

CHAPTER 2

RTC ALLOCATIONS AND TRADING

Summary

The primary source of RTCs available for trading is the aggregate of all allocations issued to RECLAIM facilities. These RECLAIM allocations incorporated emission reduction requirements in AQMD rules and the control measures and projections specified in the Air Quality Management Plan (AQMP). RTCs can also be converted from credits generated under other AQMD rules – Mobile Source Emission Reduction Credits (MSERCs) and Area Source Credits (ASCs). During Calendar Year 2003, there were a net increase of 35.5 tons of NOx RTCs and a decrease of 0.2 ton of SOx RTC for Compliance Year 2002.

The Calendar Year 2003 trading market continues to be active with 798 registered RTC transactions. This is higher than the annual activities for Calendar Years 1994 through 1999, but lower than the record setting 1,255 transactions in Calendar Year 2001. RTCs valued at a total of \$32.0 million were traded during Calendar Year 2003. Since the inception of the RECLAIM program in 1994, \$682 million were traded in the RTC trading market.

NOx RTC prices continued a declining trend in Calendar Year 2003 since the rule amendment in May 2001. NOx RTCs were traded under \$1.00 per pound toward the end of the reconciliation period for each of the two cycles in the 2002 Compliance Year. During Calendar Year 2003, annual average prices for Compliance Year 2002 and 2003 SOx RTCs also declined. There were only a few trades involving SOx RTCs for compliance years 2004 and beyond. Average prices for these RTCs were higher when compared to those traded in 2002. All Annual average prices for NOx or SOx RTCs were under the \$15,000 per ton level set under Rule 2015.

Background

When a facility enters the RECLAIM program, it is issued allocations for each compliance year based on the facility's operational history and the methodology specified in Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx). The allocations decline annually through the 2003 compliance year, and then remain constant for all subsequent years.

Allocations are issued as RTCs, denominated in pounds of NOx or SOx within a specific year. Each RTC may only be used for emissions occurring within the term of the RTC. The RECLAIM program has two staggered compliance cycles – Cycle 1 for compliance period of January 1 through December 31 of each year and Cycle 2 for 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 issued RTCs with corresponding periods of validity.

The issuance of allocations for future years provides RECLAIM facilities guidance to their future emission reduction requirements. Facilities can plan their compliance strategies by reducing actual emissions or securing required

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

Through trading, RECLAIM facilities may acquire RTCs issued for either cycle and apply them to emissions, provided that the RTCs are used for emissions occurring within their period of validity and the trades are made during the appropriate time period. In addition, RECLAIM facilities have a 60-day reconciliation period after the end of each compliance year to account for their total annual emissions and to secure adequate RTCs.

Unlike other chapters in this report where data pertain to Compliance Year 2002, RTC prices discussed in this chapter are for Calendar Year 2003. RTC prices during Calendar Year 2002 were presented in the previous Annual RECLAIM Audit Report submitted to the Governing Board in March 2003.

RTC Allocations and Supply

The methodology for determining RTC Allocations is stated in Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx). According to this rule, allocations for facilities may change when there is a change in the universe of RECLAIM facilities, when the reported historical activities are updated, and to compensate for additional emissions at facilities producing re-formulated gasoline. In addition, RTCs can be generated by conversions of emissions reductions from mobile and area sources. Changes in RTC supply due to these reasons during Compliance Year 2003 are discussed below. The aggregate of all RECLAIM facilities' allocations, conversions of emission reduction credits (ERCs) owned by RECLAIM and non-RECLAIM facilities, and conversion of ERCs from mobile sources and area sources, make up the total RTC supply in the program.

Allocations Adjustments Due to Inclusion and Exclusion of Facilities

Allocations for a facility are based on its historical operation and the emission reduction requirements under the command-and-control rules and the AQMP control measures subsumed by RECLAIM. As stated in Chapter 1 – RECLAIM Universe, four new facilities opted to join, two facilities were created by partial change of operator, one existing facility had reported shut down but was found still operating, four facilities shut down and one facility was excluded. Among the four new facilities that opted in, two facilities were not issued any allocations since they had no prior operating history. The other two facilities were issued allocations based on their past operations totaling 100.1 tons of NOx RTCs for Compliance Year 2002. One facility was excluded from the universe that resulted in a decrease of 0.9 tons of NOx RTC supply in Compliance Year 2002. Allocation for a facility was adjusted based on its reported activity. This resulted in an increase of allocations of 0.2 tons of RTC per year. There was no change in the supply of RTCs caused by facilities that were shut down, or created by partial change of operator in that the original facilities retain the ownership of the RTCs.

Allocations Adjustments Due to Clean Fuel Production

Rule 2002(c)(12) – Clean Fuel Adjustment to Starting Allocation, provides refineries with RTCs to compensate for actual emissions directly related to the

production of California Air Resources Board Phase II reformulated gasoline. The amount of RTCs eligible is based on actual emissions for the subject compliance year and historical production data. In Compliance Year 1999, the refineries were issued a baseline of 86.3 tons of NOx and 52 tons of SOx for Compliance Year 1999 and 101 tons of NOx and 52.9 tons of SOx for each subsequent compliance year. These facilities are required to submit records to substantiate actual emission increases due solely to production of reformulated gasoline annually. If actual emission increases or decreases for a subject year are different than the projected amount, the RTCs issued will be adjusted accordingly (i.e., excess RTCs issued will be deducted if emissions were less than the amount of RTCs issued; same the reverse.) For Compliance Year 2002, there was a net decrease of 7.5 tons of NOx and 0.3 tons of SOx RTCs supply due to this section of the rule.

