Regulation XIII – New Source Review

January 14, 2020
South Coast AQMD
Call-in #1-866-705-2554
Passcode:5691551
Agenda

- Previous Working Group Summary
- Offsetting
- Open Market
- Internal Bank
Summary of Working Group Meeting #1 (September 12, 2019)

**Federal Requirements**
- No backsliding under Section 110(l) of the Clean Air Act (CAA)
- 2002 NSR Reform – Federal NSR applicability test for major sources

**State Requirements**
- SB 288 – NSR changes may not be less stringent than existing provisions
- Under specific circumstances, SB 288 allows flexibility with NSR rules changes

**Guiding Principles**
- Ensure emission increases do not interfere with attainment of air quality standards
- Ensure new and modified sources meet BACT
- Allow for future economic growth
Initial recommendations for modifications at major sources (post-RECLAIM) to address comments from U.S. EPA:

- **NSR Applicability**
  - Use Actual Emissions-to-PTE to define an emission increase for NSR applicability

- **Offsetting**
  - Amount of offsets required would be based on a two tier approach:
    - PTE-to-PTE if certain conditions are met; or
    - Actual-to-PTE for all other situations

- Applies to all pollutants – not RECLAIM specific
- Affects modifications at federal major sources
  - Federal major sources (e.g. NOx potential to emit ≥ 10 tons per year)
- No impact on minor sources
  - Modifications for post-NSR minor sources will continue to use PTE-to-PTE
Summary of Working Group Meeting #1 (September 12, 2019) – *Continued*

- Stakeholder comments at the last Regulation XIII Working Group Meeting:

<table>
<thead>
<tr>
<th>Option</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Retain Rule 2005 post-RECLAIM</td>
<td>• Requesting more information on why Rule 2005 cannot be retained</td>
</tr>
<tr>
<td>Leave Regulation XIII as is</td>
<td>• Possibility of no future SIP call</td>
</tr>
<tr>
<td>NSR applicability test flexibility</td>
<td>• More stringent requirements on minor sources (requiring BACT) allowed applicability test flexibility (use of PTE-to-PTE)</td>
</tr>
<tr>
<td>Use of baseline actuals-to-projected actuals</td>
<td>• Would not necessarily result in backsliding, since test may not be less stringent in some cases</td>
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Offsetting
Offsets

- Two sources of offsets under Regulation XIII:
  - Open market
  - Internal Bank

- Recent comments by U.S. EPA regarding applicability and calculation of offsets for major source modifications will increase the demand for offsets

- Previous RECLAIM WGM discussions focused on NOx offsets in the open market and internal bank
  - Analysis found possible shortage in future years and limited availability of NOx ERCs in the open market based on historical demand from RECLAIM facilities

- Presentation today will focus on NOx, SOx, VOC, and PM10 current and projected offset availability in the open market and internal bank
Open Market
Open Market ERCs

- Past RECLAIM WGM (February 14, 2019) discussed if sufficient NOx ERCs would be available for facilities post-RECLAIM
- Analysis found possible shortage in future years and limited availability of NOx ERCs in the open market
  - Based on historical demand from RECLAIM facilities
- Supply of offsets for all other non-attainment criteria pollutants needs to be evaluated
Open Market – ERC Generation

- Limited opportunities for ERC generation
  - Challenging to generate ERCs through over-control with BACT discounting
  - Most ERCs are generated from shutdowns (BACT discounted)
- Undesirable to incentivize facilities to shutdown equipment to generate ERCs

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<td>Discounted to BACT at time of issuance</td>
</tr>
<tr>
<td>Issuance</td>
<td>Issued to individual owners for future use or sale; Value of ERC issued is in perpetuity (with the exception of short-term ERCs)</td>
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Distribution of ERCs in the Open Market

- Evaluated the distribution of ERCs in the open market based on March 2019 list of active ERC holders
- VOC ERCs widely distributed among several owners
- NOx, PM10, and SOx ERCs owned by only a few facilities
  - ERC availability is limited by the small universe of ERC holders
  - Most facilities have held on to ERCs for several years (10+)

- 5 out of 250+ facilities hold 24% of VOC ERCs
- 5 out of 32 facilities hold 85% of NOx ERCs
- 5 out of 64 facilities hold 66% of PM\(_{10}\) ERCs
- 5 out of 30 facilities hold 69% of SOx ERCs
Market Activity and ERC Cost

