-71%	2,836	740	26%
2016	2,024	-72%	2,836	812	29%
2017	2,043	-72%	2,474	431	17%
2018	2,134	-70%	2,474	340	14%
2019	1,701	-76%	2,221	520	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 were 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. However, as part of the effort to transition² the RECLAIM program from a market incentive-based program to a command-and-control regulatory structure requiring BARCT level controls as soon as practicable, the Governing Board, on October 5, 2018, amended Rule 2001 specifying that RECLAIM facilities are required to comply with the rules contained in Table 1 of Rule 2001 that are adopted or amended on or after October 5, 2018. As subsumed NOx rules in Table 1 of Rule 2001 are amended after this date the requirements of these, and prospective amended or adopted rules, apply equally to both RECLAIM and non-RECLAIM facilities (see “Landing Rules” paragraph under “Program Amendments”). There were no new subsumed SOx rules in Table 2 of Rule 2001 adopted or amended in Compliance Year 2019³.

¹ See Tables 1 and 2 of Rule 2001.

² Pursuant to both the March 3, 2017 Governing Board adopted resolution during the adoption of the 2016 AQMP, and California State Assembly Bill (AB) 617 approved in July 2017.

³ As discussed in the “Annual RECLAIM Audit Report for 2018 Compliance Year” (March 6, 2020), the applicable requirements of amended rules 1310 and 1325 to SOx sources were administrative, and

As discussed in last year's "Annual RECLAIM Audit Report for 2018 Compliance Year", on July 12, 2019, two rules not subsumed by RECLAIM, Regulation IX – Standards of Performance for New Stationary Sources (NSPS) and Regulation X National Emission Standards for Hazardous Air Pollutants (NESHAPS), were amended by the Governing Board to incorporate new or amended federal standards that had been enacted by USEPA for stationary sources. Historically, the Governing Board adopted NSPS (40 CFR 60) and NESHAP (40 CFR 61) actions 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. Regulations IX and X were previously last amended October 7, 2016, and April 3, 2015, respectively. The amendments to Regulation IX and X incorporate new or revised NSPS and NESHAP actions that had since occurred. In 2016, USEPA promulgated one new NSPS for municipal solid waste landfills that commence construction, reconstruction, or modification after July 17, 2014. In addition, USEPA also amended existing provisions of six NSPS standards, two NSPS appendices, one NESHAP standard, and one NESHAP appendix. The amendments to Regulation IX and X incorporated these USEPA NSPS and NESHAP actions into SCAQMD's regulations.

Additionally, one other rule not subsumed by RECLAIM, Rule 1111 – Reduction of NOx Emissions from Natural-Gas-Fired, Fan-Type Central Furnaces, was amended by the Governing Board on December 6, 2019, to reduce NOx emissions from residential and commercial gas-fired fan-type space heating furnaces with a rated heat input capacity of less than 175,000 BTU per hour and applies to manufacturers, distributors, sellers, and installers of such furnaces. Rule 1111 was amended in 2009 to lower the NOx emission limit from 40 to 14 ng/Joule (ng/J), and again amended in 2014 to include a mitigation fee option where manufacturers can pay a per-unit fee in lieu of meeting the Ultra Low-NOx emission limit of 14 ng/J. The mitigation fee option for condensing and non-condensing furnaces ended on September 30, 2019. The December 6, 2019 latest amendment to Rule 1111 also included a limited exemption from the Ultra Low NOx emission limit as it applies to furnaces installed at elevations greater than or equal to 4,200 feet above sea level until October 1, 2020. During this interim exemption, furnaces would be required to meet the Low-NOx (40 ng/J) emission limit, while providing manufacturers time to conduct high altitude testing, develop kits, and guidance for the installation of furnaces in higher elevations.

Since Regulation IX, Regulation X, and Rule 1111 were not subsumed under RECLAIM and contained no exemptions from their applicability to RECLAIM NOx or SOx sources, the requirements of these amended rules apply equally to both RECLAIM and non-RECLAIM facilities. As such, there are no differential impacts in emissions when comparing the applicability of amended rule requirements to NOx and SOx sources under RECLAIM with NOx and SOx sources of non-RECLAIM facilities.

Consequently, during Compliance Year 2019, both rules subsumed by RECLAIM, and rules not subsumed by RECLAIM that were recently amended or

intended to facilitate SIP approval and did not result in any limitations on SOx sources at non-RECLAIM facilities. Hence, amendments to rules 1310 and 1325 applied equally to RECLAIM and non-RECLAIM sources and did not result in disproportionate impacts.

adopted, 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

On March 3, 2017, the Governing Board adopted a resolution during the adoption of the 2016 AQMP that directed staff to modify Control Measure CMB-05 – Further NO_x Reductions from RECLAIM Assessment to achieve an additional five tons per day NO_x emission reductions as soon as feasible but no later than 2025, and to transition the RECLAIM program to a command-and-control regulatory structure requiring BARCT level controls as soon as practicable. Additionally, California State Assembly Bill (AB) 617 was approved in July 2017, requiring an expedited schedule for implementing BARCT at RECLAIM facilities that are covered by the Greenhouse Gas (GHG) cap-and-trade program no later than December 31, 2023.

Transition Process

To further this effort, staff organized and held monthly working group meetings (with the first meeting held on June 8, 2017) to discuss the transition of facilities in the RECLAIM program to a command-and-control regulatory structure and to discuss key policy issues. The objective is to provide an open forum for all stakeholders to discuss and guide the transition process. The goal is to develop “Landing Rules” establishing the BARCT emission levels for equipment transitioning out of the NO_x RECLAIM program. Rule 2001 – Applicability specifically exempts RECLAIM facilities from a number of existing command-and-control NO_x rules (see Table 1 of Rule 2001). As part of the transition process, these command-and-control rules have to be amended and additional new NO_x BARCT command-and-control rules have to be adopted (collectively referred to as “Landing Rules”) to ensure that when a facility transitions out of RECLAIM, its NO_x equipment has explicit BARCT emission limits and an appropriate time frame to achieve compliance.

To initiate the transition of NO_x sources out of RECLAIM, Rule 2001 – Applicability, and Rule 2002 – Allocations for Oxides of Nitrogen (NO_x) and Oxides of Sulfur (SO_x), were amended by the Governing Board on January 5, 2018. Amended Rule 2001 precluded new or existing facilities from entering the NO_x and SO_x RECLAIM programs as of January 5, 2018. Amended Rule 2002 contained notification procedures for facilities that will be transitioned out of RECLAIM, and addressed the RTC holdings for facilities that will be transitioned out or that elect to exit RECLAIM. Under amended Rule 2002, the Executive Officer will provide an initial determination notification to a RECLAIM facility for potential exit to a command-and-control regulatory structure with requirements for the facility to identify all NO_x-emitting equipment. This initial determination notification serves as a preliminary notice to a facility for which all NO_x sources are covered by Landing Rules, and will be issued when South Coast AQMD staff determines every permitted NO_x source is covered by Landing Rules. When an initial determination notification is issued to a facility, the RECLAIM facility then has 45 days from the date of the notification to identify all NO_x-emitting equipment. Failure to provide this information to South Coast AQMD will result in a freeze on RTC uses, trades, or transfers until the requested information is submitted. If the RECLAIM facility is deemed ready for transition after Executive

Officer review, it will receive a final determination notification that will require its exit from RECLAIM and will become subject to command-and-control regulations. If the RECLAIM facility is deemed as not ready for the transition, it will be notified that it will remain in NOx RECLAIM until a later time. Upon exiting RECLAIM, the facility's future compliance year RTCs cannot be sold or transferred, and only RTCs valid for the then current compliance year can be used or sold.

Staff originally identified an initial group of 38 facilities that could potentially exit the NOx RECLAIM program because they had no facility NOx emissions, or had NOx emissions solely from the combination of equipment exempt from obtaining a written permit pursuant to Rule 219 (unless the equipment would be subject to a command-and-control rule that it could not reasonably comply with), various locations permits, or unpermitted equipment and/or RECLAIM equipment that met current command-and-control BARCT rules. However, these facilities have not been issued final determinations to exit RECLAIM pending resolution with USEPA of New Source Review provisions for facilities that are expected to be transitioned out of RECLAIM.

Rules 2001 and 2002 were again amended by the Governing Board on October 5, 2018. Amended Rule 2001 added a provision to allow facilities to opt out of RECLAIM if certain criteria were met. Additionally, Tables 1 and 2 had previously contained only rules that were not applicable to RECLAIM facilities pertaining to NOx or SOx emissions, respectively. However, in order to facilitate the transition process, the amendments to Rule 2001 specify that RECLAIM facilities are required to comply with the rules contained in Table 1 that are adopted or amended on or after October 5, 2018. Amended Rule 2002 provided an option for facilities that received an initial determination notification to stay in RECLAIM for a limited time, while complying with applicable command-and-control requirements. Additionally, amended Rule 2002 established a requirement that facilities which are issued a final determination to be transitioned out of the NOx RECLAIM program to provide emission reduction credits to offset any NOx emissions increases, calculated pursuant to Rule 1306 – Emission Calculations, notwithstanding the exemptions contained in Rule 1304 – Exemptions and the requirements contained in Rule 1309.1 – Priority Reserve, until New Source Review provisions governing NOx emission calculations and offsets are amended to address former RECLAIM sources. Finally, Rule 2002 removed the requirement to report IYB NOx RTC prices to the Board when the price falls below the minimum threshold.

Rule 2001 was again amended by the Governing Board on July 12, 2019, to remove the opt-out provision provided for in the October 5, 2018 amendments to the rule. This amendment was in response to USEPA's recommendation that facilities remain in RECLAIM until all rules associated with the transition to a command-and-control regulatory structure have been adopted and approved into the SIP.

Landing Rules

As explained earlier, Landing Rules are needed to establish BARCT emission limits, the timing for the implementation of BARCT, and monitoring, reporting, and recordkeeping (MRR) requirements. These Landing Rules also serve to facilitate the transition process for RECLAIM facilities from the requirements of

RECLAIM to a command-and-control regulatory structure. Determination of BARCT limits are made through an analytical process that is comprised of assessing South Coast AQMD and other agency regulatory requirements and emission limits, researching control options and effectiveness of the controls, and analyzing the cost-effectiveness of the control options. Emission levels are established based on their achievability, source test results, and vendor guarantees.

Throughout the BARCT determination process, rule-specific working group meetings are held to present staff's findings regarding the feasibility and cost-effectiveness of implementing BARCT. Working group meetings are open to the public and provide an opportunity for stakeholders to participate in the rule development process. During the public process, cost assumptions are discussed through the Working Group to solicit comments. Cost-effectiveness and incremental cost-effectiveness, if applicable, are discussed and presented during the rule working group meetings, presented at the Public Workshop, included in the Draft Staff Report, and included in the Board Letter for the adoption hearing. The socioeconomic analysis uses the cost data to estimate regional and industry-specific socioeconomic impacts from the proposed rule and its proposed controls, while the California Environmental Quality Act (CEQA) analysis provides the environmental impacts that result from implementing a rule.

Staff have identified a number of rules that need amendments and new rules that need to be adopted to support the transitioning of NO_x sources out of RECLAIM. The following eleven Landing Rules were amended or adopted by the Governing Board to facilitate the transition:

- Rule 1100 – Implementation Schedule for NO_x Facilities,
- Rule 1110.2 – Emissions from Gaseous - and Liquid-Fueled Engines,
- Rule 1117 – Emissions from Container Glass Melting and Sodium Silicate Furnaces
- Rule 1118.1 -- Control of Emissions from Non-Refinery Flares,
- Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines,
- Rule 1135 – Emissions of Oxides of Nitrogen from Electricity Generating Facilities,
- Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters,
- Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters,
- Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters,
- Rule 2001 – Applicability, and
- Rule 2002 – Allocations for Oxides of Nitrogen (NO_x) and Oxides of Sulfur (SO_x).

A summary of the Landing Rules are provided in Table 3-3. The status of the remaining Landing Rules to be amended or adopted are listed in Table 3-3 as either "In Progress" or "To Be Determined". Further information regarding the specifics of each rule can be found at <http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules>. Details on past amended or

adopted rules can be found by entering the amendment or adoption date of a given rule at <http://www.aqmd.gov/home/news-events/meeting-agendas-minutes> and down-loading the relevant rule board agenda item.