Tables 2-1 and 2-2 summarize the changes in RTC supply that occurred in Compliance Year 2002 due to changes allowed under Rule 2002.

Table 2-1

Changes in supply of NOx RTCs during Compliance Year 2002 (tons/year)

Source	2002	2003 and on
Universe changes	99.2	88.0
Reformulated Gasoline	-7.5	0
Activity corrections ¹	0.2	0.2
Net change	91.9	88.2

Table 2-2

Changes in total supply of SOx RTCs during Compliance Year 2002 (tons/year)

Source	2002	2003 and on
Universe changes	0	0
Activity corrections ¹	0	0
Reformulated Gasoline	-0.3	0
Net changes	-0.3	0

Conversions of Mobile Source Emission Reductions

Conversions of mobile source emission reduction credits (MSERCs) to RTCs are allowed under Rule 2008 – Mobile Source Credits, and several programs under Regulation XVI – Mobile Source Offset Programs. In Compliance Year 2002, NOx RTCs were issued as a result of conversion of MSERCs generated under Rule 1631 - Pilot Credit Generation Program for Marine Vessels and Rule 1620 – Credits for Clean Off-Road Mobile Equipment. Rule 1631 requires the applicant to project credit generation at the start of the project through June 2005. At the

¹ Allocations issued to a facility depend on historical production data. For various reasons, facilities file amendments to their historical production data that, when approved, cause changes to the facilities' Allocations.

end of each compliance year, the applicant is required to submit actual operation data to substantiate the emission reductions achieved. If actual emission reductions are greater than the projected amount, the applicant is issued additional credits. However, if the actual reductions are less than the projected amount, the applicant is required to surrender 110% of the shortfall. ~~As reported in last year annual report, one project consisting of two vessels was started by an applicant. Both vessels were in operation during Compliance Year 2002.~~

~~At the end of the 2002 calendar year, one of the two vessels was shown to have generated more emission reductions than were projected by the applicant. As a result, 24.7 tons of additional NOx RTCs expiring June 2003 were issued. For the second vessel, the applicant submitted an application in December 2002 to reduce the projected activity level. The application was approved pursuant to Rule 1631(e)(6) in June 2003 and resulted in a decrease of 68.2 tons of emission reductions previously issued for 2002 Compliance Year (credits were due to expire on June 30, 2003). Table 2-3 lists the RTC issuance/reduction activities since January 2003. Of the total 41.9 tons of RTCs issued for Compliance Year 2002, 25.5 tons of RTCs expiring June, 2003 were issued in a printed certificate. This certificate was surrendered to the District and the credits were applied to programs under Rule 2202—On-Road Motor Vehicle Mitigation Options.~~

Table 2-3

~~RTCs Issuance and Reduction Since January 2003 under Rule 1631 (tons)~~

Compliance Year	2001	2002	2003	2004	2005
Activity Adjustments {Rule 1631(i)(3)}		24.7			
Application Amendments {Rule 1631(e)(6)}		-68.2			
Net Changes between 1/03 and 12/03	0	-43.5	0	0	0
RTCs Issued (Between 7/01 and 12/02)	77.3	85.4	108.1	108.1	16.4
Net RTCs Issued Since July 2001	77.3	41.9	108.1	108.1	16.4

While Rule 1631 was being developed and adopted, one project was proposed in May 2001 pursuant to Rule 2202 – On-Road Motor Vehicle Mitigation Options. One vessel was re-powered and began generating emission reductions in July 2001. An application for generating emission reductions by this vessel pursuant to Rule 1631 was later submitted in August 2001. The re-powering of a second vessel was subsequently completed in February 2002. The applicant requested that emission reductions generated by the vessels are to be converted to RTCs. Accordingly, RTCs were issued in 2002 pursuant to Rule 1631 for this project. The amounts of RTCs issued were reported in the last year's RECLAIM annual report and listed under Table 2-3 below. Both vessels continued to operate and generate emission reductions during 2003. Adjustments were made in Calendar Year 2003 to the RTCs issued due to actual activity and changes requested by

the applicant. However, further review occurred regarding the Memoranda of Understanding (MOU) between the applicant and the AQMD used to generate MSERCs under Rule 2202. Based on the completion date of the re-powering, the District notified the applicant in November of 2003 that the vessel that was first re-powered should have remained subject to Rule 2202, and the second vessel was allowed to remain under Rule 1631. In March 2004, the applicant indicated that the MOU should be the applicable program for credit generation for the second vessel instead of the Rule 1631 Program. As a result of the two actions, all RTCs previously issued under Rule 1631 are void. Table 2-3 summarizes the RTC issuance and subsequent reduction activities.

Table 2-3**RTCs Issuance and Reduction under Rule 1631 (tons)**

<u>Compliance Year</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>
<u>RTCs Issued in 2002</u>	<u>77.3</u>	<u>85.4</u>	<u>108.1</u>	<u>108.1</u>	<u>16.4</u>
<u>Activity Adjustments in 2003</u>		<u>-43.5</u>			
<u>Removal of vessels</u>	<u>-77.3</u>	<u>-41.9</u>	<u>-108.1</u>	<u>-108.1</u>	<u>-16.4</u>

Some of the Rule 1631 credits were converted to RTCs for Compliance Years 2001 through 2004 and were sold to RECLAIM facilities. Among the facilities that purchased these RTCs, four relied on these RTCs to reconcile emissions in Compliance Years 2001, 2002, and 2003. Since the RTCs are void and the time allowed to reconcile emissions in these compliance years has passed, these four facilities are in violation of Rule 2004 (d)(1), which requires a facility to hold adequate RTCs to reconcile with its emissions during a compliance year. As a result, notices of violation are being issued to these facilities for violating Rule 2004 (d)(1). An amount of RTCs equal to the exceedance, per facility, has been subtracted from their allocations for the next compliance year pursuant to Regulation XX. In addition, the total amount of RTCs removed from the program represents less than 1 percent of all RTCs used per year. Even with this development, compliance rates under RECLAIM exceed that of comparable command and control rules. New administrative procedures have been put in place to ensure there are no further difficulties between the Rule 2202 and Rule 1631 designations for credit generation.

