

MEMO

Date **December 3, 2015**
 To **Paul Mitchell, ESA**
 From **Michael Keinath**
Catherine Mukai
 Subject **Ozone Precursor Offsets in the BAAQMD**

1. **Historical Ozone Precursor Offsets in the BAAQMD**

When permitting a new stationary source in the Bay Area Air Quality Management District (BAAQMD), if emissions of the ozone precursors ROG and NO_x exceed 35 tons per year a facility needs to provide offsets, either through purchase or contemporaneous emissions reduction credits (ERCs). To facilitate this process, the BAAQMD has set up a system whereby ERCs can be either banked by a facility for future use or sold to another facility on an open exchange. The emissions reductions from offsets must be real, permanent, quantifiable, and enforceable (BAAQMD Rule 2-2-201).

The BAAQMD reports transactions of ERCs annually to the California Air Resources Board (CARB), which then publishes them along with transactions from all air districts in the state.¹ As shown in Figure 1 below, over a period from 1999 through 2014 in the BAAQMD, an average of 205 tons of reactive organic gases (ROG)² ERCs were purchased per year and an average of 342 tons of nitrogen oxide (NO_x) credits were purchased.³ During that same period, the weighted average cost of a ROG ERC was approximately \$10,500 per ton and a NO_x ERC was \$11,500 per ton (not adjusted for inflation).

Ramboll Environ
 201 California Street
 Suite 1200
 San Francisco, CA 94111
 USA

T +1 415 796 1950
 F +1 415 398 5812
www.ramboll-environ.com

¹ <http://www.arb.ca.gov/nsr/erco/erco.htm>. As of 30 November 2015, this website has annual reports for 1999 – 2014. While 1993 – 1998 are reflected in an appendix to the 1999 report, those data are not summarized here.

² In the CARB report, ROG is referred to as HC or hydrocarbon.

³ There were five years (2002, 2004, 2005, 2011, 2012) when no NO_x transactions were recorded. It is unknown why no transactions occurred during these years though it was likely a result of lack of demand. The relatively stable cost of NO_x ERCs from 2006 through 2014 suggests that there was not a lack of supply.

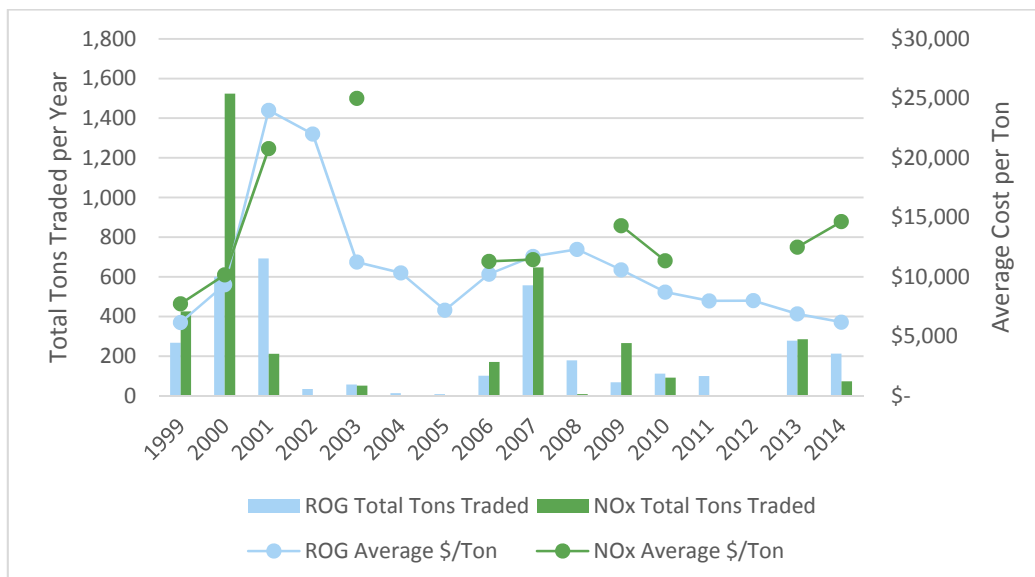


Figure 1: Emissions Reduction Credit Sales History in the BAAQMD

2. Current Availability of Ozone Precursor Offsets in the BAAQMD

To understand the current market and the availability of NOx and ROG ERCs in the BAAQMD, we contacted Christine Grandstaff of Evolution Markets, a specialist brokerage firm for U.S. environmental trading markets.⁴ She indicated that there are several sellers of both NOx ERCs and POC (precursor organic compounds, another term for ROG) ERCs in the BAAQMD with more than enough available ERCs to cover the potential 17 tons per year (tpy) identified in the Event Center and Mixed-Use Development at Mission Bay Blocks 29-32 Final Subsequent Environmental Impact Report. Typically a broker will solicit sellers once a buyer has requested offsets; rather than keeping a database of all available offsets, brokers will pair buyers and sellers on an individual basis.

Ms. Grandstaff also indicated that the current price ranges for the ERCs are:

- NOx ERCs: \$12,000 - \$18,000/tpy
- ROG ERCs: \$6,000 - \$8,500/tpy

Based on the 12.5 tons per year of NOx and 4.5 tons per year of ROG in the SEIR (for a total of 17 tons), the maximum offset cost would be roughly \$263,000. This is well below the \$620,922 requested by the BAAQMD in their comment letter dated November 2, 2015.

⁴ E-mail from Christine Grandstaff, Evolution Markets, to Michael Keinath, Ramboll Environ, on 25 November 2015 (included as attachment).

From: [Christine Grandstaff](#)
To: [Michael Keinath](#)
Subject: RE: NOx and POC in the BAAQMD
Date: Tuesday, November 24, 2015 10:39:33

Hi Michael,

It was good to chat with you yesterday. As we discussed, there are several sellers of both NOx ERCs and POC ERCs in the Bay Area Air Quality Management District. There is more than enough available ERCs to cover your clients potential 17 tpy need. The price ranges for the ERCs are as follows:

NOx ERCs: \$12,000-\$18,000/tpy
POC ERCs: \$6,000 - \$8,500/tpy

I hope this information is helpful. Please let me know if you have any questions.

Thanks,

Christine

Christine Grandstaff - Director, Western US Emissions
Evolution Markets Inc.
27801 Golden Ridge Lane :: San Juan Capistrano, CA 92675
P: +1 949.496.8000
F: +1 949.496.2673 :: M: +1 949.212.7123
cgrandstaff@evomarkets.com

-----Original Message-----

From: Michael Keinath [<mailto:mkeinath@ramboll.com>]
Sent: Monday, November 23, 2015 11:01 AM
To: Christine Grandstaff <cgrandstaff@evomarkets.com>
Subject: NOx and POC in the BAAQMD

Hi Christine -

Per our conversation, could you please advised on the availability of both NOx and POC ERCs in the BAAQMD and their expected costs? Please let me know if you have questions. Thanks so much!

Best regards,

Michael

Sent from my iPhone

This message contains information that may be confidential, privileged or otherwise protected by law from disclosure. It is intended for the exclusive use of the Addressee(s). Unless you are the addressee or authorized agent of the addressee, you may not review, copy, distribute or disclose to anyone the message or any information contained within. If you have received this message in error, please contact the sender by electronic reply to email@ramboll.com and immediately delete all copies of the message.