**Table 3-3
Summary of Landing Rules**

Rule(s)	Focus Area	Description
218, 218.2 and 218.3	Continuous Emission Monitoring / Continuous Emission Monitoring Performance Specifications <i>Applicability:</i> equipment that require CEMS at non-RECLAIM facilities.	Revises provisions for continuous emission monitoring systems for facilities exiting RECLAIM. <i>(In Progress – 1st Qtr. 2021)</i>
1100	Implementation Schedule for NOx Facilities <i>Applicability:</i> equipment specified in Rules 1146, 1146.1, and 1110.2.	Establishes implementation schedule for RECLAIM and prior RECLAIM sources to meet applicable provisions of Landing Rules: <ul style="list-style-type: none"> • Implementation schedule for equipment meeting applicability under Rules 1146 and 1146.1 <i>(Adopted December 7, 2018)</i> • Implementation schedule for equipment meeting applicability under Rule 1110.2 <i>(Amended November 1, 2019)</i> • Revises definition of “industry-specific category” to reflect the intent to exempt equipment at refineries from the NOx emission limits or permit submission deadlines specified in Rules 1100, 1110.2, 1146, and 1146, that will be regulated in an industry-specific rule for refineries and related industries under Proposed Rule 1109.1 <i>(Amended January 10, 2020)</i> This rule will be amended as necessary as a companion rule to a Landing Rule as it is amended or adopted.
1109 <i>(to be rescinded)</i> and 1109.1	Refinery and Related Industries Equipment <i>Applicability:</i> equipment emitting NOx at refineries and related industries.	Establishes NOx emission limits to reflect BARCT for equipment located at a refinery. <i>(In Progress – 2nd Qtr. 2021)</i>

Rule(s)	Focus Area	Description
1110.2	<p>Emissions from Gaseous - and Liquid-Fueled Engines</p> <p><i>Applicability:</i> all stationary and portable engines over 50 rated brake horsepower.</p>	<ol style="list-style-type: none"> 1. Maintains existing BARCT levels for NO_x, VOC, and CO emission limits, and allows: <ul style="list-style-type: none"> • Interim alternate emission limits for compressor gas lean-burn engines, • Concentration based limits for linear generator technology, and • Interim VOC based emission limits for certain electricity generating engines. 2. Specifies emission averaging time. 3. Includes additional monitoring requirements for engines at former RECLAIM facilities. 4. Revises exemptions for: <ul style="list-style-type: none"> • Diesel engines operated at remote radio transmission sites, • Tuning of an engine and/or associated emission control equipment, • Replacement of catalytic equipment as a major repair, and • Diesel engines powering cranes located on offshore platforms, provided specific criteria are met. <p style="text-align: right;"><i>(Amended November 1, 2019)</i></p> <p><i>[Estimated emission reductions, 0.29 tons of NO_x per day.]</i></p>
1117	<p>Emissions from Container Glass Melting and Sodium Silicate Furnaces</p> <p><i>Applicability:</i> container glass melting and sodium silicate furnaces.</p>	<ol style="list-style-type: none"> 1. Updates NO_x and SO_x emission limits to reflect current BARCT for container glass melting and sodium silicate furnaces: <ul style="list-style-type: none"> • 0.75 lb. of NO_x per ton of glass pulled on a rolling 30-day average for container glass melting furnaces, • 0.50 lb. of NO_x per ton of product pulled on a rolling 30-day average for sodium silicate furnaces, as well as • 1.1 lbs. of SO_x per ton of material pulled on a rolling 30-day average for both container glass melting and sodium silicate furnaces 2. Revises monitoring, reporting, and recordkeeping requirements. 3. Includes provisions to reduce emissions for idling, startup, and shutdown of furnaces. 4. Includes NO_x emission limits for auxiliary combustion equipment associated with container glass melting operations: <ul style="list-style-type: none"> • 30 ppmvd NO_x at 3% O₂ or 0.036 lb. per MMBTU of heat input. <p style="text-align: right;"><i>(Amended June 5, 2020)</i></p> <p><i>[Estimated emission reductions, 0.57 tons of NO_x per day, and 0 tons of SO_x per day (since the rule does not impose a more stringent SO_x limit than is already required to be achieved.)]</i></p>

Rule(s)	Focus Area	Description
1118.1	<p>Control of Emissions from Non-Refinery Flares</p> <p><i>Applicability:</i> flares located at landfills, wastewater treatment plants, oil and gas production facilities, organic liquid loading stations, tank farms, and other locations that are not a refinery.</p>	<ol style="list-style-type: none"> 1. Establishes NO_x, VOC, and CO emission limits to reflect current BARCT for new, replaced, or relocated flares. 2. Establishes industry-specific capacity thresholds for existing flares. Flares that exceed the applicable capacity threshold in two consecutive calendar years shall either be modified to comply with the established limit or implement plan to reduce the amount of gas flaring. 3. Establishes requirements for source testing, monitoring, reporting, and recordkeeping. 4. Provides exemptions for low-use and low-emitting flares. <p style="text-align: right;"><i>(Adopted January 4, 2019)</i></p> <p><i>[Estimated emission reductions: 0.18 tons of NO_x per day, and 0.014 tons of VOC per day.]</i></p>
1134	<p>Emissions of Oxides of Nitrogen from Stationary Gas Turbines</p> <p><i>Applicability:</i> stationary gas turbines, 0.3 MW and larger, except turbines located at electricity generating facilities, refineries or public owned treatment works, or fueled by landfill gas.</p>	<ol style="list-style-type: none"> 1. Updates NO_x and ammonia emission limits to reflect current BARCT, effective beginning January 1, 2024. 2. Provides implementation timeframes to facilitate transition. <ul style="list-style-type: none"> • Alternative compliance date for compressor gas turbines, provided the facility demonstrates 25% or more NO_x emission reductions beginning December 31, 2023. • Extension of up to 36 months to comply with ammonia emission limits, provided an ammonia continuous emissions monitoring system is installed and the turbine operates less than one thousand hours per year. 3. Revises monitoring, reporting, and recordkeeping requirements 4. Provides exemptions for units that are shown to be not cost effective for retrofit or replacement: <ul style="list-style-type: none"> • Low-use turbines, and • Turbines achieving emissions close to the established limit. <p style="text-align: right;"><i>(Amended April 5, 2019)</i></p> <p><i>[Estimated emission reductions: 2.8 tons of NO_x per day.]</i></p>

Rule(s)	Focus Area	Description
1135	<p>Emissions of Oxides of Nitrogen from Electricity Generating Facilities</p> <p><i>Applicability:</i> electric generating units at electricity generating facilities.</p>	<ol style="list-style-type: none"> 1. Updates emission limits to reflect current BARCT: <ul style="list-style-type: none"> • NOx and ammonia emission limits for boilers and gas turbines, and • NOx, ammonia, carbon monoxide, volatile organic compounds, and particulate matter for internal combustion engines. 2. Revises monitoring, reporting, and recordkeeping requirements. 3. Provides exemptions for units that are shown to be not cost effective for retrofit: <ul style="list-style-type: none"> • Low-use units, • Units achieving emissions close to the established limits, and • Units required to be shut down in the near term. <p style="text-align: right;"><i>(Amended November 2, 2018)</i></p> <p><i>[Estimated emission reductions: 1.7 tons of NOx per day.]</i></p>

Rule(s)	Focus Area	Description
<p>1146, 1146.1, and 1146.2</p>	<p>Emissions of Oxides of Nitrogen from:</p> <p>Rule 1146 - Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters</p> <p><i>Applicability:</i> boilers, process heaters, and steam generators that are greater than or equal to 5 MMBtu/hr.</p> <p>Rule 1146.1 - Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters</p> <p><i>Applicability:</i> boilers, process heaters, and steam generators that are greater than 2 MMBtu/hr or and less than 5 MMBtu/hr.</p> <p>Rule 1146.2 - Large Water Heaters and Small Boilers and Process Heaters</p> <p><i>Applicability:</i> boilers, process heaters, and steam generators that are greater than 400,000 and less than or equal to 2 MMBtu/hr.</p>	<p>1. For Rule 1146 and 1146.1 facilities:</p> <ul style="list-style-type: none"> • Updates emission limits to reflect current BARCT. <ul style="list-style-type: none"> ➤ NOx and ammonia emission limits for boilers, steam generators, and heaters • Specifies compliance schedule in Rule 1100. <p>2. For Rule 1146.2 units:</p> <ul style="list-style-type: none"> • Comply with the 30 ppm limit by December 31, 2023, if a technology assessment (to be completed by January 1, 2022) determines that the NOx emission limits specified in Rule 1146.2 still represent BARCT. <p style="text-align: right;"><i>(Amended December 7, 2018)</i></p> <p><i>[Estimated emission reductions: 0.31 tons of NOx per day.]</i></p> <p>1. For Rule 1146 facilities:</p> <ul style="list-style-type: none"> • Removes ammonia slip limit which is currently addressed under Regulation XIII. <p style="text-align: right;"><i>(Amended December 4, 2020)</i></p> <p><i>[Estimated emission reductions: 0 tons of NOx per day.]</i></p>
<p>1147</p>	<p>NOx Reductions from Miscellaneous Sources</p> <p><i>Applicability:</i> miscellaneous equipment that require a District permit but not regulated by other Regulation XI rules.</p>	<p>1. Removes equipment that will be regulated under Proposed Rules 1147.1 and 1147.2.</p> <p>2. Evaluates existing NOx emission limits.</p> <p style="text-align: right;"><i>(In Progress – 2nd Qtr. 2021)</i></p>

ANNUAL RECLAIM AUDIT

Rule(s)	Focus Area	Description
1147.1 <i>(to be incorporated into 1147)</i>	NOx Reductions for Equipment at Aggregate Facilities <i>Applicability:</i> equipment at aggregate facilities.	Establishes NOx emission limits to reflect current BARCT. <i>(In Progress – 2nd Qtr. 2021)</i>
1147.2 <i>(to be renamed as 1147.1)</i>	NOx Reductions from Metal Melting and Heating Furnaces <i>Applicability:</i> metal melting and heating- furnaces.	Establishes NOx emission limits to reflect current BARCT. <i>(In Progress – 3rd Qtr. 2021)</i>
1153.1	Emissions of Oxides of Nitrogen from Commercial Food Ovens <i>Applicability:</i> commercial food ovens.	Updates NOx emission limits to reflect current BARCT. <i>(To Be Determined)</i>
1159.1	Control of NOx Emissions from Nitric Acid Processing Tanks <i>Applicability:</i> nitric acid processing tanks	Updates NOx emission limits to reflect current BARCT. <i>(In Progress – 4th Qtr. 2021)</i>
2001	Applicability <i>Applicability:</i> facilities operating under the RECLAIM program	<ol style="list-style-type: none"> 1. Prevents new NOx RECLAIM facility inclusions as of January 5, 2018. <i>(Amended January 5, 2018)</i> 2. Allows facilities to opt-out of RECLAIM, if certain conditions are met. <i>(Amended October 5, 2018)</i> 3. Removes the opt-out provision for RECLAIM facilities until all rules associated with the transition to a command-and-control regulatory structure have been adopted and approved into the SIP. <i>(Amended July 12, 2019)</i>

Rule(s)	Focus Area	Description
2002	<p>Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx)</p> <p><i>Applicability:</i> facilities operating under the RECLAIM program.</p>	<ol style="list-style-type: none"> 1. Establishes NOx RECLAIM facility exit notification requirements. 2. Requires exited facilities to provide emission reduction credits to offset any NOx emissions increases, until New Source Review provisions governing NOx emission calculations and offsets are amended. 3. Prohibits exited facilities from selling or transferring future compliance year RECLAIM Trading Credits. <p style="text-align: right;"><i>(Amended January 5, 2018)</i></p> <ol style="list-style-type: none"> 1. Provides option for facilities that received an initial determination notification to stay in RECLAIM for a limited time. 2. Establishes requirement for facilities issued a final determination to be transitioned out of the NOx RECLAIM program to provide emission reduction credits to offset any NOx emissions increases, calculated pursuant to Rule 1306, notwithstanding the exemptions contained in Rule 1304 and requirements in Rule 1309.1 until New Source Review provisions governing NOx emission calculations and offsets are amended to address former RECLAIM sources. <p style="text-align: right;"><i>(Amended October 5, 2018)</i></p>
2005	<p>New Source Review for RECLAIM</p> <p><i>Applicability:</i> facilities operating under the RECLAIM program</p>	<ol style="list-style-type: none"> 1. Allows for New Source Review provisions to address facilities that are transitioning from RECLAIM to command-and-control. 2. Amendments to Regulation XIII may be needed to address New Source Review provisions for facilities that transition out of RECLAIM. <p style="text-align: right;"><i>(To Be Determined)</i></p>

Monthly working group meetings continue to be held, as necessary, to further discuss steps for transitioning the remaining RECLAIM facilities to a command-and-control structure, and to develop necessary rule amendments to implement BARCT for the exiting RECLAIM facilities. Since the RECLAIM universe includes many different industries, separate working groups have been formed to address and develop these different BARCT Landing Rules. Completion of the development efforts for the remaining Landing Rules is now targeted for the fourth quarter in 2021. The current plan is to transition NOx RECLAIM sources after the New Source Review provisions are addressed by a rule amendment and all NOx Landing Rules have been adopted and approved by EPA into the SIP.