In addition to Rule 1631, there were two requests to convert NO_x MSERCs that were previously issued under Rule 1620. In Calendar Year 2003, 4.3 tons of Compliance Year 2002 NO_x RTCs and 0.2 ton of Compliance Year 2003 NO_x RTCs were converted.

The changes to RTCs described in the above sections resulted in a net change in RTC supply for Compliance Year 2002 of 52.7 tons of NO_x RTCs which is relatively small when compared to the total supply of 14,076 tons of NO_x RTCs for the same compliance year. On the other hand, the change in SO_x RTCs for Compliance Year 2002 was only a decrease of 0.3 tons. Figures 2-1 and 2-2 illustrate respectively the total NO_x and SO_x RTC supplies at the end of 2003.

Figure 2-1
NOx RTC Supply (tons/year)

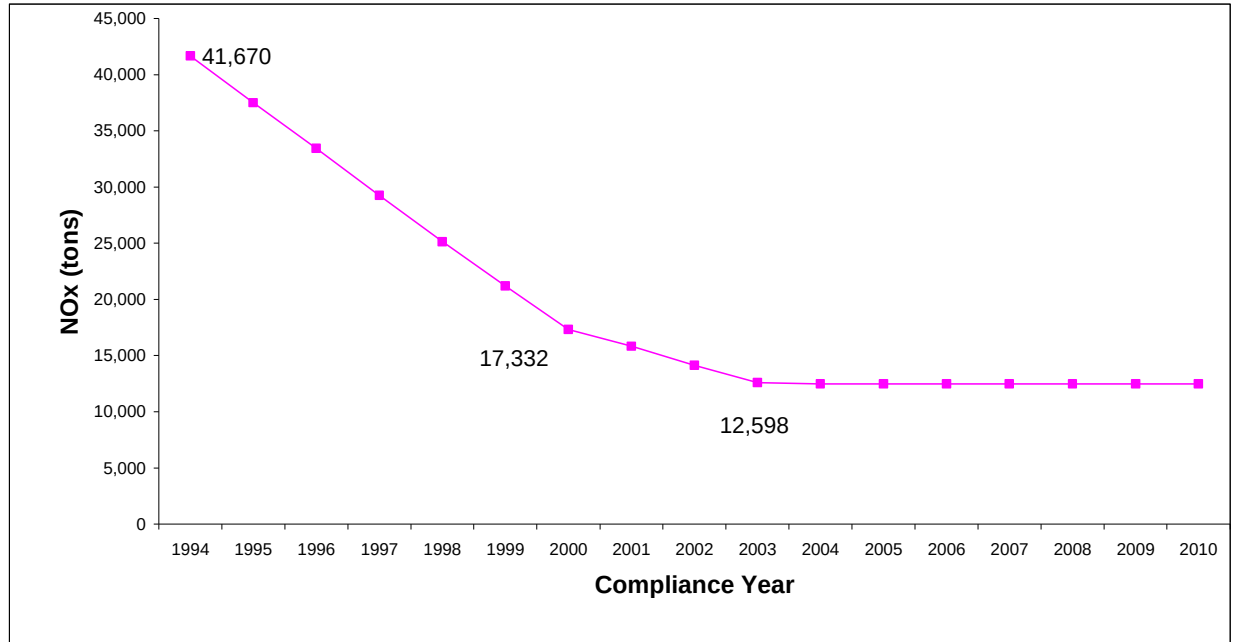
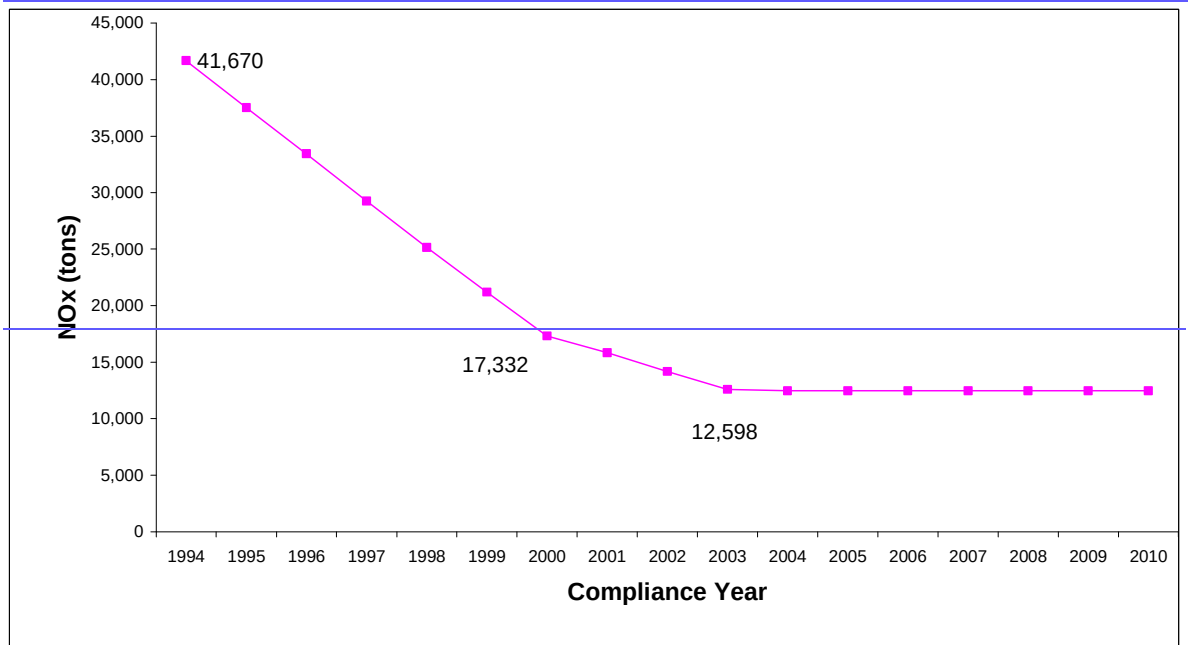
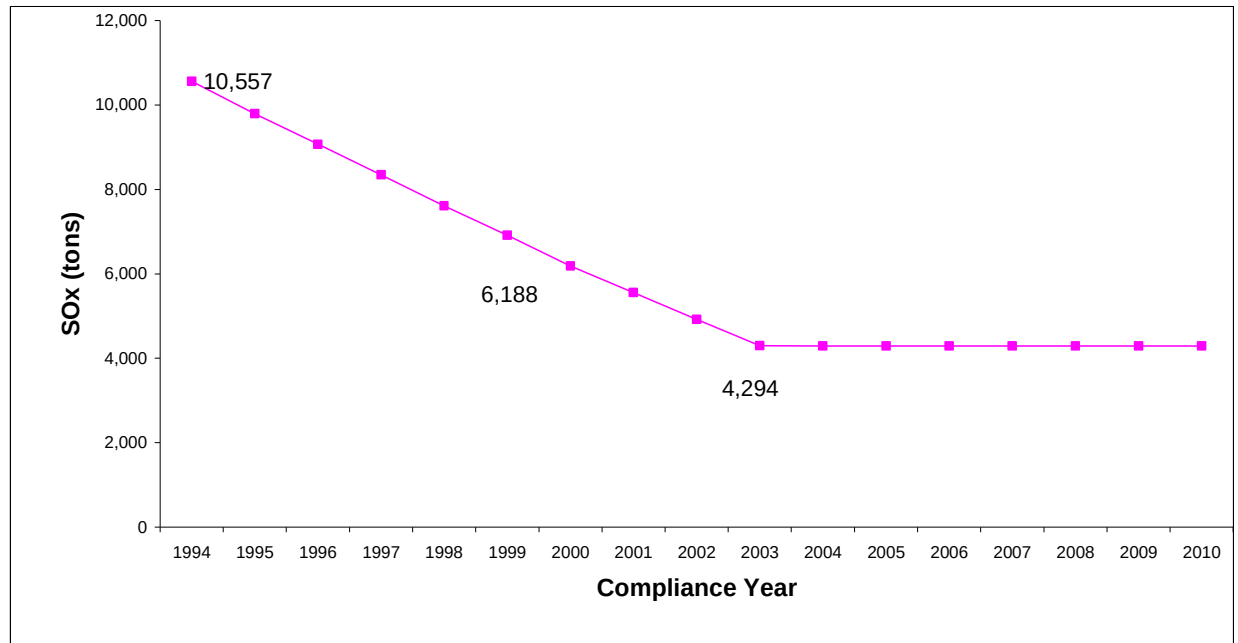
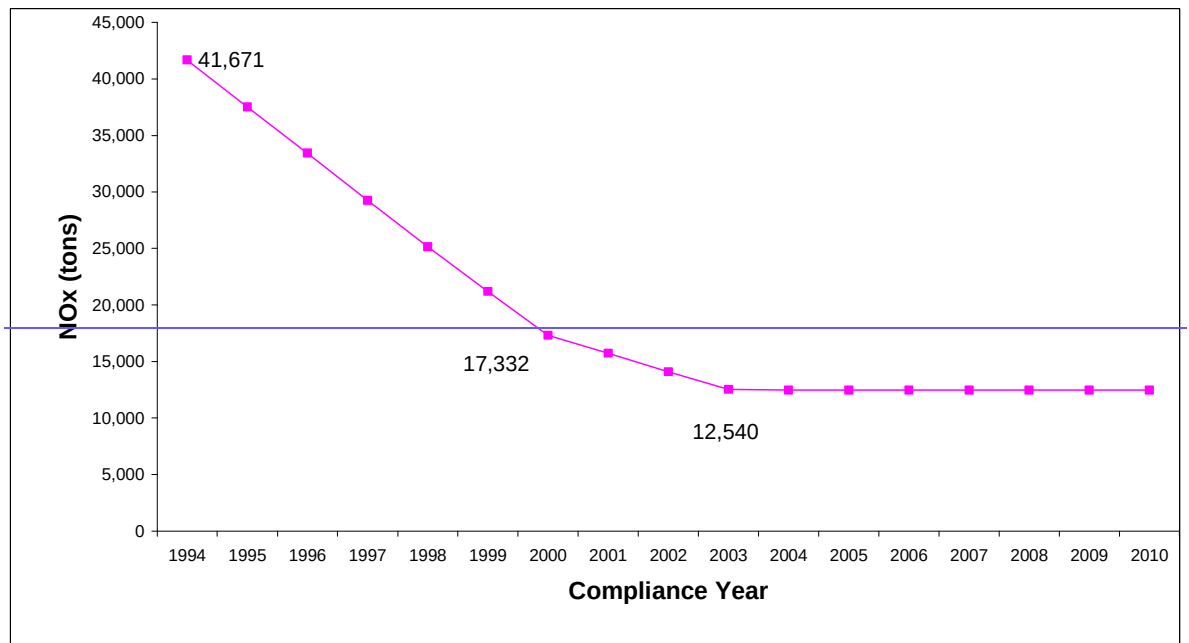