- Annual reports of ERC transactions and cost were evaluated.
- Historical ERC transactions between 2008 – 2017 show limited open market sales for NOx and SOx ERCs (less than 10 sales per year).
  - Facilities may hold on to ERCs for future business growth.
- ERC cost between 2004 – 2017 shows:
  - VOC ERC costs are relatively low compared to other pollutants.
  - PM10 ERC costs are the most significant.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Average Number of Transactions Annually</th>
<th>Average Quantity of ERCs Transferred Annually (lbs/day)</th>
<th>Average Percentage of Available ERCs</th>
<th>Average Cost ($/ton per year)</th>
<th>2009 Peak Cost ($/ton per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC</td>
<td>35</td>
<td>674</td>
<td>5%</td>
<td>$34,000</td>
<td>$76,000</td>
</tr>
<tr>
<td>NOx</td>
<td>8</td>
<td>65</td>
<td>8%</td>
<td>$127,000</td>
<td>$399,000</td>
</tr>
<tr>
<td>PM10</td>
<td>22</td>
<td>115</td>
<td>12%</td>
<td>$735,000</td>
<td>$1,434,000</td>
</tr>
<tr>
<td>SOx</td>
<td>3</td>
<td>27</td>
<td>3%</td>
<td>$376,000</td>
<td>$452,000</td>
</tr>
</tbody>
</table>
Approach for Evaluating ERCs in the Open Market

- Assessed current ERC balances for each pollutant (as of Nov 2019)
- Compared the net ERC year-to-year balance for the past 12 years (2008 – 2019)
  - Evaluated trend of ERC balance
  - Evaluated trend of ERC balance relative to supply of ERCs
- For NOx ERC, accounted for estimated demand for RECLAIM facilities post-transition
- Evaluated general market activity
  - Assessed number and amount of ERC transactions
  - Distribution of ERC holding
  - Average recorded ERC cost


- VOC ERC balance on a steady downward trend
- Net annual average = -292 pounds per day (24% decrease)
- Downward trend is not a concern since remaining balance is still relatively high
- Average VOC ERC cost is $34,000/ton per year

Staff Recommendation:
- Based on supply and ERC cost, exploring other offset options is not needed
NOx ERC Net Balance for Non-RECLAIM (2008-2019)

- NOx ERC balance declining
- Net annual average = -41 pounds per day (34% decrease)
- Low remaining balance (~800 pounds per day)
- Decrease combined with low remaining balance is concerning
- Average NOx ERC cost is $127,000/ton per year
- RECLAIM transition will increase demand for ERCs (see next slide)

*Unused ERCs were reissued because project was not implemented*
Potential RECLAIM NOx Offset Demand

- Average annual NOx RECLAIM demand ~1,200 lbs/day
  - Emission increases for new and existing RECLAIM facilities
  - 5-year period from 2011 – 2015
  - 1.2-to-1 ratio for RECLAIM NSR
  - Did not account for additional offsets needed for major source modifications if NSR applicability and offset calculation is changed

- With RECLAIM, NOx ERCs in the open market could be depleted within 1 year
  - Possible ERCs generated from shutdowns could delay depletion

**Staff Recommendation**

- Based on the limited availability of offsets and increased demand from RECLAIM facilities, other options for offsets for NOx should be explored
PM10 ERC Net Balance (2008-2019)

- PM10 ERC balance relatively stagnant
  - Except for recent increase from a facility shutdown
- Net annual average
  - -5 pounds per day (6% decrease) – Excludes 2019
  - 41 pounds per day (51% increase) – Includes 2019
- Average PM10 ERC cost is $735,000/ton per year

Staff recommendation:
- Based on the high price, other options for PM10 offsets should be explored
SOx ERC Net Balance for Non-RECLAIM (2008-2019)

- SOx ERC balance remains constant at ~700 pounds per day
- Net average = -1 pounds per day (1% decrease)
- No concern with non-RECLAIM demand due to steady balance
- Pending analysis for demand from SOx RECLAIM
- Average SOx ERC cost is $376,000/ton per year

Staff Recommendation:
- Continue analysis to assess potential demand from SOx RECLAIM
Summary of Staff Recommendations for Open Market