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 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 in writing by South Coast AQMD. 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 South Coast AQMD 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 2019 found that no facilities requested to exclude breakdown emissions from being counted against their allocations. Thus, for Compliance Year 2019, no additional RTCs are required to offset breakdown emissions pursuant to Rule 2015(d)(3).

**Table 3-4
Breakdown Emission Comparison for Compliance Year 2019**

Pollutant	Compliance Year 2019 Unused RTCs (tons)	Unmitigated Breakdown Emissions¹ (tons)	Remaining Compliance Year 2019 RTCs (tons)
NOx	1,646	0	1,646
SOx	520	0	520

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

Impact of Changing Universe

In general, 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. Facilities exiting the RECLAIM program result in their emissions not being accounted and therefore diminish the

demand of RTCs while the facility operator may retain their RTCs⁴. On the other hand, facilities entering the program add to the accounting of emissions and increase the demand of RTCs while they may or may not be issued Allocations to account for their historical activities⁵. However, the Governing Board amended Rule 2001 on January 5, 2018 to preclude any facility from entering the RECLAIM program and amended Rule 2001 on July 12, 2019 to remove the opt-out provision so that facilities cannot exit RECLAIM.

As discussed in Chapter 1, during Compliance Year 2019, no facilities were included or excluded from the NOx or SOx universes, and seven facilities (seven NOx-only facilities and no NOx and SOx facilities) shut down. Compliance Year 2019 NOx and SOx audited emissions and initial Compliance Year 2019 allocations for facilities that were shut down during Compliance Year 2019 are summarized in Tables 3-5 and 3-6.

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

Category	Compliance Year 2019 NOx Emissions (tons)	Initial Compliance Year 2019 NOx Allocations (tons)
Shutdown Facilities	5.62	16.3
Excluded Facilities	Not applicable	Not applicable
RECLAIM Universe	6,597	8,243

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

Category	Compliance Year 2019 SOx Emissions (tons)	Initial Compliance Year 2019 SOx Allocations (tons)
Shutdown Facilities	Not applicable	Not applicable
Excluded Facilities	Not applicable	Not applicable
RECLAIM Universe	1,701	2,221

Backstop Provisions

Rule 2015 requires that South Coast AQMD review the RECLAIM program and implement necessary measures to amend it whenever aggregate emissions exceed the aggregate allocations by five percent or more. Compliance Year 2019 aggregate NOx and SOx emissions were both below aggregate allocations as shown in Figures 3-1 and 3-2. Therefore, there is no need to initiate a program review due to emissions exceeding aggregate allocation in Compliance Year 2019.

⁴ Rule 2002(i) as amended in October 2016, requires the reduction of the RTC holdings of a shutdown facility that is listed in Tables 7 or 8 of Rule 2002 by an amount equivalent to the emissions above the most stringent BARCT level (see discussion in Chapter 2).

⁵ When an existing facility enters the program, it is issued RTC allocations based on its operational history pursuant to the methodology prescribed in Rule 2002.

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 2019, a total of three NO_x RECLAIM facilities had NSR NO_x emission increases, and no SO_x RECLAIM facilities had an NSR SO_x emission increase 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 2019, RECLAIM demonstrated federal equivalency with a programmatic NO_x offset ratio of 1,504-to-1 based on the compliance year's total unused allocations and total NSR emission increases for NO_x. There were no SO_x NSR emission increases that resulted from starting operations of new or modified permitted sources during the compliance year. 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 (Table 3-2 and Figure 3-2), there was a surplus of SO_x RTCs during Compliance Year 2019. Therefore, RECLAIM more than complied with the federally-required SO_x offset ratio and further quantification of the SO_x offset ratio is unnecessary. Also, the NNI is satisfied by the program's 1-to-1 offset ratio. 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) for major sources. The same BACT guidelines are used to determine BACT applicable 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. South Coast AQMD 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.*, NOx 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 SO₂ standards, SOx is a precursor to PM_{2.5}. The Basin is in Serious Non-attainment with 2006 Federal 24-hours standard and 2012 Federal annual standard for PM_{2.5}. The applicable offset ratio for PM_{2.5} is at least 1-to-1, thus, the applicable offset ratio for SOx is 1-to-1. Health and Safety Code §40920.5 requires "no net increase in emissions from new or modified stationary sources of nonattainment 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 SOx and state NNI requirements for both SOx and NOx. 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. South Coast AQMD uses the same BACT guidelines in applying BACT to both 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.

¹ Federal NSR applies to federal major sources (sources with the potential to emit at least 10 tons of NOx or 70 tons of SOx per year for the South Coast Air Basin) and state NNI requirements apply to all NOx sources and to SOx 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 NOx or SOx emissions, some RECLAIM facilities have actual emissions much less than 4 tons per year).

The same rule also requires all new RECLAIM facilities² and all other RECLAIM 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 NOx on an aggregate basis as explained earlier. This annual program audit report assesses NSR permitting activities for Compliance Year 2019 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 2019 shows that RECLAIM facilities were able to expand and modify their operations while complying with NSR requirements. During Compliance Year 2019, a total of three NOx RECLAIM facilities (two in Cycle 1 and one in Cycle 2) were issued permits to operate, which resulted in a total of 1.095 tons per year of NOx emission increases from starting operations of new or modified sources. There were no SOx NSR emission increases 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 (NOx: 1,646 tons, SOx: 520 tons; see Chapter 3) in the RECLAIM universe available for use to offset 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 NOx and at least 1-to-1 for SOx) 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

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

a surrogate for RACT as the basis for calculating programmatic NOx and SOx offset ratios in the annual program audit report for Compliance Year 2005 and is continuing to do so for NOx 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 potential 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 three RECLAIM facilities resulted in 1.095 tons of NOx emission increase pursuant to Rule 2005(d). Additionally, as identified in Table 3-1 (Annual NOx Emissions for Compliance Years 1994 through 2019), 1,646 tons of Compliance Year 2019 NOx RTCs remained unused. Therefore, the Compliance Year 2019 NOx programmatic offset ratio calculated from this methodology is 1,504-to-1 as shown below:

$$\begin{aligned} \text{NOx Offset Ratio} &= \left(1 + \frac{1,646 \text{ tons}}{1.095 \text{ tons}} \right)\text{-to-1} \\ &= 1,504\text{-to-1} \end{aligned}$$

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. Since RECLAIM does not dedicate all unused RTCs to NSR uses in any given year, it does not actually provide a 1,504-to-1 offset ratio; but this analysis does demonstrate that RECLAIM provides more than enough unused RTCs to account for the 1.2-to-1 required offset ratio. 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 520 tons of excess (unused) SOx RTCs for Compliance Year 2019. Since there were no SOx emission increases that resulted from starting operations of new or modified permitted sources during the compliance year, there is certainty that both the federally required SOx offset ratio and the California NNI requirement for SOx were satisfied.

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 2019 shows that RECLAIM is in compliance with both state NNI and federal NSR requirements. South Coast AQMD 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 NOx or SOx 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 2019, two RECLAIM facilities were subject to the 40-ton modeling requirement; two facilities for NOx emissions, and no facilities for SOx emissions.

This modeling is performed with an USEPA approved air dispersion model to assess the impact of a facility's NOx or SOx 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 South Coast AQMD'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 facility's NOx or SOx emission increases are added to the highest background NOx or SOx 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).

One NOx facility had initial NOx allocations in 1994 and exceeded their initial allocations by more than 40 tons in Compliance Year 2019. The other NOx

facility had no initial allocation in 1994 and had NOx emissions greater than 40 tons in Compliance Year 2019. Both facilities submitted modeling that demonstrated that NOx emissions from their major sources during 2019 will not cause an exceedance of any state or federal NO₂ AAQS.

CHAPTER 5 COMPLIANCE

Summary

Based on South Coast AQMD Compliance Year 2019 audit results, 247 of the 259 (95%) NO_x RECLAIM facilities complied with their NO_x allocations, and 31 of the 32 SO_x facilities (97%) complied with their SO_x allocations based on South Coast AQMD audit results. So, thirteen facilities exceeded their allocations (12 facilities exceeded their NO_x allocations, and one facility exceeded its SO_x allocation). The 12 facilities that exceeded their NO_x allocations had aggregate NO_x emissions of 339.9 tons and did not have adequate allocations to offset 213.6 tons (or 62.8%) of their combined emissions. The facility that exceeded its SO_x allocations had total SO_x emissions of 1.22 tons and did not have adequate allocations to offset 0.27 tons (or 22.1%). The NO_x and SO_x exceedance amounts are relatively small compared to the overall NO_x and SO_x allocations for Compliance Year 2019 (2.60% of total NO_x allocations and 0.01% of total SO_x allocations). The exceedances from these facilities did not impact the overall RECLAIM emission reduction goals. The overall RECLAIM NO_x and SO_x emission reduction targets and goals were met for Compliance Year 2019 (i.e., aggregate emissions for all RECLAIM facilities were well below aggregate allocations). 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 South Coast AQMD's determination that the facilities exceeded their Compliance Year 2019 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 are 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 subsequently included in the RECLAIM program, each RECLAIM facility is issued an annual allocation for each compliance year pursuant to the methodology prescribed in Rule 2002. A facility in existence prior to October 1993 is issued allocations by South Coast AQMD 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 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 Annual Permit Emissions Program (APEP) report, respectively.

Compliance Audit

Since the beginning of the program, South Coast AQMD staff has conducted annual audits of each RECLAIM facility’s emission reports to ensure their integrity and reliability. All facilities that submitted emission reports during a compliance year are subject to compliance audits, even for those that are shutdown or have a change of operator. This results in additional facility audits over the number of active facilities in the universe at the end of a compliance year. For Compliance Year 2019, a total of 259 facility audits were completed. The audit process also 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 South Coast AQMD or submitted in QCERs and APEP reports. For Compliance

Year 2019, these inspections revealed that some facilities did not obtain or record valid monitoring data, failed to submit emission reports when due, made errors in quantifying their emissions (e.g., arithmetic errors), used incorrect emission and 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 failed to properly apply MDP. Appropriate compliance actions are 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 13 RECLAIM facilities failed to reconcile their emissions (12 NOx-only facilities and one NOx-and-SOx facility that exceeded its SOx allocations). Seven of these 12 facilities (six NOx-only facilities and one NOx-and-SOx facility) failed to acquire adequate RTCs to offset their reported emissions. The remaining six NOx-only facilities exceeded allocations based on their audited emissions. The list of facilities that failed to reconcile their emissions during Compliance Year 2019 is provided in Appendix D.

Based on audit findings, eight NOx-only facilities and zero NOx-and-SOx facilities were found to have under-reported their emissions and didn't hold sufficient RTCs to reconcile their audited emissions. Among the eight facilities found to have under-reported their emissions, the reasons for the under-reporting include one or more of the following causes:

- mathematical error,
- misread fuel meter,
- failed to report emissions for all NOx sources, and
- failure to properly apply missing data procedures.

Overall, the Compliance Year 2019 allocation compliance rates for facilities are 95% (247 out of 259 facilities) for NOx RECLAIM and 97% (31 out of 32 facilities) for SOx RECLAIM¹. For purposes of comparison, the allocation compliance rates for Compliance Year 2018 were 94% and 97% for NOx and SOx RECLAIM facilities, respectively. In Compliance Year 2019, the 12 facilities that had NOx emissions in excess of their individual NOx allocations had 339.9 tons of NOx emissions and didn't have adequate RTCs to cover 213.6 of those tons (or 62.8% of their total emissions). The SOx facility that exceeded its SOx allocation had total SOx emissions of 1.22 tons and didn't have adequate allocations to offset 0.27 tons (or 22.1% of their total emissions). The NOx and SOx exceedance amounts are relatively small compared to the overall allocations for Compliance Year 2019 (2.60% of aggregate NOx allocations and 0.01% of aggregate SOx allocations). Pursuant to Rule 2010(b)(1)(A), all 12 facilities had their respective NOx or SOx Allocation exceedances deducted from their annual

¹ Compliance rates for both NOx and SOx are based on 259 NOx and 32 SOx completed audits, respectively.

emissions allocations for the compliance year subsequent to South Coast AQMD's determination that the facilities exceeded their Compliance Year 2019 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"² 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 emissions³.