Figure 2-2
SOx RTC Supply (tons/year)

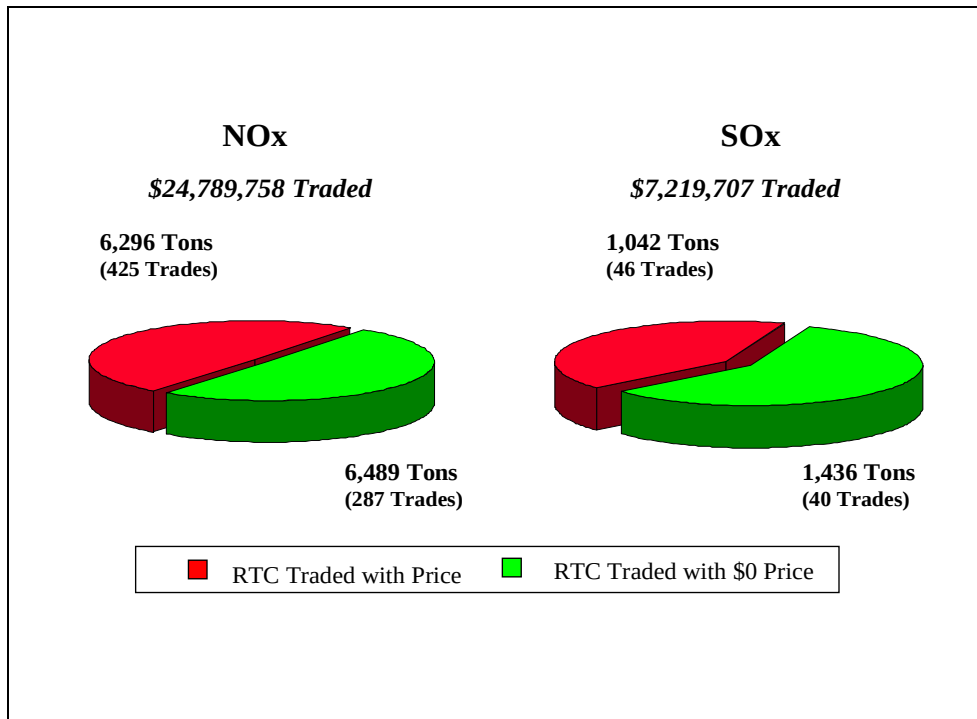


RTC Trading Activity

The RTC trading market continued to be active in Calendar Year 2003. There were 798 trades totaling over 15,262 tons of NOx and SOx RTCs during Calendar Year 2003. In terms of the number of registrations, the total of 798 trades is lower than Calendar Year 2002's number of registrations (1071 trades). The total amount of 15,262 tons of RTCs traded is also lower than the 31,823 tons of RTCs traded in 2002. These trades included both RTCs

traded with prices and transfers with \$0 price. Since the inception of the RECLAIM program in 1994 and excluding trades without price, 92,338 tons of NOx RTCs and 27,582 tons of SOx RTCs have been traded with a total price of more than \$682 million (\$609 million for NOx and \$73 million for SOx RTCs). Figure 2-3 summarizes trading activity in Calendar Year 2003 by pollutants.

Figure 2-3
2002 Trading Activity



In Calendar Year 2003, 471 trades (425 for NOx and 46 for SOx) totaling 6,296 tons of NOx and 1,042 tons of SOx occurred with prices. These trades included current and future year RTCs. The total value of the RTCs traded with prices for Calendar Year 2003 was slightly over \$32 millions. Most of the trades with prices were conducted through brokers.

Trades with \$0 price generally occur when a seller transfers RTCs to a broker, when there is a transfer between brokers, between facilities under common ownership, or between facilities that have gone through change of ownership. These trades are indicators of available RTC supply, market dynamics, and credit management strategies.

In addition to traditional trades of RTCs for price, swaps of RTCs occurred between facilities. There were trades of current-year NOx RTCs for future-year NOx RTCs. Some facilities traded RTCs of different pollutants where one facility transferred NOx RTCs to a second facility. In return, the second facility transferred SOx RTCs to the first facility. There were also trades that involved a combination of RTCs and cash payment. Facilities swapping RTCs were required to report the equivalent price of RTCs under individual trades. Figures 2-4 and 2-5 present historical trades in tons of NOx and SOx RTCs traded,

respectively. These figures show trades with and without prices in Calendar Year 2003 and compare them with trading activity in prior years.

