Regulation XIII – New Source Review

January 14, 2020
South Coast AQMD
Call-in #1-866-705-2554
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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

Summary of Working Group Meeting #1 (September 12, 2019) – *Continued*

- 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:

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

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

ERCs

- ☐ Held by individual owners (facility, company, or broker)
- ☐ Issued pursuant Rule 1309
- ☐ Discounted according to Rules 1306 and 1309

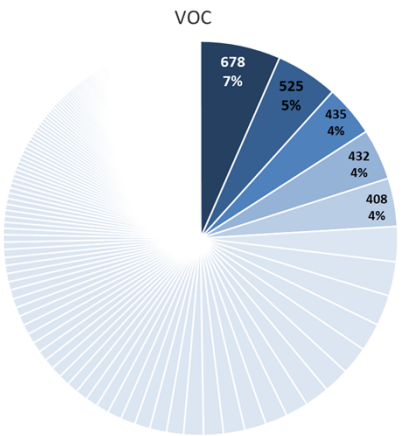
Open Market – ERC Generation

- 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

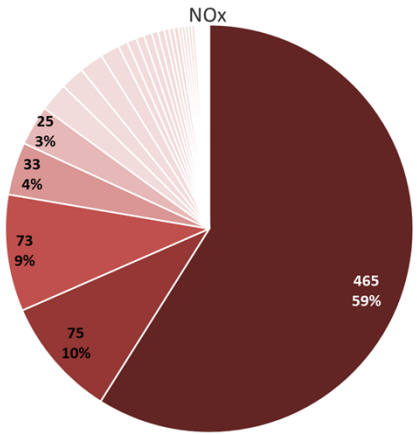
Generation	Over-control or shutdowns
Discount	Discounted to BACT at time of issuance
Issuance	Issued to individual owners for future use or sale; Value of ERC issued is in perpetuity (with the exception of short-term ERCs)

Distribution of ERCs in the Open Market

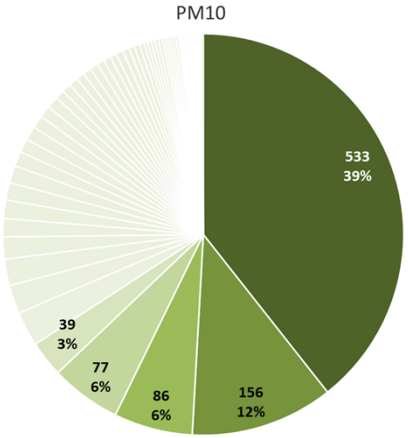
- Evaluated the distribution of ERCs in the open market based on March 2019 list of active ERC holders
- VOC ERCs widely distributed among several owners
- NOx, PM10, and SOx ERCs owned by only a few facilities
  - ERC availability is limited by the small universe of ERC holders
  - Most facilities have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



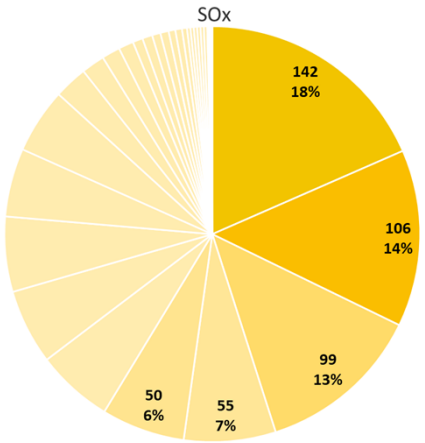
5 out of 250+ facilities hold 24% of VOC ERCs



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

Pollutant	Average Number of Transactions Annually	Average Quantity of ERCs Transferred Annually (lbs/day)	Average Percentage of Available ERCs	Average Cost ($/ton per year)	2009 Peak Cost ($/ton per year)
VOC	35	674	5%	$34,000	$76,000
NOx	8	65	8%	$127,000	$399,000
PM10	22	115	12%	$735,000	$1,434,000
SOx	3	27	3%	$376,000	$452,000