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, 93 NO_x facilities and 16 SO_x facilities used MDP in reporting portions of their annual emissions during Compliance Year 2019. In terms of mass emissions, 5.4% of the total reported NO_x emissions and 9.5% of the total reported SO_x emissions in the APEP reports were calculated using MDP for Compliance Year 2019. 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).

² Based on uncontrolled emission factor at maximum rated capacity of the source and 24 hours per day operation.

³ 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)
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)
2015	6.9% (98 ; 502)	10.9% (14 ; 229)
2016	3.9% (91 ; 288)	6.2% (14 ; 125)
2017	3.8% (92 ; 273)	6.3% (15 ; 126)
2018	3.7% (90 ; 252)	7.0% (16 ; 150)
2019	5.4% (93 ; 343)	9.5% (16 ; 161)

* Numbers in parentheses that are separated by a semicolon 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, 93 facilities reported NOx emissions using MDP in Compliance Year 2019. Even though the number of facilities is higher than in 1995, the percentage of emissions reported using MDP during Compliance Year 2019 is much lower than it was in 1995 (5% compared to 23%). Additionally, in terms of quantity, NOx emissions determined by the use of MDP in Compliance Year 2019 were about 6% of those in Compliance Year 1995 (343 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 5% of reported NO_x annual emissions were calculated using MDP in Compliance Year 2019. 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 5% 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 2019, a significant portion of NO_x MDP emissions data (75%) and of SO_x MDP emissions data (44%) 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 South Coast AQMD to be equivalent to CEMS in relative accuracy, reliability, reproducibility, and timeliness.

For Compliance Year 2019, 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, respectively, reported emissions revealed that 77% of all RECLAIM NOx emissions and 96% 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 South Coast

AQMD’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 against 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. In addition, the RATAs reveal 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: 1) the CEMS bias (how much it differs from the reference method on the average), and 2) the CEMS confidence coefficient (how variable that bias or average difference is).

Tables 5-3 and 5-4 summarize the 2019 and 2020 calendar years’ passing rates, respectively, for submitted 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 2019 and 2020 passing rates are calculated from RATA data submitted before January 10, 2020 and January 10, 2021, 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 2019¹**

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
338	100	91	100	21	100	54	100	306	100	320	100	90	100

¹ The calculation of passing rates includes all RATAs submitted by January 10, 2020.

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 2020¹**

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
399	100	104	100	20	100	73	100	383	99.7	374	100	90	100

¹ The calculation of passing includes all RATAs submitted by January 10, 2021.

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 at or near 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 South Coast AQMD. An electronic reporting system, known as Electronic Data Reporting (EDR), allows 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 South Coast AQMD and also expedites reviews. In calendar year 2020, 98% of RATA results 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 South Coast AQMD, and to help automate compliance tracking. Under RECLAIM, facilities report their emissions electronically on a per device basis to South Coast AQMD's Central Station computer as follows:

- Major sources must use a Remote Terminal Unit (RTU) to telecommunicate emission data to South Coast AQMD'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 South Coast AQMD'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 South Coast AQMD'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 South Coast AQMD.

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 South Coast AQMD 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.

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. South Coast AQMD staff is not able to independently verify the accuracy of the facility reported job impact information.

According to the Compliance Year 2019 employment survey data gathered from APEP reports, RECLAIM facilities reported a net loss of 4,167 jobs, representing 4.0% of their total employment. A comparison of reported job impacts between Cycle 1 and Cycle 2 facilities suggests that the coronavirus (COVID-19) global pandemic affected Cycle 2 facility job losses. One RECLAIM facility cited RECLAIM as a factor contributing to the addition of one job during Compliance Year 2019. No facility reported job losses due to RECLAIM, during Compliance Year 2019.

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 2019 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 2019 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 2019.

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 South Coast AQMD for Compliance Year 2019 and clarifying information collected by South Coast AQMD staff. South Coast AQMD 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 2019 APEP reports and follow-up contacts with facilities. A total of 122 facilities reported 7,430 job gains, while 130 facilities reported a total of 11,597 job losses. Net job losses were reported in all of the three categories: sales of products (137), non-manufacturing (2,481), and manufacturing (1,549). Table 6-1 shows a total net loss of 4,167 jobs, which represents a net decrease of 4.0% at RECLAIM facilities during Compliance Year 2019. A comparison of reported job impacts between Cycle 1 and Cycle 2 facilities during Compliance Year 2019 shows that Cycle 1 facilities (January 1, 2019 – December 31, 2019) reported an overall job gain of 0.35% while Cycle 2 facilities (July 1, 2019 – June 30, 2020) reported an overall job loss of 7%, coinciding with the outbreak of the novel coronavirus (COVID-19) global pandemic and supporting the widely reported effects on employment as the reason for Cycle 2 job losses. This trend in employment numbers is also suggested in the 2020 employment data for the State of California.¹

Table 6-1
Job Impacts at RECLAIM Facilities for Compliance Year 2019

Description	Manufacture	Sales of Products	Non-Manufacture	Total*
Initial Jobs	50,354	655	53,098	104,107
Overall Job Gain	2,508	75	4,847	7,430
Overall Job Loss	4,057	212	7,328	11,597
Final Jobs	48,805	518	50,617	99,940
Net Job Change	-1,549	-137	-2,481	-4,167
Percent (%) Job Change	-3.08%	-20.92%	-4.67%	-4.00%
Facilities Reporting Job Gains	83	21	75	122
Facilities Reporting Job Losses	93	28	78	130

* 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 for two of the seven RECLAIM facilities that ceased operations in Compliance Year 2019, as listed in Appendix C, are included in Table 6-1. The other five facilities did not specify a change in the number of jobs for Compliance Year 2019. Of the seven facilities that ceased operations, three facilities cited that they were no longer financially able to competitively operate, one relocated outside of the South Coast AQMD, two facilities were sold and all equipment was removed, and one facility underwent a corporate merger and consolidation. According to their APEP reports, the shutdown of these seven facilities led to a total loss of 141 jobs (117 manufacturing jobs, 0 sales jobs, and 24 non-manufacturing jobs).

¹ The 2020 California employment data was obtained from the State of California Employment Development Department website at: <https://www.labormarketinfo.edd.ca.gov/geography/lmi-by-geography.html>.

One RECLAIM facility attributed job gains to RECLAIM for Compliance Year 2019. The facility stated that the reason for increased jobs at their facility was because they had to hire an employee to help them with RECLAIM reporting (refer to Appendix E).

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 2019 NOx and SOx emissions decreased 2.1% and 20.3%, respectively, relative to Compliance Year 2018. Quarterly calendar year 2019 NOx emissions fluctuated within five percent of the mean NOx emissions for the year. Quarterly calendar year 2019 SOx emissions fluctuated within fifteen 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 2020, 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 South Coast AQMD. Those emissions reports are used to identify candidates for the Air 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, than would occur under command-and-control, because RECLAIM facilities must comply with the same toxics rules as non-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, South Coast AQMD staff evaluates per capita exposure to air pollution, toxic risk reductions, emission trends, and seasonal fluctuations in emissions. South Coast AQMD staff also generates quarterly emissions maps depicting the geographic distribution of RECLAIM emissions. These maps are generated and posted quarterly on South

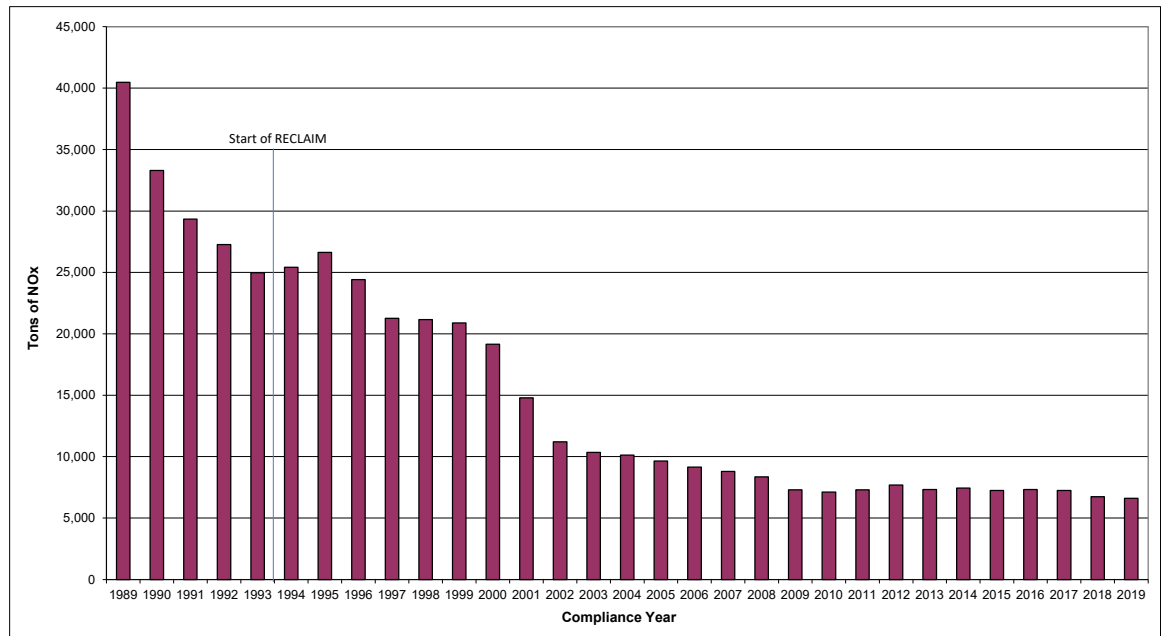
Coast AQMD's website¹, and include all the quarterly emissions maps presented in previous annual program audit reports. This chapter addresses:

- 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.

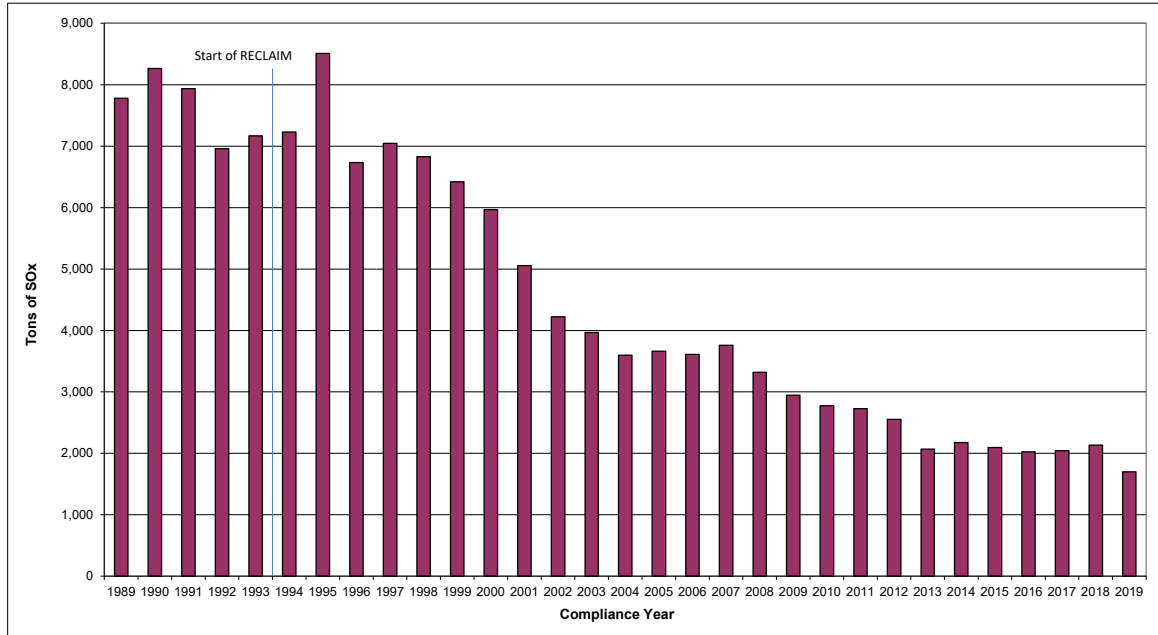
Figure 7-1
NOx Emission Trend for RECLAIM Sources



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

¹ Quarterly emission maps from 1994 to present can be found at:
<http://www.aqmd.gov/home/programs/business/about-reclaim/quarterly-emission-maps>.