Figure 2-4
Total Tons of NO_x Traded

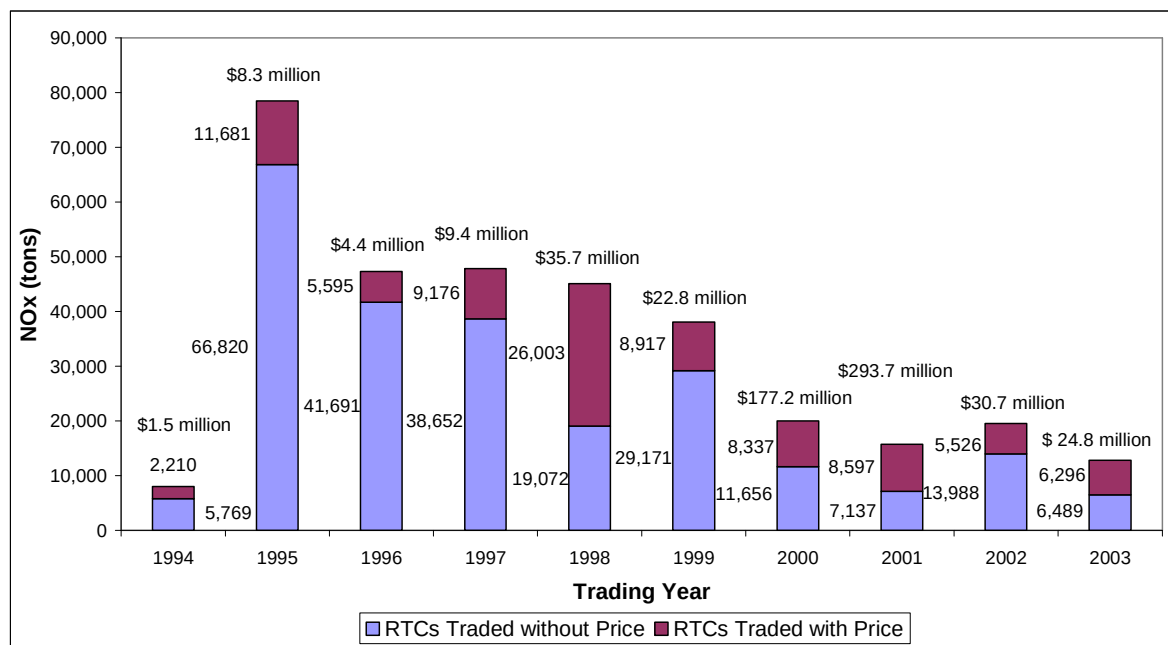
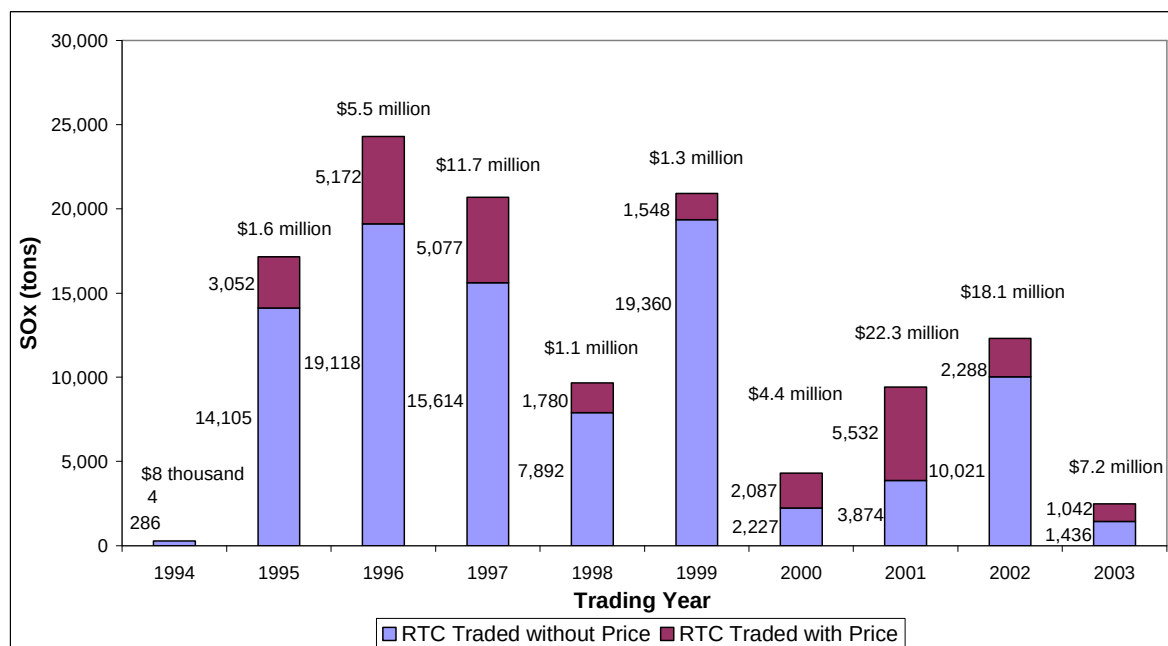


Figure 2-5
Total Tons of SO_x Traded



Comparison of Calendar Year 2003 Trading Activity to Previous Years

The total number of trades registered with AQMD in Calendar Year 2003 was more than the annual activities for Calendar Years 1994 through 1999, but less than the record setting Calendar Year 2001. In Calendar Year 2003, total quantity of NOx RTC traded with price increased compared to Calendar Year 2002. However, only \$24.8 millions in value were traded in 2003. When compared to the total value \$30.7 millions during Calendar Year 2002, this reflects the general decline in NOx RTC prices.

The total quantity of SOx RTCs traded in Calendar Year 2003 decreased compared to Calendar Year 2002. In Calendar Year 2003, just over \$7.2 million of SOx RTCs were traded, whereas, over \$18 million of SOx RTCs were traded in Calendar Year 2002. There were only nine trades involving SOx RTCs for Compliance Years 2004 and after. Of these, only two were for compliance years 2006 and future year.

RTC Prices

Prices for NOx RTCs increased dramatically in Calendar Year 2000 in response to a high demand for NOx RTCs from the power producing sector to offset the increased emissions due to the California energy crisis. The high NOx RTC prices continued during the first half of Calendar Year 2001 and started to decline in the second half of the calendar year after the rule amendments in May 2001. In Calendar Year 2003 NOx RTC prices continued its declining trend. Prices for near-term NOx RTCs returned to the pre-2000 price level (see Figure 2-6). NOx RTCs that expired in June 2003 were trading below \$1 per pound during the reconciliation period that followed the end of the 2002 Compliance Year.