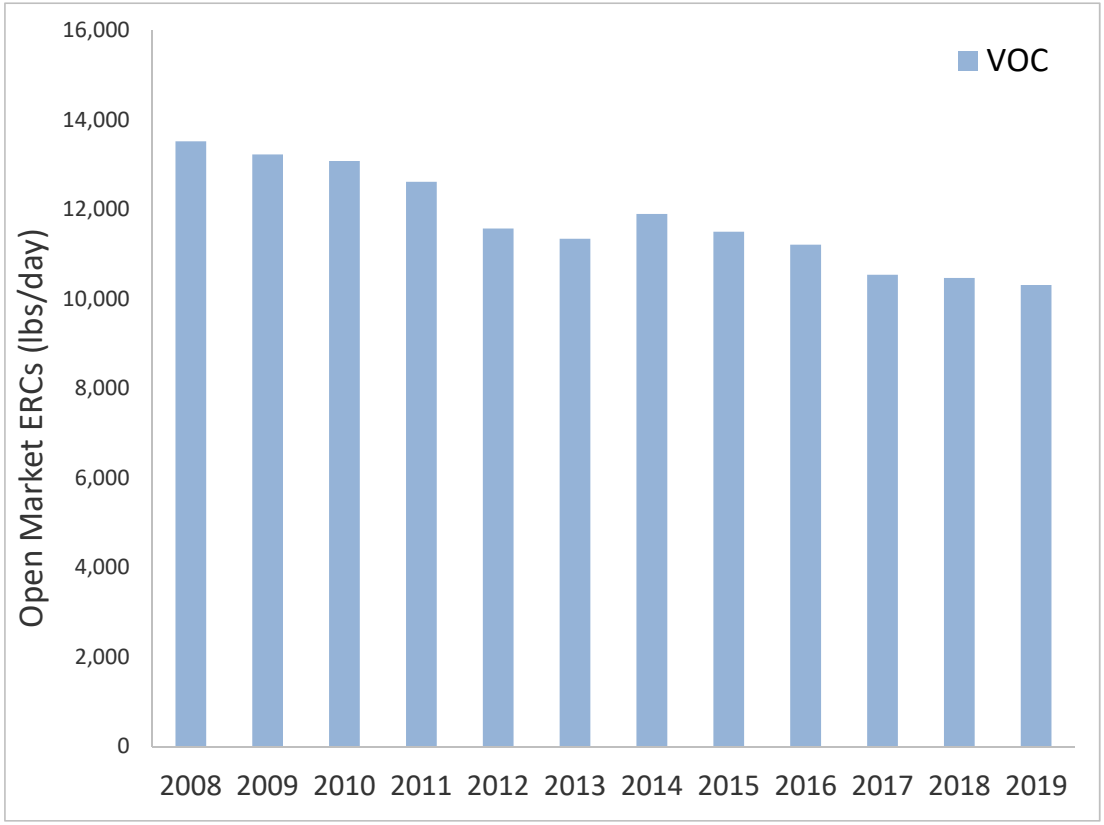
Approach for Evaluating ERCs in the Open Market

- 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

Current active ERCs available: http://www.aqmd.gov/home/permits/emission-reduction-credits
Historical lists of active ERCs available: http://www.aqmd.gov/home/permits/emission-reduction-credits/historical-active-erc-and-sterc-lists
Archive of annual ERC transaction reports: http://www.aqmd.gov/home/research/documents-reports/erc-transaction-report-archive