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 2010. The emissions for Compliance Year 2010 to Compliance Year 2017 fluctuated within a narrow range; all are within 5% of their average of 7,338 tons/year. The NOx emissions for Compliance Year 2018 were at a low of 6,740 tons/year, representing a 7% decrease from Compliance Year 2017. NOx emissions for Compliance Year 2019 fell even further to a record low of 6,597 tons/year, a further 2% reduction from Compliance Year 2018. Since Compliance Year 1995, annual SOx emissions have also followed a general downward trend. There were a few slight increases for a few Compliance Years when compared to each respective previous compliance year, but Compliance Year 2019 saw a large drop to a record low 1,701 tons/year, a 20% reduction compared to 2,134 tons/year in Compliance Year 2018. From 2013 to 2018, SOx emissions had been fluctuating within a narrow range (2,024 – 2,176 tons/year or $\pm 3\%$ of the range’s mean). As discussed in Chapter 3, NOx and SOx emissions are much lower than the programmatic goals (see Figures 3-1 and 3-2).

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, South Coast AQMD 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 2019 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 2019 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:

- NOx emissions from RECLAIM facilities are dominated by refineries and power plants.
- SOx 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.

Historically, emissions from refineries (NOx and SOx) and from power plants (NOx) 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.

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.

Figure 7-3 shows the 2019 mean quarterly NOx emission level, which is the average of the aggregate audited emissions for each of the four quarters, and the 2019 audited quarterly emissions. Figure 7-4 compares the 2019 quarterly NOx emissions with the quarterly emissions from 2008 through 2018. During calendar year 2019, quarterly NOx emissions varied from four percent below the mean in the second quarter (April through June) to about four percent above the mean in the third quarter (July through September). Figure 7-4 shows that the calendar year 2019 quarterly emissions profile is consistent with previous years under RECLAIM, albeit with reduced NOx emissions. Figures 7-3 and 7-4, along with the qualitative analysis performed above show that in calendar year 2019 there has not been a significant shift in NOx emissions from the winter months to the summer months.

Figure 7-3
Calendar Year 2019 NOx Quarterly Emissions

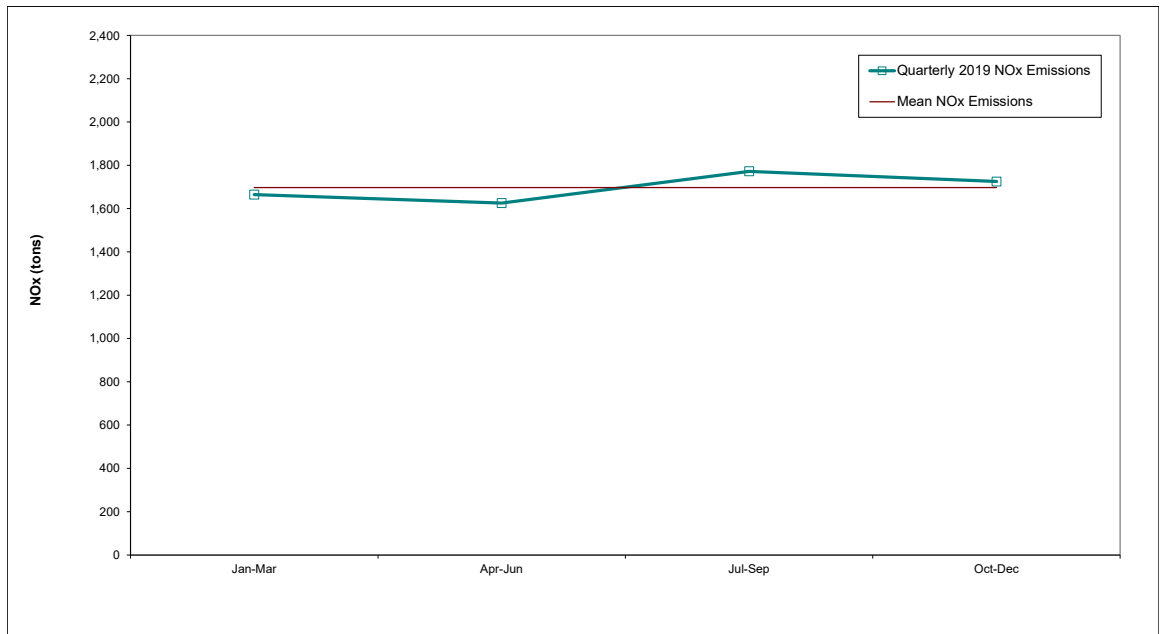
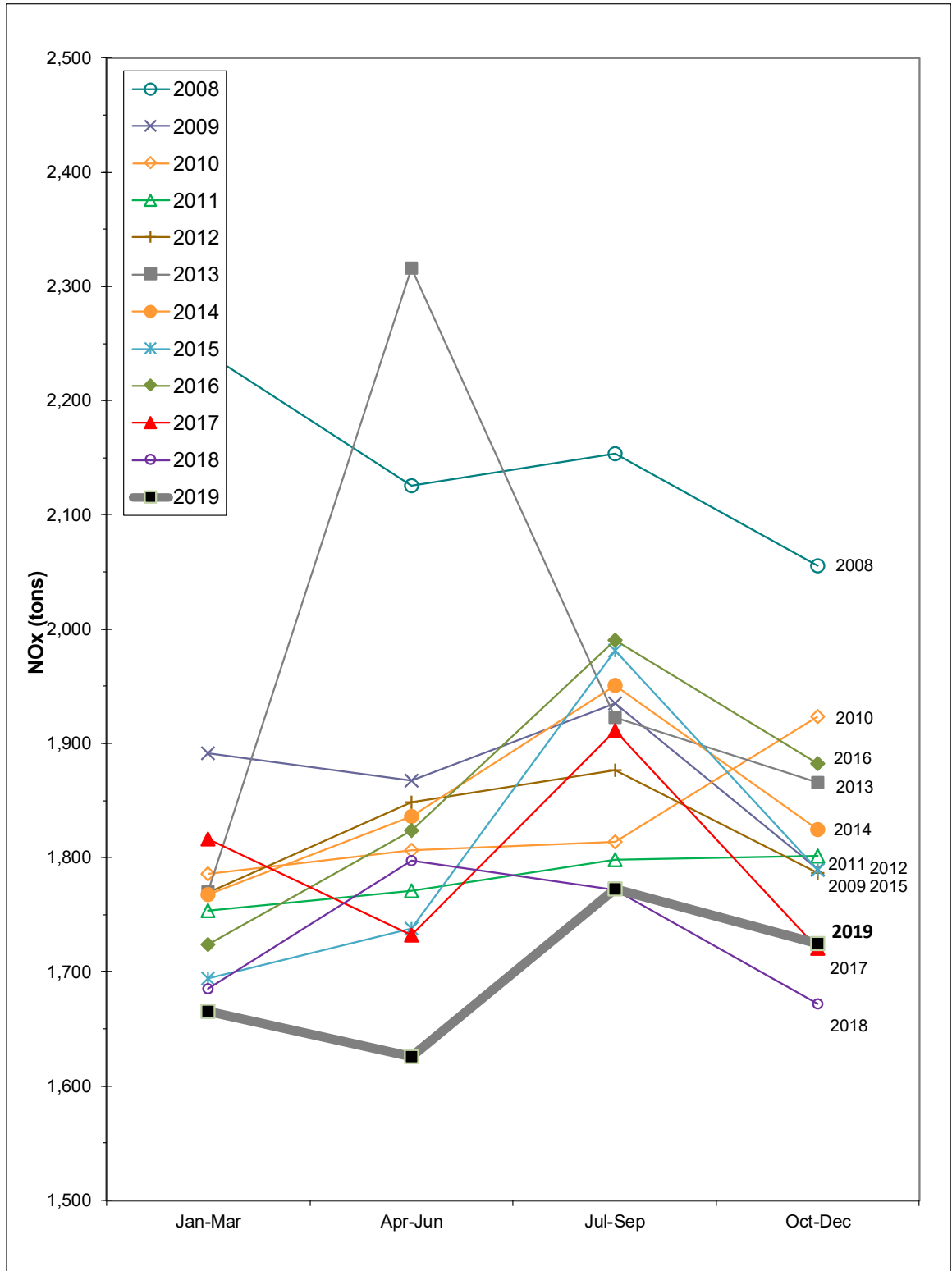


Figure 7-4
Quarterly NOx Emissions from Calendar Years 2008 through 2019



Similar to Figure 7-3 and 7-4 for NOx quarterly emissions, Figure 7-5 presents the 2019 mean quarterly SOx emissions and the 2019 audited quarterly emissions, while Figure 7-6 compares the 2019 quarterly SOx emissions with the quarterly emissions from 2008 through 2018. Figure 7-5 shows that quarterly SOx emissions during calendar year 2019 varied from eight percent below the mean in the fourth quarter (October through December) to about fourteen percent above the mean in the first quarter (January through March). Figure 7-6 shows that the calendar year 2019 quarterly emissions profile is roughly consistent with previous years under RECLAIM, with the exception of the third quarter (July through September). Even though the typical summer third quarter rise in SOx emissions did not occur, the Compliance Year 2019 emissions profile shows that this did not result in a shift of those emissions to the fourth quarter (October through December). In addition, Compliance Year 2019 SOx emissions dropped 20% with respect to Compliance Year 2018. Both Figures 7-5 and 7-6, along with the qualitative analysis performed above, show that in calendar year 2019 there was not a significant shift in SOx emissions from the winter months to the summer months.