- **VOC**
  - Not pursuing other offset options for VOC based on supply and ERC cost
- **NOx**
  - Explore other options for offsets for NOx due to the limited availability of offsets and increased demand from exiting RECLAIM facilities
- **PM10**
  - Explore other options for offsets for PM10 due to the high price
- **SOx**
  - Continue analysis to assess potential demand from SOx RECLAIM
Internal Bank
South Coast AQMD Internal Bank

- Internal bank offsets are used for eligible sources:
  - Priority Reserve (Rule 1309.1)
  - Exempt from offsetting (Rule 1304)

- Internal Bank Offsets
  - Rule 1309.1 Priority Reserve
    - Essential public services
    - Innovative technology
    - Research operations
  - Rule 1304 Exemptions
    - Facilities w/ PTE < 4 tons per year
    - Facilities w/ PTE ≥ 4 tons per year and listed under Rule 1304 categories

1 RECLAIM facilities currently not eligible for Priority Reserve
2 BACT is still required for exempted sources
3 All sources at these facilities must operate at or below BARCT
South Coast AQMD Internal Bank

- Offsets in the internal bank generated mostly from orphan shutdowns
  - Emission reductions from sources that shutdown but did not apply for emission reduction credits (ERCs)
- All offsets in the internal bank are discounted annually to BARCT
  - To satisfy federal **surplus at time of use** requirement

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>Generation</strong></td>
<td>Primarily orphan shutdowns (amount deposited = 80% of PTE of the orphan shutdown)</td>
</tr>
<tr>
<td><strong>Discount</strong></td>
<td>Entire balance discounted annually to BARCT</td>
</tr>
<tr>
<td><strong>Issuance</strong></td>
<td>Provided to sources that are eligible for Priority Reserve (Rule 1309.1) or exempt (Rule 1304)</td>
</tr>
</tbody>
</table>
BARCT Discount for Internal Offsets

- All offsets deposited into the internal bank are discounted to ensure they remain **surplus at the time of use** for Federal NSR equivalency.
- Discount based on the percent reduction projected to be achieved as a result of implementation of command-and-control rules that became effective during the previous calendar year – Referred to as the “BARCT discount”
  - BARCT discount is applied to entire balance, and is pollutant specific.
  - BARCT discount is applied annually, and varies from year-to-year depending on the reductions associated with command-and-control rules for permitted sources.
Comparison Between the Open Market and South Coast Internal Bank

<table>
<thead>
<tr>
<th>Open Market</th>
<th>Internal Bank</th>
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<tbody>
<tr>
<td><strong>ERCs</strong></td>
<td><strong>Internal Offsets</strong></td>
</tr>
<tr>
<td>Generation</td>
<td>Over-control or shutdowns</td>
</tr>
<tr>
<td>Discount</td>
<td>Individual equipment ERC discounted to BACT at time of issuance</td>
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<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Balance (tons per day)</th>
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<tbody>
<tr>
<td>VOC</td>
<td>5.1</td>
</tr>
<tr>
<td>NOx</td>
<td>0.4</td>
</tr>
<tr>
<td>PM10</td>
<td>0.7</td>
</tr>
<tr>
<td>SOx</td>
<td>0.4</td>
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</tbody>
</table>
Accounting of Internal Bank Offsets

- South Coast AQMD tracks all offsets deposited (credits), offsets withdrawn (debits), and applies an annual BARCT discount to the internal bank offsets.
- South Coast AQMD tracks, as debits, the offsets used for federal major sources.
  - Internal bank offsets used to demonstrate that sufficient offsets were provided for major sources as required by Federal NSR.
- Accounting of internal bank offsets of is formalized in Rule 1315.

<table>
<thead>
<tr>
<th>Credits</th>
<th>Debits</th>
<th>BARCT Discount</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Emission reduction credits from orphan shutdowns</td>
<td>• Offsets provided to federal major sources for eligible projects pursuant to Rule 1309.1 (Priority Reserve) and Rule 1304 (Offsetting exempts)</td>
<td>• Entire balance for each specific pollutant is discounted annually to BARCT.</td>
</tr>
<tr>
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<td>• Discount is to ensure offsets meet federal criteria and are surplus at the time of use</td>
</tr>
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</table>
Projections for Internal Bank Offsets