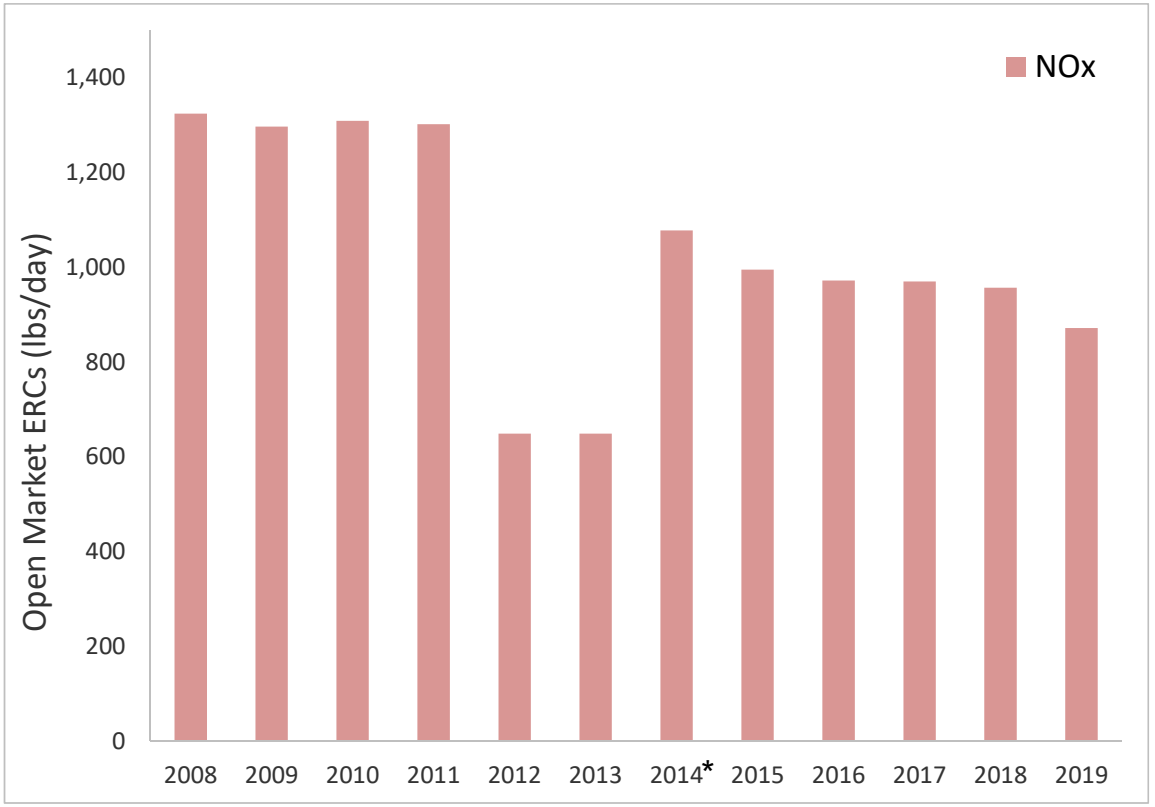
VOC ERC Net Balance (2008-2019)

- 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)

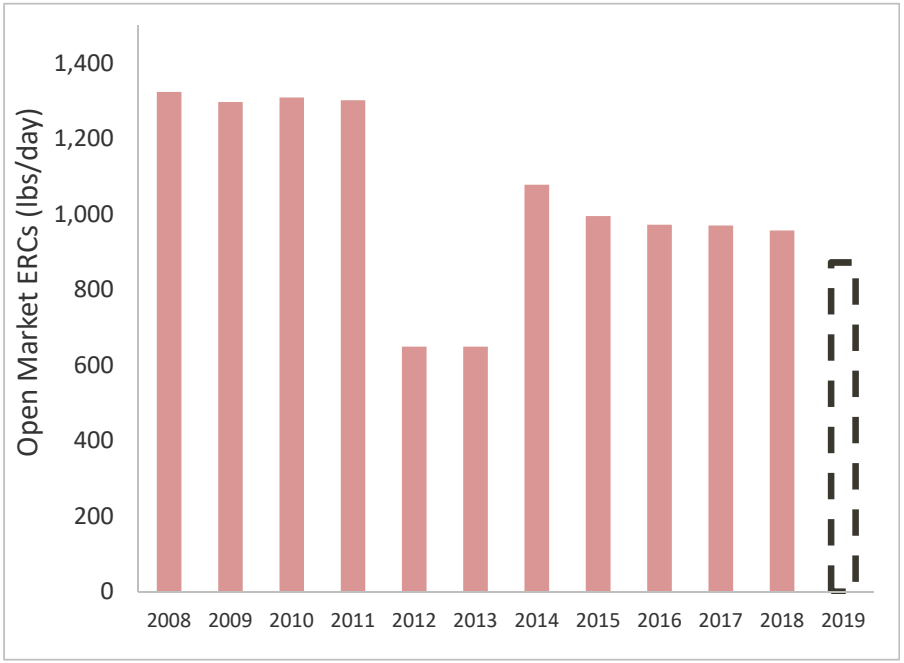
- NOx ERC balance declining
- Net annual average = -41 pounds per day (34% decrease)
- Low remaining balance (~800 pounds per day)
- Decrease combined with low remaining balance is concerning
- Average NOx ERC cost is $127,000/ ton per year
- RECLAIM transition will increase demand for ERCs (see next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