Annual average prices for Compliance Years 2002 and 2003 SOx RTC decreased from last year prices as illustrated in Figure 2-7. Prices for Compliance Years 2004 and beyond averaged at about \$10,000 per ton. These were the highest annual average prices in history of SOx prices. However, these average prices were derived from relatively small number of trades. There were only eight trades involving 2004 SOx RTCs, four trades involving 2005 SOx RTCs and two trades involving 2006 and later SOx RTCs. The low trade activities in these SOx RTCs may have affected the average prices.

As in previous years, post-Compliance Year 2010 RTCs are traded as if they were collectively tied to the Compliance Year 2010 RTCs; all trades involving post-Compliance Year 2010 RTCs have been executed in blocks extending infinitely forward in time with a single aggregate price. Figures 2-6 and 2-7 show annual average prices for NOx and SOx RTCs respectively traded each year since 1994. As shown in these figures, all annual average prices for NOx and SOx RTCs during 2003 were below the \$15,000 per ton level set under Rule 2015.

Figure 2-6
Yearly Average Prices for NOx RTCs

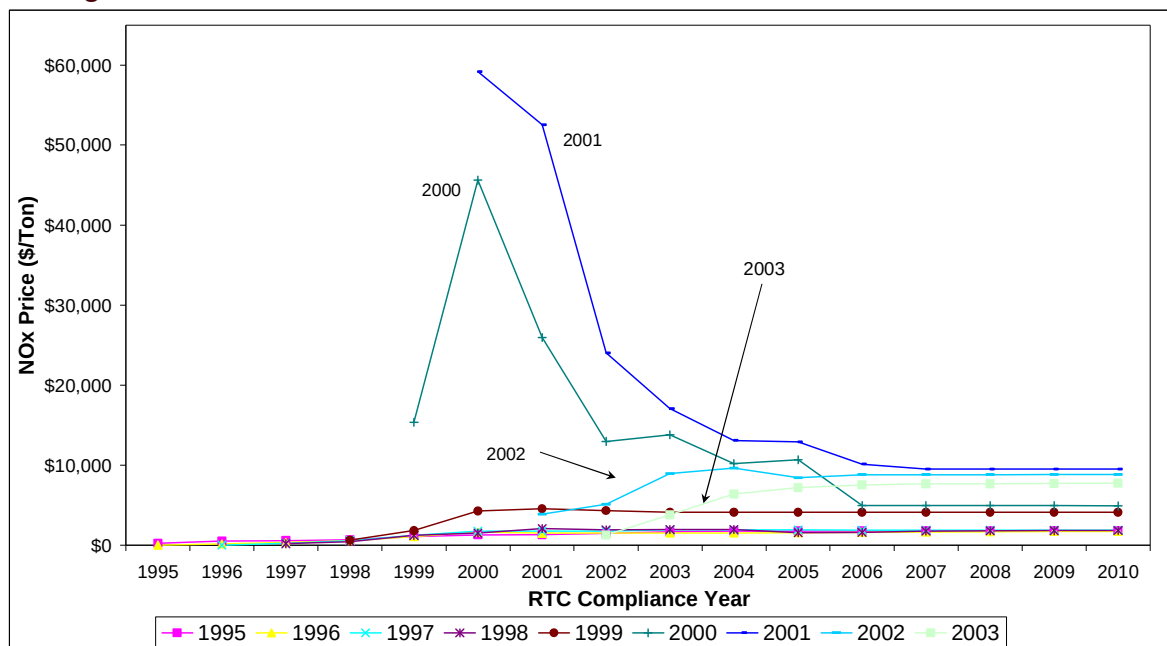
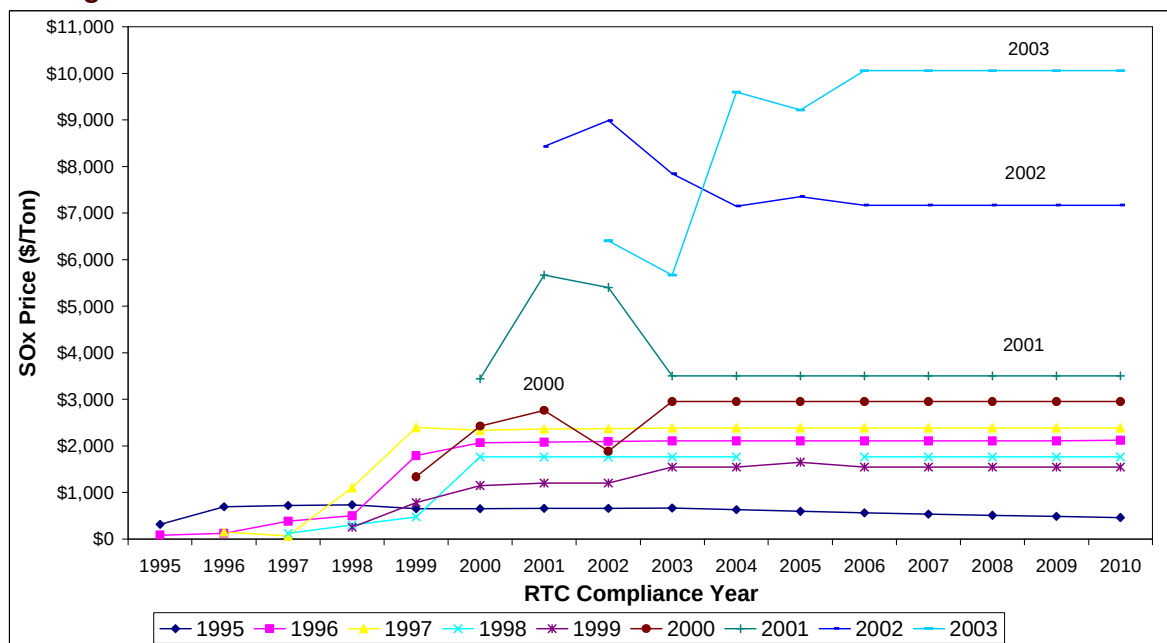