- Internal offset projections based on:
  - Future draw for eligible major sources only pursuant to Rules 1304 and 1309.1
  - Average credits, debits\(^1\), and BARCT discount over the past 5 years (2013 – 2017)
- Internal offsets projections only consider federal requirements

\(^1\)Growth factor from 2016 Air Quality Management Plan (AQMP) applied to the projected debits
Projections for Internal Bank Offsets (Continued)

- VOC, PM10, and SOx internal offsets projected to increase
- NOx internal offsets declining
- Next slides focuses on NOx only – since other pollutants are projected to increase
Internal Bank NOx Offset Supply and Demand

- Current supply of NOx internal offsets is 23 tons per day (tpd)
- Average credits and debits from the Internal Bank over the past 5 years (2013 – 2017):
  - Credits: 1.18 tpd of NOx annually
  - Debits: -0.19 tpd of NOx annually
  - Annual average net (credit) of 0.99 tpd of NOx
- BARCT discount
  - Most recent 5-year average (2013 – 2017): -1.63 tpd of NOx annually
  - BARCT discount accounts for implementation of BARCT rules
  - Staff is working with US EPA to verify BARCT discount
Assumptions for Projection of NOx Internal Offsets Post-RECLAIM

- Projected potential supply and demand of internal offsets post-RECLAIM (2024+)
- Projection assumptions:
  - 5-year average (2013 – 2017) for Non-RECLAIM credits, debits, and BARCT discount
  - 5-year average (2011 – 2015) for RECLAIM demand

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<th>Tons per day of NOx annually</th>
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<td>Non-RECLAIM Debits</td>
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<td>BARCT Discount</td>
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<td>RECLAIM Demand</td>
<td>-0.65</td>
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<tr>
<td>Net</td>
<td>-1.29</td>
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1 Non-RECLAIM Growth Factor applied (based on 2016 AQMP): 1.01
2 RECLAIM Growth Factor applied (based on 2015 amendments): 1.02
3 Potential demand after applying the 1.2-to-1.0 ratio per Regulation XIII
Projection of NOx Internal Offsets Post-RECLAIM

- Offsets supply will further depreciate with RECLAIM demand
- Supply of offsets can potentially be depleted by 2030s
- Depletion of offsets would be sooner if offsetting calculation changed to Actual-to-PTE
- Does not account for potential offsets that can be generated from RECLAIM facilities

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<td><strong>Net</strong></td>
<td><strong>-1.29</strong></td>
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Potential minimum offset balance thresholds for Priority Reserve
Priority Reserve –Historical Demand

- Historical demand from major sources that are eligible for Priority Reserve offsets pursuant to Rule 1309.1 (e.g. essential public services)
- Considering how much to set aside for essential public services

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<th>Pollutant</th>
<th>Max</th>
<th>8-yr average (2010 – 2017)</th>
</tr>
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<tbody>
<tr>
<td>VOC</td>
<td>0.185</td>
<td>0.06</td>
</tr>
<tr>
<td>NOx</td>
<td>0.86</td>
<td>0.2</td>
</tr>
<tr>
<td>PM10</td>
<td>0.01</td>
<td>-</td>
</tr>
<tr>
<td>SOx</td>
<td>0.09</td>
<td>-</td>
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Next Steps

- Staff will explore options that can reduce the demand and/or increase the supply of NOx, PM10, and possibly SOx offsets
  - Consider applying BARCT instead of BACT discount for ERCs
  - Analyze 1304 offset exemptions
  - Explore with US EPA if some RTCs can be converted back to ERCs
  - Project if future overcontrol of NOx (including shutdowns) will sufficiently slow rate of depletion
- Staff will continue to work with US EPA to verify the BARCT adjustment for NOx internal bank
## Contacts

<table>
<thead>
<tr>
<th>General RECLAIM Questions</th>
<th>New Source Review</th>
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<tbody>
<tr>
<td>• Gary Quinn, P.E.</td>
<td>• Michael Morris</td>
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<td>Program Supervisor</td>
<td>Planning and Rules Manager</td>
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</tr>
<tr>
<td>• Kevin Orellana</td>
<td>• Lizabeth Gomez</td>
</tr>
<tr>
<td>Program Supervisor</td>
<td>Air Quality Specialist</td>
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<td>909-396-3492</td>
<td>909-396-3103</td>
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<tr>
<td><a href="mailto:korellana@aqmd.gov">korellana@aqmd.gov</a></td>
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