*Unused ERCs were reissued because project was not implemented

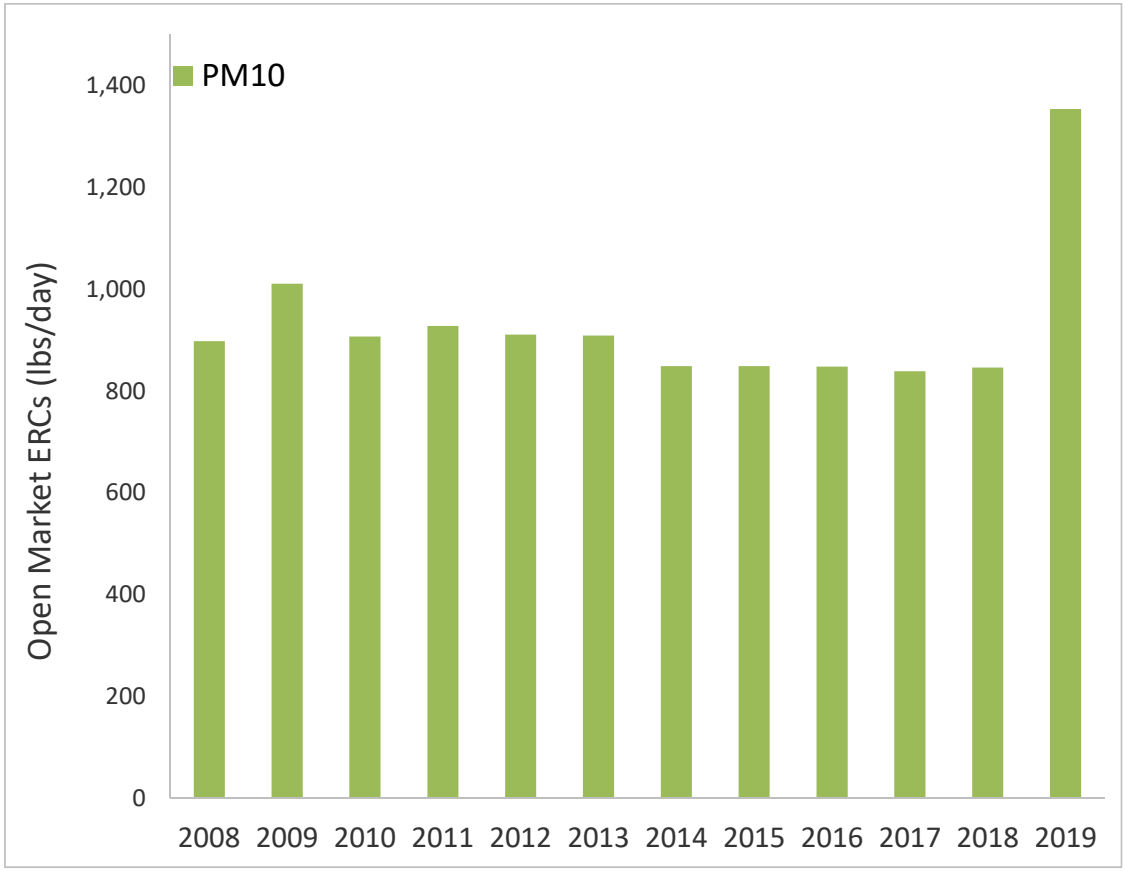
Potential RECLAIM NOx Offset Demand

- 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