Figure 2-7
Yearly Average Prices for SOx RTCs



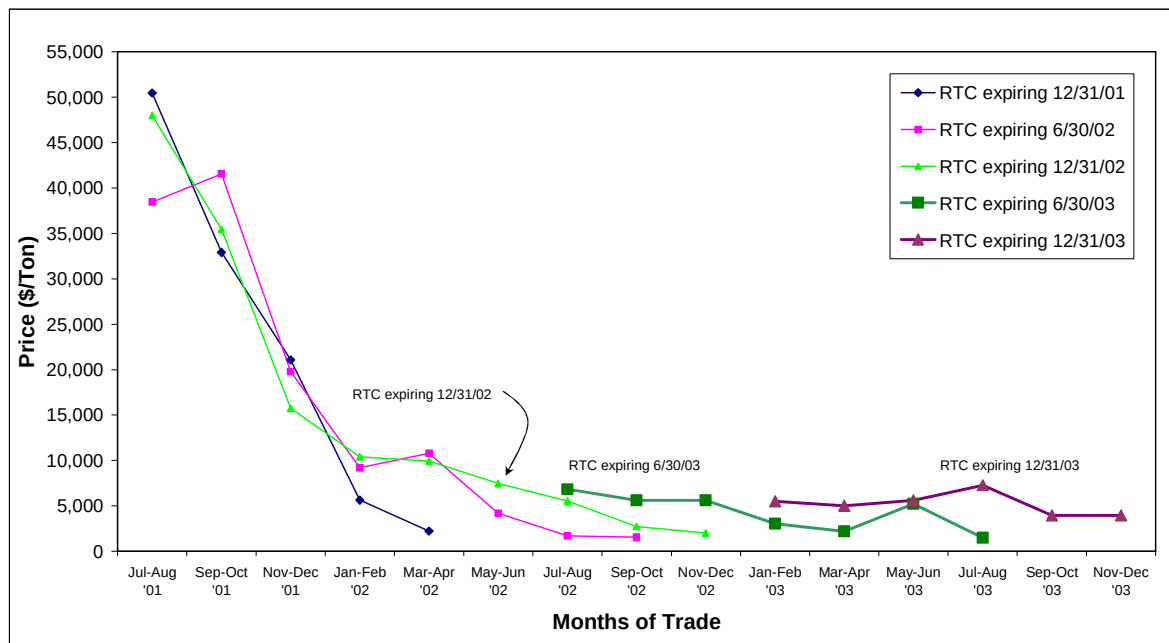
The effects of the May 2001 Rule Amendment on RTC Prices

In response to the price spike in 2000, the AQMD started a review of the program in the second half of 2000. The cause of the price spike was

summarized in the White Paper on Stabilization of NOx Prices which was presented to the Governing Board for approval on January 11, 2001. RECLAIM rules were amended in May 2001 to adopt recommendations presented in the White Paper. The actions adopted by the Governing Board included removing power producing facilities from the RECLAIM market, requiring power producing facilities to install Best Available Retrofit Control Technologies (BARCT) on all electric generating units, setting up emission reduction reserves for power producing facilities that choose to participate, requiring facilities with more than 50 tons of NOx emissions to submit compliance plans to specify steps to achieve compliance with their allocations through Compliance Year 2005, and facilities with emissions between 25 and 50 tons NOx emissions to submit forecast reports through Compliance Year 2005. In addition, the May 2001 amendments also added new requirements to trade reporting so that market trading information can be provided to RECLAIM participants in a timely manner. RTC trades must be reported to the AQMD within five days of trade agreement. Additional information regarding RTC ownership was also required. In addition, future trades and contingent trades were also required to be reported to the AQMD within five days of reaching an agreement.

These concerted efforts were aimed to reduce demand and increase supply of NOx RTCs and also to make the trading market more efficient. After the rule adoption in May 2001, NOx RTC prices have been on a steady decline. Figure 2-8 illustrates this downward trend on a monthly basis starting from June 2001 for NOx RTCs that were near expiration. In Calendar Year 2003, the price trend for NOx RTCs returned to the pattern seen prior to the energy crisis in 2000, in that prices for RTCs started out high at the beginning of the compliance year and gradually declined over the course of the year. NOx RTCs expiring in 2003 were traded at prices less than \$1 per pound in the 60 day-period following their expiration date during which facilities are allowed to trade to reconcile their emissions.

Figure 2-8
Changes in Monthly Average Prices for NOx RTCs since July 2001



The added trade reporting requirements resulted in providing market participants with more timely trade information. When received, information regarding trades is entered into the AQMD databases and posted daily on the AQMD Internet web site at http://www.aqmd.gov/reclaim/rtc_main.html. In addition to trade data, a list of authorized RTC trade representatives registered with the AQMD is provided on this web page. This list was requested by RTC trade brokers to help in identifying the proper signatories for each RECLAIM participant. This new information source is being frequently accessed by RECLAIM participants and trade brokers.