Figure 7-5
Calendar Year 2019 SOx Quarterly Emissions

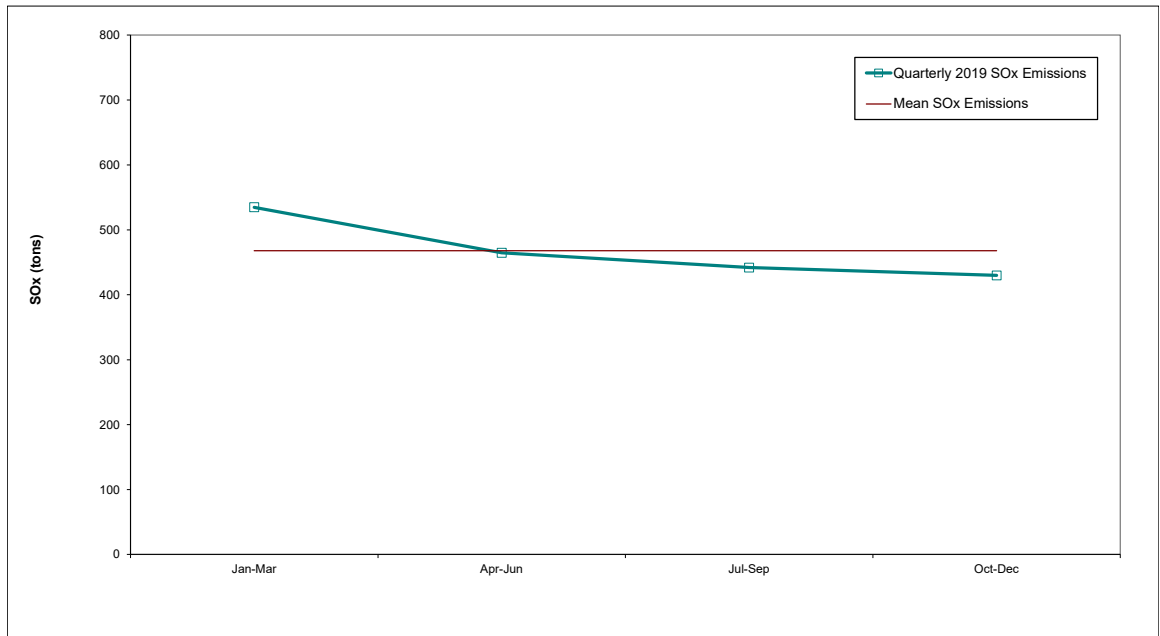
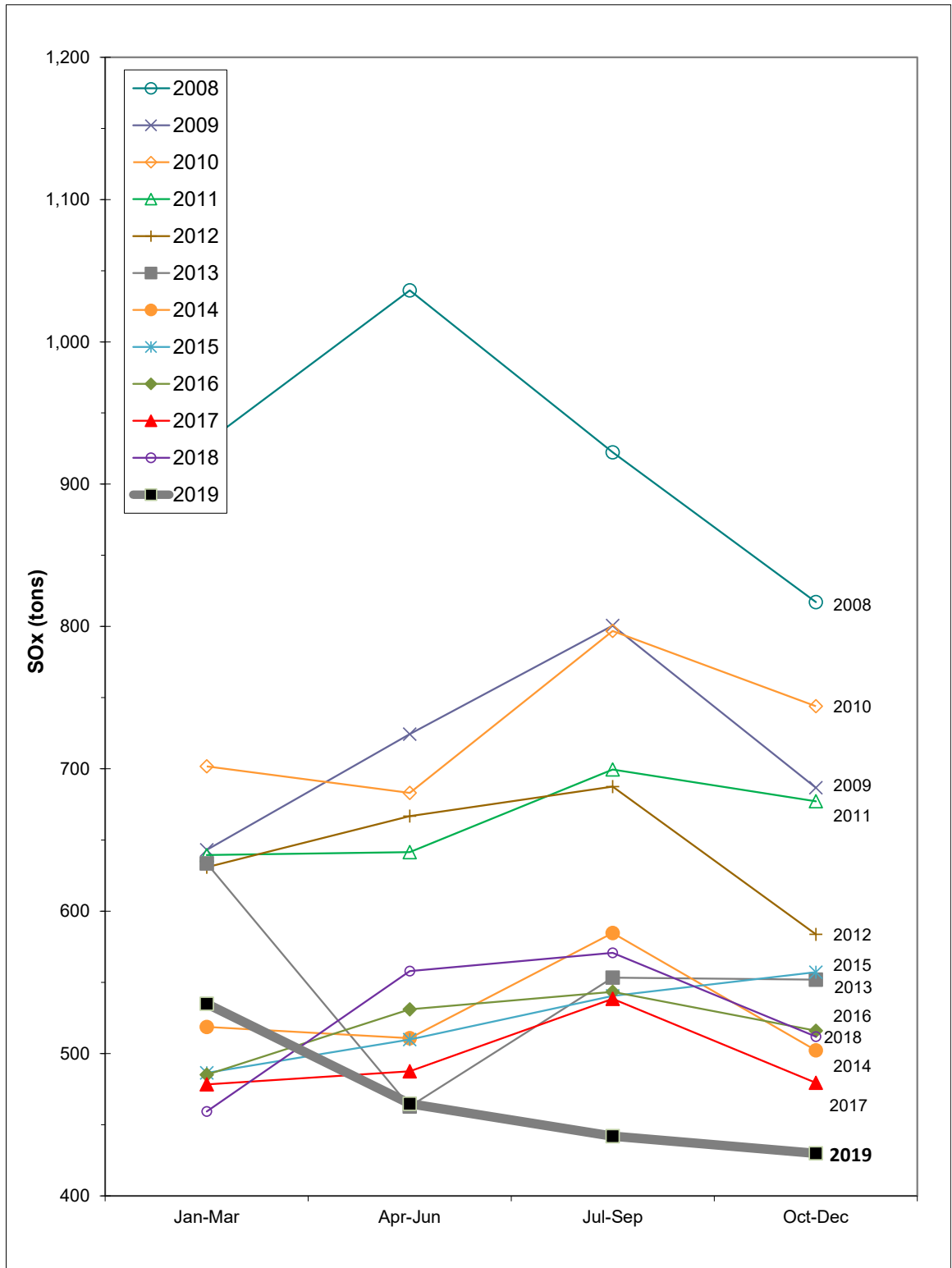


Figure 7-6
Quarterly SOx Emissions from Calendar Years 2008 through 2019



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 Office of Environmental Health Hazard Assessment (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 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 an 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 8-hour federal standard. Effective December 28, 2015, the 8-hour NAAQS for ozone was further reduced to 0.070 ppm, the level of the current California Ambient Air Quality Standard. Table 7-1 shows that the Basin exceeded both the newer 8-hour federal 0.07 ppm standard and the state 0.07 ppm standard by 160 days in 2020. A difference in the number of days per year the basin exceeds each standard periodically occurs due to the 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 2020 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 each standard in 2020 increased significantly when compared to 2019. Table 7-1 also shows that both the Basin Maximum 8-hour ozone concentration and 1-hour ozone concentration also increased relative to last year. The Basin Maximum 1-hour ozone concentration in 2020 is the highest it has been since 2003. There were several individual factors that contributed to this dramatic rise in ozone

concentration throughout 2020. This past year there were record high temperatures, abnormally stagnant meteorology, and an increase in NOx and VOC emissions from a historic wildfire season. Further analysis is needed to unravel the relative impacts of each contribution.

**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
2016	85	132	105	132	0.164	0.122
2017	109	150	122	145	0.158	0.136
2018	86	141	109	141	0.125	0.142
2019	82	128	105	128	0.118	0.137
2020	132	160	145	160	0.185	0.140

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

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

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. Relative to calendar year 2019, the 2020 per capita exposures were significantly higher for all regions. For calendar year 2020, the actual per capita exposure for the Basin was 9.07 hours, which represents an 88.7% reduction from the 1986-88 baseline level.

**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	2.87	1.54	0.08	3.88	10.54
2010 actual	1.18	0.38	0.11	2.45	4.48
2011 actual	2.10	0.85	0.02	3.46	8.13
2012 actual	2.37	1.05	0.05	2.59	9.78
2013 actual	1.31	0.52	0.07	1.61	5.50
2014 actual	1.84	1.26	0.29	1.47	6.02
2015 actual	1.96	0.76	0.10	2.14	8.47
2016 actual	2.64	1.14	0.07	2.19	11.56
2017 actual	4.94	2.90	0.14	4.01	18.78
2018 actual	1.97	0.90	0.14	2.37	7.79
2019 actual	2.07	0.94	0.22	1.88	8.57
2020 actual	9.07	7.92	3.10	5.07	23.20
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.

calculations are used to determine the Basin-wide per capita exposure by summing and dividing over the whole Basin.

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.*, South Coast AQMD 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 toxic's 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 South Coast AQMD 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 South Coast AQMD. Beginning with the FY 2000-01 reporting cycle, toxics emission reporting for the AB2588 Program was incorporated into South Coast AQMD'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 South Coast AQMD 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 South Coast AQMD's 2019 Annual Report on the AB2588 Air Toxics "Hot Spots" program⁵, staff has reviewed and approved 349 HRAs as of the end calendar of year 2019. About 95% of the facilities have cancer risks below 10 in a million and 95% 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 South Coast AQMD discusses the health risks from the facility. South Coast AQMD has conducted such public notification meetings for 61 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, 28 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 South Coast AQMD 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% 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.

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

⁵ The 2019 AB2588 Annual Report can be found at: http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab2588_annual_report_2019.pdf.

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>.

South Coast AQMD has initiated a MATES V study and staff began air toxics measurements at 10 fixed stations in early 2018. The advanced monitoring components also began in 2018, and included flight measurements, mobile monitoring and optical remote sensing technologies. The advanced monitoring components focus mainly on refinery emissions and potential community impacts, but also include other air pollution sources that are located close to communities. Staff has developed the emissions inventory and has been developing the modeling platform for the air toxics health risk modeling. Staff will continue to monitor and assess toxic impacts as part of future annual program audits.

APPENDIX A

RECLAIM UNIVERSE OF SOURCES

The RECLAIM universe of active sources as of the end of Compliance Year 2019 is provided below.

Facility ID	Cycle	Facility Name	Program
800088	2	3M COMPANY	NOx
185145	2	9W HALO WESTERN OPCP LP DBA ANGELICA	NOx
185146	2	9W HALO WESTERN OPCP L.P. D/B/A ANGELICA	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
187165	1	ALTAIR PARAMOUNT, LLC	NOx/SOx
800196	2	AMERICAN AIRLINES, INC,	NOx
16642	1	ANHEUSER-BUSCH LLC., (LA BREWERY)	NOx/SOx
117140	2	AOC, LLC	NOx
174406	1	ARLON GRAPHICS LLC	NOx
12155	1	ARMSTRONG FLOORING INC	NOx
183832	2	AST TEXTILE GROUP, INC.	NOx
181510	1	AVCORP COMPOSITE FABRICATION, INC	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
185801	1	BERRY PETROLEUM COMPANY, LLC	NOx
166073	1	BETA OFFSHORE	NOx
155474	2	BICENT (CALIFORNIA) MALBURG LLC	NOx
132068	1	BIMBO BAKERIES USA INC	NOx
1073	1	BORAL ROOFING LLC	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	Program
150201	2	BREITBURN OPERATING LP	NOx
174544	2	BREITBURN OPERATING LP	NOx
185574	1	BRIDGE ENERGY, LLC	NOx
185575	2	BRIDGE ENERGY, LLC	NOx
185600	2	BRIDGE ENERGY, LLC	NOx
185601	2	BRIDGE ENERGY, LLC	NOx
190051	2	BRIDGE POINT LONG BEACH LLC	NOx/SOx
184958	1	BRONCS INC. DBA WEST COAST TEXTILES	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
148896	2	CALIFORNIA RESOURCES PRODUCTION CORP	NOx
148897	2	CALIFORNIA RESOURCES PRODUCTION CORP	NOx
151899	2	CALIFORNIA RESOURCES PRODUCTION CORP	NOx
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
153992	1	CANYON POWER PLANT	NOx
94930	1	CARGILL INC	NOx
22911	2	CARLTON FORGE WORKS	NOx
141555	2	CASTAIC CLAY PRODUCTS, LLC	NOx
14944	1	CENTRAL WIRE, INC.	NOx/SOx
148925	1	CHERRY AEROSPACE	NOx
800030	2	CHEVRON PRODUCTS CO.	NOx/SOx
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
182561	1	COLTON POWER, LP	NOx
182563	1	COLTON POWER, LP	NOx
38440	2	COOPER & BRAIN - BREA	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	Program
126536	1	CPP - POMONA	NOx
63180	1	DARLING INGREDIENTS INC.	NOx
3721	2	DART CONTAINER CORP OF CALIFORNIA	NOx
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
47771	1	DELEO CLAY TILE CO INC	NOx
800037	2	DEMENNO-KERDOON DBA WORLD OIL RECYCLING	NOx
125579	1	DIRECTV	NOx
800189	1	DISNEYLAND RESORT	NOx
142536	2	DRS SENSORS & TARGETING SYSTEMS, INC	NOx
180908	1	ECO SERVICES OPERATIONS CORP.	NOx/SOx
115663	1	EL SEGUNDO ENERGY CENTER LLC	NOx
186899	1	ENERY HOLDINGS, LLC	NOx
9053	1	ENWAVE LOS ANGELES INC.	NOx
11034	2	ENWAVE LOS ANGELES INC.	NOx
800372	2	EQUILON ENTER. LLC, SHELL OIL PROD. US	NOx/SOx
124838	1	EXIDE TECHNOLOGIES	NOx/SOx
95212	1	FABRICA	NOx
11716	1	FONTANA PAPER MILLS INC	NOx
346	1	FRITO-LAY, INC.	NOx
2418	2	FRUIT GROWERS SUPPLY CO	NOx
142267	2	FS PRECISION TECH LLC	NOx
192551	2	GLC FULLERTON LLC	NOx/SOx
124723	1	GREKA OIL & GAS	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
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
187348	2	HYDRO EXTRUDER, LLC	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	Program
124808	2	INEOS POLYPROPYLENE LLC	NOx/SOx
129816	2	INLAND EMPIRE ENERGY CENTER, LLC	NOx
157363	2	INTERNATIONAL PAPER CO	NOx
16338	1	KAISER ALUMINUM FABRICATED PRODUCTS, LLC	NOx
187823	2	KIRKHILL INC	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
192519	1	LEGACY BY-PRODUCTS LLC	NOx
141295	2	LEKOS DYE AND FINISHING, INC	NOx
144455	2	LIFOAM INDUSTRIES, LLC	NOx
83102	2	LIGHT METALS INC	NOx
115314	2	LONG BEACH GENERATION, LLC	NOx
17623	2	LOS ANGELES ATHLETIC CLUB	NOx
58622	2	LOS ANGELES COLD STORAGE CO	NOx
800080	2	LUNDAY-THAGARD CO DBA WORLD OIL REFINING	NOx/SOx
14049	2	MARUCHAN INC	NOx
3029	2	MATCHMASTER DYEING & FINISHING INC	NOx
182970	1	MATRIX OIL CORP	NOx
2825	1	MCP FOODS INC	NOx
176952	2	MERCEDES-BENZ WEST COAST CAMPUS	NOx
94872	2	METAL CONTAINER CORP	NOx
800207	1	METRO ST HOSP (EIS USE)	NOx
155877	1	MILLERCOORS USA 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
172005	2	NEW- INDY ONTARIO, LLC	NOx
12428	2	NEW NGC, INC.	NOx
131732	2	NEWPORT FAB, LLC	NOx
18294	1	NORTHROP GRUMMAN SYSTEMS CORP	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	Program
800408	1	NORTHROP GRUMMAN SYSTEMS	NOx
800409	2	NORTHROP GRUMMAN SYSTEMS CORPORATION	NOx
130211	2	NOVIPAX, INC	NOx
89248	2	OLD COUNTRY MILLWORK INC	NOx
47781	1	OLS ENERGY-CHINO	NOx
183564	2	ONNI TIMES SQUARE LP	NOx
183415	2	ONTARIO INTERNATIONAL AIRPORT AUTHORITY	NOx
35302	2	OWENS CORNING ROOFING AND ASPHALT, LLC	NOx/SOx
7427	1	OWENS-BROCKWAY GLASS CONTAINER INC	NOx/SOx
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
800168	1	PASADENA CITY, DWP	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
800420	2	PLAINS WEST COAST TERMINALS LLC	NOx
11435	2	PQ CORPORATION	NOx/SOx
7416	1	PRAXAIR INC	NOx
42630	1	PRAXAIR INC	NOx
136	2	PRESS FORGE CO	NOx
105903	1	PRIME WHEEL	NOx
179137	1	QG PRINTING II LLC	NOx
8547	1	QUEMETCO INC	NOx/SOx
19167	2	R J. NOBLE COMPANY	NOx
20604	2	RALPHS GROCERY CO	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
189040	1	RED COLLAR PET FOODS, INC	NOx
180410	2	REICHHOLD LLC 2	NOx