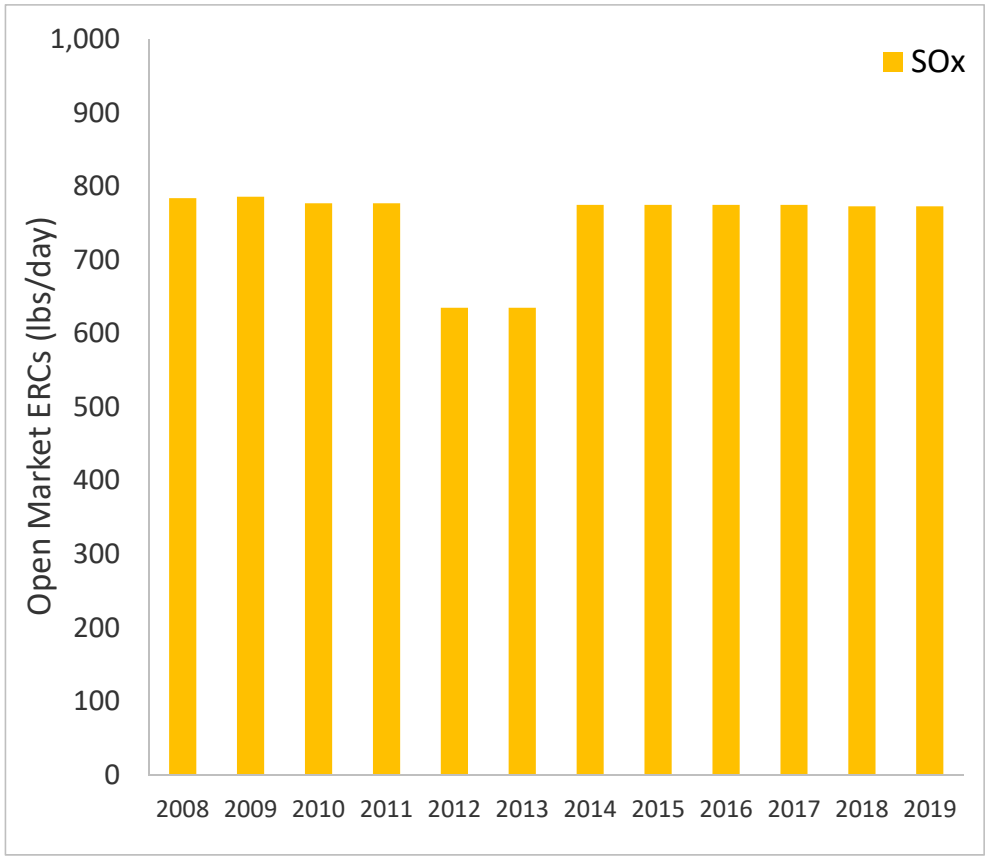
PM10 ERC Net Balance (2008-2019)

- 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



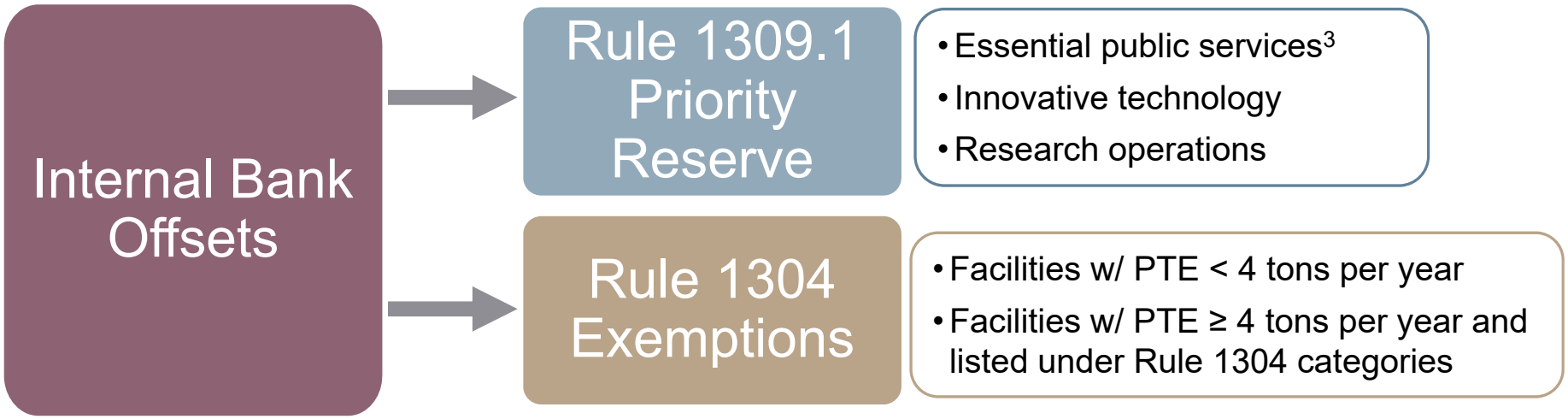
Summary of Staff Recommendations for Open Market

- 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)[1]
  - Exempt from offsetting (Rule 1304)[2]



[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

Generation	Primarily orphan shutdowns (amount deposited = 80% of PTE of the orphan shutdown)
Discount	Entire balance discounted annually to BARCT
Issuance	Provided to sources that are eligible for Priority Reserve (Rule 1309.1) or exempt (Rule 1304)

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

	Open Market	Internal Bank
	ERCs	**Internal Offsets**
Generation	Over-control or shutdowns	Primarily orphan shutdowns
Discount	Individual equipment ERC discounted to BACT at time of issuance	Entire balance discounted annually to BARCT
Issuance	Issued to individual owners for future use or sale	Provided to sources that are eligible for Priority Reserve (Rule 1309.1) or exempt (Rule 1304)
Pollutant	**Balance (tons per day)**	
VOC	5.1	107
NOx	0.4	23
PM10	0.7	16
SOx	0.4	4

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

Credits	Debits	BARCT Discount
• Emission reduction credits from orphan shutdowns	• Offsets provided to federal major sources for eligible projects pursuant to Rule 1309.1 (Priority Reserve) and Rule 1304 (Offsetting exempts)	• Entire balance for each specific pollutant is discounted annually to BARCT • Discount is to ensure offsets meet federal criteria and are surplus at the time of use

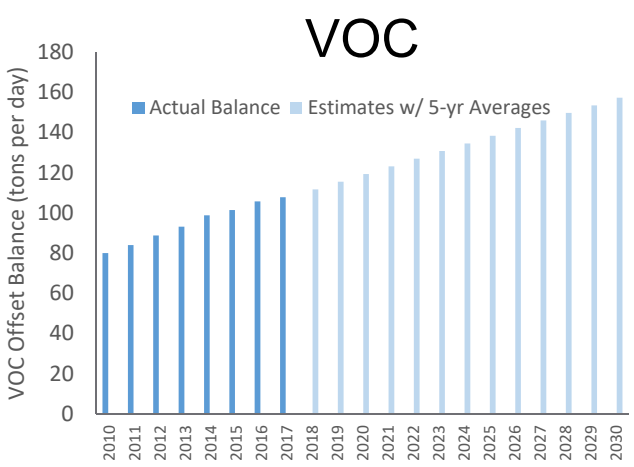
Projections for Internal Bank Offsets

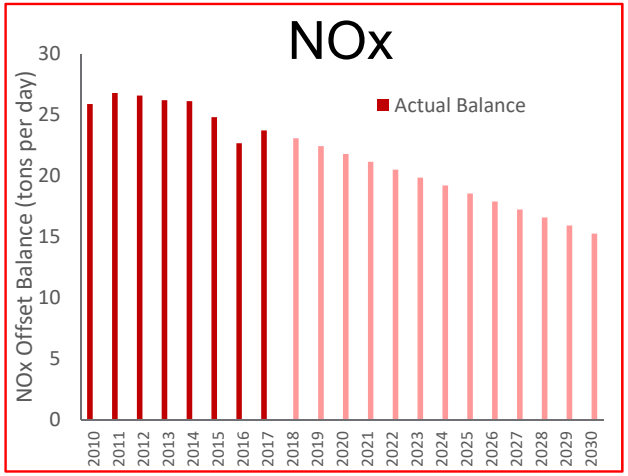
- Internal offset projections based on:
  - Future draw for eligible major sources only pursuant to Rules 1304 and 1309.1
  - Average credits, debits[1], and BARCT discount over the past 5 years (2013 – 2017)
- Internal offsets projections only consider federal requirements