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	Program
800113	2	ROHR, INC.	NOx
4242	2	SAN DIEGO GAS & ELECTRIC	NOx
15504	2	SCHLOSSER FORGE COMPANY	NOx
14926	1	SEMPRA ENERGY (THE GAS CO)	NOx
152707	1	SENTINEL ENERGY CENTER LLC	NOx
184288	2	SENTINEL PEAK RESOURCES CALIFORNIA, LLC	NOx
184301	1	SENTINEL PEAK RESOURCES CALIFORNIA, LLC	NOx
188635	1	SFII FLYTE, LLC	NOx
800129	1	SFPP, L.P.	NOx
37603	1	SGL TECHNIC LLC	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
191415	2	SIERRA ALUMINUM, DIV OF SAMUEL, SON & CO	NOx
191420	2	SIERRA ALUMINUM, DIV OF SAMUEL, SON & CO	NOx
101977	1	SIGNAL HILL PETROLEUM INC	NOx
187885	2	SMITHFIELD PACKAGED MEATS CORP	NOx
119596	2	SNAK KING CORPORATION	NOx
185352	2	SNOW SUMMIT, LLC.	NOx
4477	1	SO CAL EDISON CO	NOx
5973	1	SOCAL GAS CO	NOx
8582	1	SO CAL GAS CO/PLAYA DEL REY STORAGE FAC	NOx
800127	1	SO CAL GAS CO	NOx
800128	1	SO CAL GAS CO	NOx
169754	1	SO CAL HOLDING, LLC	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
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

ANNUAL RECLAIM AUDIT

Facility ID	Cycle	Facility Name	Program
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
16660	2	THE BOEING COMPANY	NOx
115241	1	THE BOEING COMPANY	NOx
800067	1	THE BOEING COMPANY	NOx
14736	2	THE BOEING CO-SEAL BEACH COMPLEX	NOx
11119	1	THE GAS CO./ SEMPRA ENERGY	NOx
153199	1	THE KROGER CO/RALPHS GROCERY CO	NOx
191386	2	THE NEWARK GROUP, INC. DBA GREIF, INC	NOx
97081	1	THE TERMO COMPANY	NOx
129497	1	THUMS LONG BEACH CO	NOx
800330	1	THUMS LONG BEACH	NOx
68118	2	TIDELANDS OIL PRODUCTION COMPANY ETAL	NOx
800325	2	TIDELANDS OIL PRODUCTION CO	NOx
171960	2	TIN, INC. DBA INTERNATIONAL PAPER	NOx
137508	2	TONOGA INC, TACONIC DBA	NOx
181667	1	TORRANCE REFINING COMPANY LLC	NOx/SOx
182049	2	TORRANCE VALLEY PIPELINE CO LLC	NOx
182050	1	TORRANCE VALLEY PIPELINE CO LLC	NOx
182051	1	TORRANCE VALLEY PIPELINE CO LLC	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
183108	2	URBAN COMMONS LLC EVOLUTION HOSPITALITY	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
14502	2	VERNON PUBLIC UTILITIES	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
127299	2	WILDFLOWER ENERGY LP/INDIGO GEN., LLC	NOx

APPENDIX B
FACILITY INCLUSIONS

As discussed in Chapter 1, no facilities were added to the RECLAIM universe in Compliance Year 2019. As of January 5, 2018, inclusion of new facilities is not allowed pursuant to amendments to Rule 2001.

APPENDIX C

RECLAIM FACILITIES CEASING OPERATION OR EXCLUDED

South Coast AQMD 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 2019. The reasons for shutdowns and exclusions cited below are based on the information provided by the facilities and other information available to South Coast AQMD staff.

Facility ID	42676
Facility Name	CES PLACERITA INC
City and County	Newhall, Santa Clarita, Los Angeles County
SIC	1112
Pollutant(s)	NOx
1994 Allocation	151,510 lbs.
Reason for Shutdown	The facility cited financial reasons for shutdown. Their turbine was outdated and inefficient. The cost to bring it into compliance, and to become competitive in the energy market, was too high.

Facility ID	52517
Facility Name	REXAM BEVERAGE CAN COMPANY
City and County	Chatsworth, Los Angeles County
SIC	3411
Pollutant(s)	NOx
1994 Allocation	52,003 lbs.
Reason for Shutdown	The facility stated that their operations relocated to Arizona.

Facility ID	56940
Facility Name	CITY OF ANAHEIM/COMB TURBINE GEN STATION
City and County	Anaheim, Orange County
SIC	4911
Pollutant(s)	NOx
1994 Allocation	2,098 lbs.
Reason for Shutdown	The facility stated that their operation permanently ceased because repair of the inoperable turbine was impractical and cost prohibitive.

Facility ID	168088
Facility Name	POLYNT COMPOSITES USA INC
City and County	Lynwood, Los Angeles County
SIC	2821
Pollutant(s)	NOx
1994 Allocation	6,300 lbs.
Reason for Shutdown	The facility shutdown following a corporate merger in late 2017. All operations were transferred/consolidated to an existing RECLAIM facility within South Coast AQMD.

ANNUAL RECLAIM AUDIT

Facility ID 173290
Facility Name MEDICLEAN
City and County Commerce, Los Angeles County
SIC 7219
Pollutant(s) NOx
1994 Allocation 15,420 lbs.
Reason for Shutdown The facility sold to a new owner and the equipment was removed.

Facility ID 176708
Facility Name ALTAGAS POMONA ENERGY INC.
City and County Pomona, Los Angeles County
SIC 4911
Pollutant(s) NOx
1994 Allocation 590,920 lbs.
Reason for Shutdown The facility cited a lack of demand from their peaker unit in a changing energy market as their reason for shutdown. The facility had not run in over 2 years and was approved for retirement and dismantled..

Facility ID 185101
Facility Name LSC COMMUNICATIONS, LA MFG DIV
City and County Torrance, Los Angeles County
SIC 2752
Pollutant(s) NOx
1994 Allocation 23,018 lbs.
Reason for Shutdown The facility sold to a new owner. The equipment was removed, the building demolished, and the property was redeveloped.

APPENDIX D
FACILITIES THAT EXCEEDED THEIR ANNUAL ALLOCATION
FOR COMPLIANCE YEAR 2019

The following is a list of facilities that did not have enough RTCs to cover their NOx and/or SOx emissions in Compliance Year 2019 based on the results of audits conducted by South Coast AQMD staff.

Facility ID	Facility Name	Compliance Year	Pollutant
136	Press Forge Co.	2019	NOx
3721	Dart Container Corp of California	2019	NOx
7411	Davis Wire Corp.	2019	NOx
20203	Reconserve of California-Los Angeles Inc.	2019	NOx
59618	Pacific Continental Textiles, Inc.	2019	NOx
126536	CPP Pomona	2019	NOx
156741	Harbor Cogeneration Co, LLC	2019	NOx
183415	Ontario International Airport Authority	2019	NOx
183832	AST Textile Group, Inc.	2019	NOx
184958	Broncs Inc. DBA West Coast Textiles	2019	NOx
186899	Energy Holdings LLC	2019	NOx
800170	LA City, DWP Harbor Generating Station	2019	NOx
800181	California Portland Cement Co.	2019	SOx

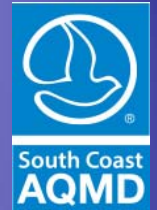
APPENDIX E

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.

Facilities with reported job gains or losses attributed to RECLAIM:

Facility ID:	95212
Facility Name:	FABRICA
City and County:	Santa Ana, Orange County
SIC:	2273
Pollutant(s):	NOx
Cycle:	1
Job Gain:	1
Job Loss:	0
Comments:	The facility explained that they hired one process engineer to help with RECLAIM reporting.



Annual RECLAIM Audit Report for 2019 Compliance Year

South Coast Air Quality Management District

Board Meeting

March 5, 2021



RECLAIM

REgional Clean Air Incentives Market (RECLAIM) program:

- A cap and trade program adopted in October 1993
- Objective is to meet emission reduction requirements and enhance emission monitoring while providing additional flexibility to lower compliance costs
- Includes largest NO_x and SO_x sources
- Specifies facility declining annual emissions caps
- Allows options to reduce emissions or buy RECLAIM Trading Credits (RTCs)

Compliance Year (CompYr) 2019 is the 26th year of the program (started in 1994)



RECLAIM Annual Audit

- RECLAIM (Rule 2015) requires an annual audit of the program
- Annual RECLAIM Audit Report for Compliance Year 2019
 - Cycle 1: Jan 1, 2019 – Dec 31, 2019
 - Cycle 2: Jul 1, 2019 – Jun 30, 2020
- RECLAIM had 246 facilities at the end of CompYr 2019 (253 at end of CompYr 2018)



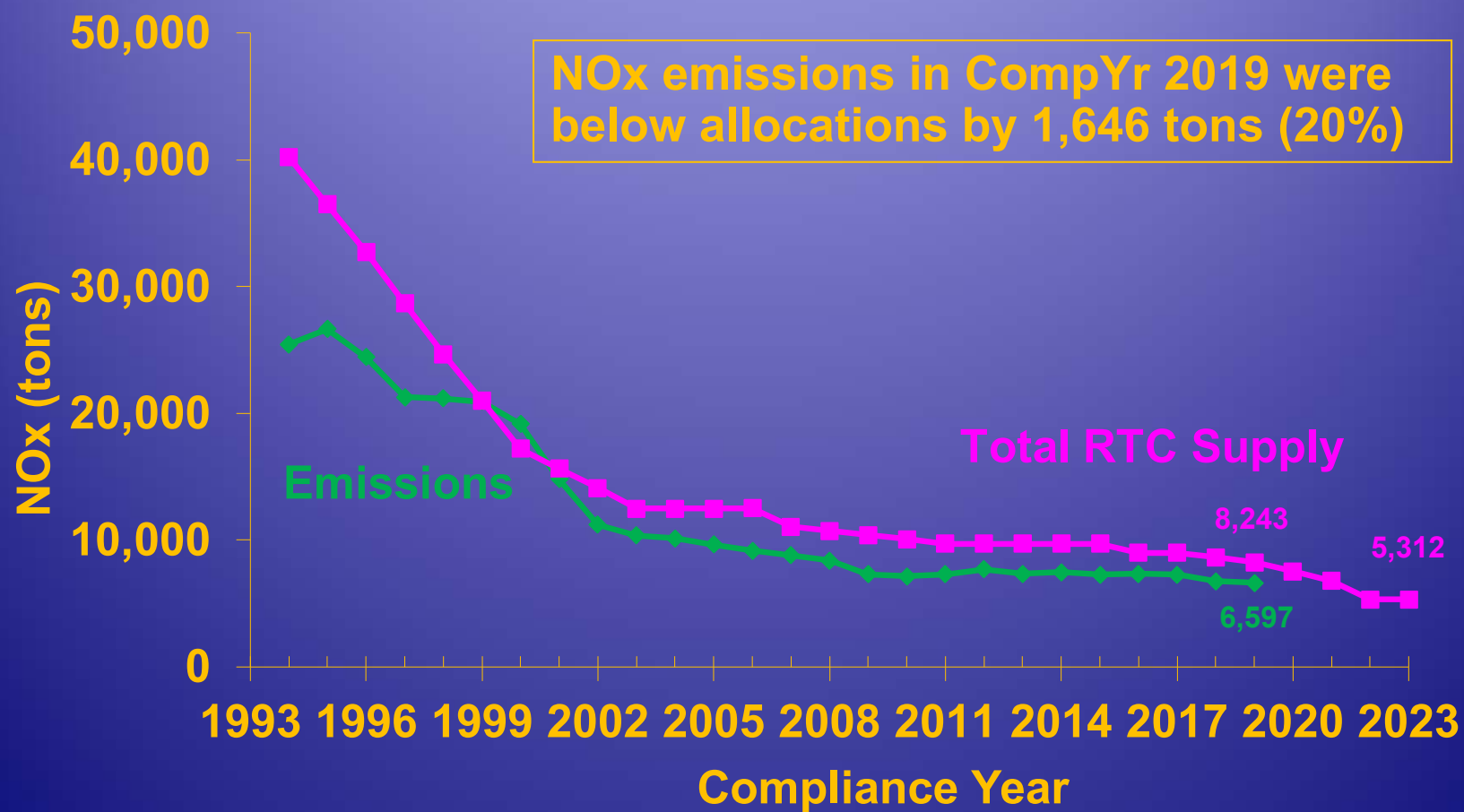
2019 Annual RECLAIM Audit Findings Compliance

- RECLAIM met overall NO_x and SO_x emissions goals:
 - NO_x emissions **20%** below allocations
 - SO_x emissions **23%** below allocations

- Allocation Shave
 - NO_x Shave of 22.5% adopted January 2005 and implemented in 2007 - 2011
 - SO_x Shave of 48.4% adopted November 2010 and implemented in 2013 – 2019
 - Additional NO_x Shave of 45.2% adopted in December 2015 and implemented in 2016 – 2022
 - Reduction of 4 tons/day (15.1%) NO_x and 5.7 tons/day (48.4%) SO_x allocations in Compliance Year 2019

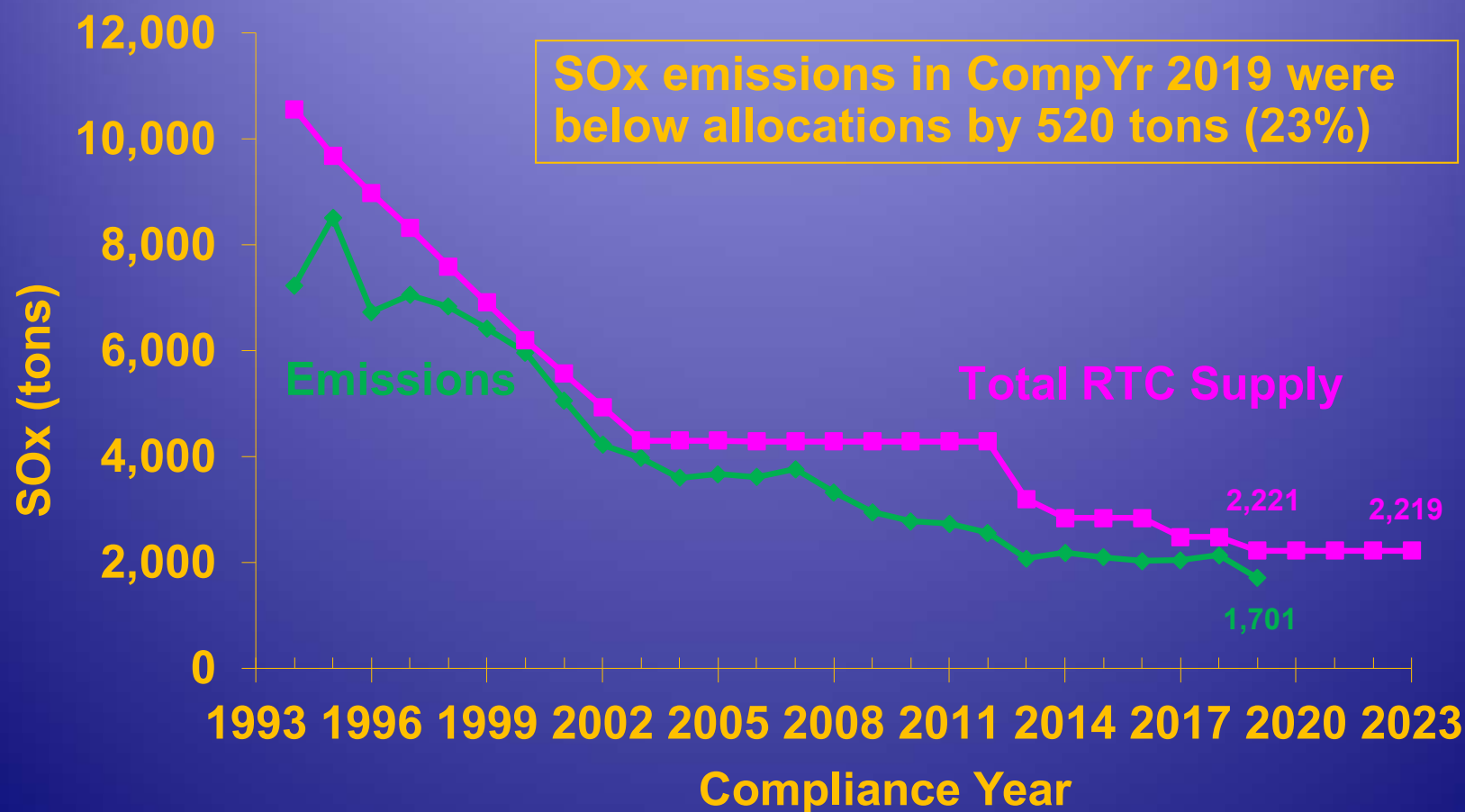
RECLAIM

NOx Emissions vs. Allocations Trends



RECLAIM

SOx Emissions vs. Allocations Trends





2019 Annual RECLAIM Audit Findings Compliance

- RECLAIM had a high rate of facility compliance:
 - NO_x Facilities – 95%
 - SO_x Facilities – 97%

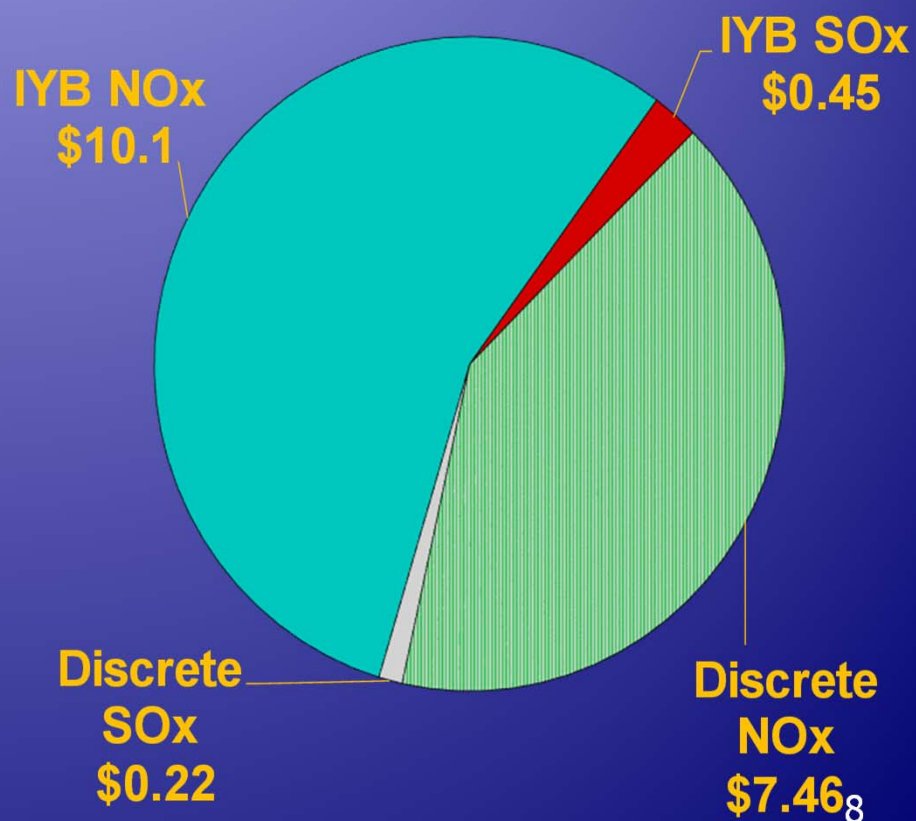
- Facilities exceeding their allocations
 - NO_x – 12 facilities exceeded by 339.9 tons (2.60% of total allocations)
 - SO_x – one facility exceeded by 1.22 tons (0.01% of total allocations)

2019 Annual RECLAIM Audit Findings

Credit Trading and Prices

- \$1.54 billion of RTCs traded since program inception
- RTCs are traded as either Discrete Year or Infinite-Year Block (IYB)
- \$18.19 million of RTCs traded in Calendar Year (CaYr) 2020 (\$ 34.24 million in CaYr 2019)

Value Traded in CaYr 2020
(Million \$)



2019 Annual RECLAIM Audit Findings

Average Discrete Year NOx RTC Prices



- Average prices in CalYr 2020 below program review thresholds:
 - \$15,000/ton [Rule 2015]
 - \$47,585/ton* [Health and Safety Code]

* - Adjusted by October 2020 CPI 9

2019 Annual RECLAIM Audit Findings

Average Discrete Year SOx RTC Prices



- Average prices in CaYr 2020 below program review thresholds:
 - \$15,000/ton [Rule 2015]
 - \$34,261*/ton [Health and Safety Code]

* - Adjusted by October 2020 CPI 10

2019 Annual RECLAIM Audit Findings

Average IYB RTC Prices



- 2020 IYB RTC average prices remain below program review thresholds [Health and Safety Code]

■ NOx = \$713,777/ton*

■ SOx = \$513,919/ton*

* - Adjusted by October 2020 CPI 11

2019 Annual RECLAIM Audit Findings Investor Participation during CalYr 2020

- Investors are RTC holders who are not RECLAIM facility operators
- Investor participation remains active in CalYr 2020 trades.

RTC Type	Value		Volume	
	NOx	SOx	NOx	SOx
Discrete	72%	62%	66%	71%
IYB	61%	100%	63%	100%

- Investors' holdings at the end of CalYr 2020
 - 1.3% of IYB NOx RTCs (remained the same as 1.3% in CalYr 2019)
 - 4.2% of IYB SOx RTCs (down from 4.7 % in CalYr 2019)



2019 Annual RECLAIM Audit Findings RECLAIM Transition

- On January 5, 2018, the Board directed staff to initiate the transition of the RECLAIM program to a command-and-control regulatory structure:
 - Monthly working group meetings
 - Rule-specific working groups
 - As of January 2021, the Board amended and/or adopted 11 “Landing Rules” to implement BARCT



2019 Annual RECLAIM Audit Findings

- RECLAIM facilities overall employment loss of 4.0% (net loss of 4,167 jobs)
- Met federal NSR offset ratios
- No significant shift in seasonal emissions
- No evidence of increased health risk due to RECLAIM

2019 Annual RECLAIM Audit Findings Summary/Recommendations

Summary:

- Programmatic compliance achieved (NO_x and SO_x emissions were 20% and 23% below allocations, respectively)
- Individual facility compliance rate remained high (95% & 97% for NO_x and SO_x, respectively, based on 100% of RECLAIM facilities audited in Compliance Year 2019)
- RTC prices stayed below program review thresholds
- RECLAIM met all other requirements

Recommendation:

- Approve the Annual RECLAIM Audit Report for 2019 Compliance Year