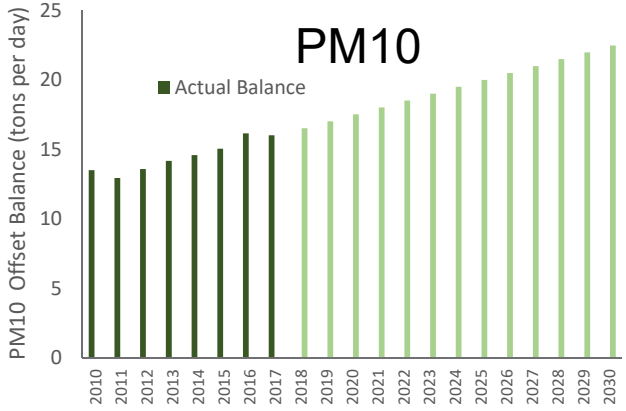
[1]Growth factor from 2016 Air Quality Management Plan (AQMP) applied to the projected debits

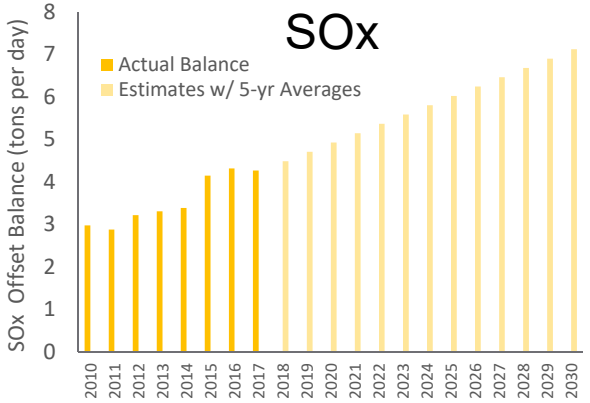
Projections for Internal Bank Offsets(*Continued*)

- 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



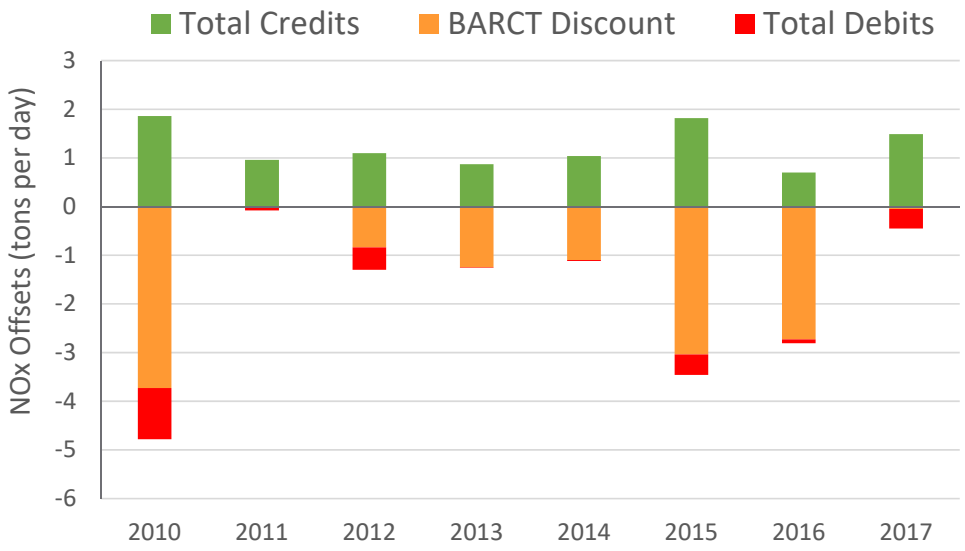






Internal Bank NOx Offset Supply and Demand

- 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

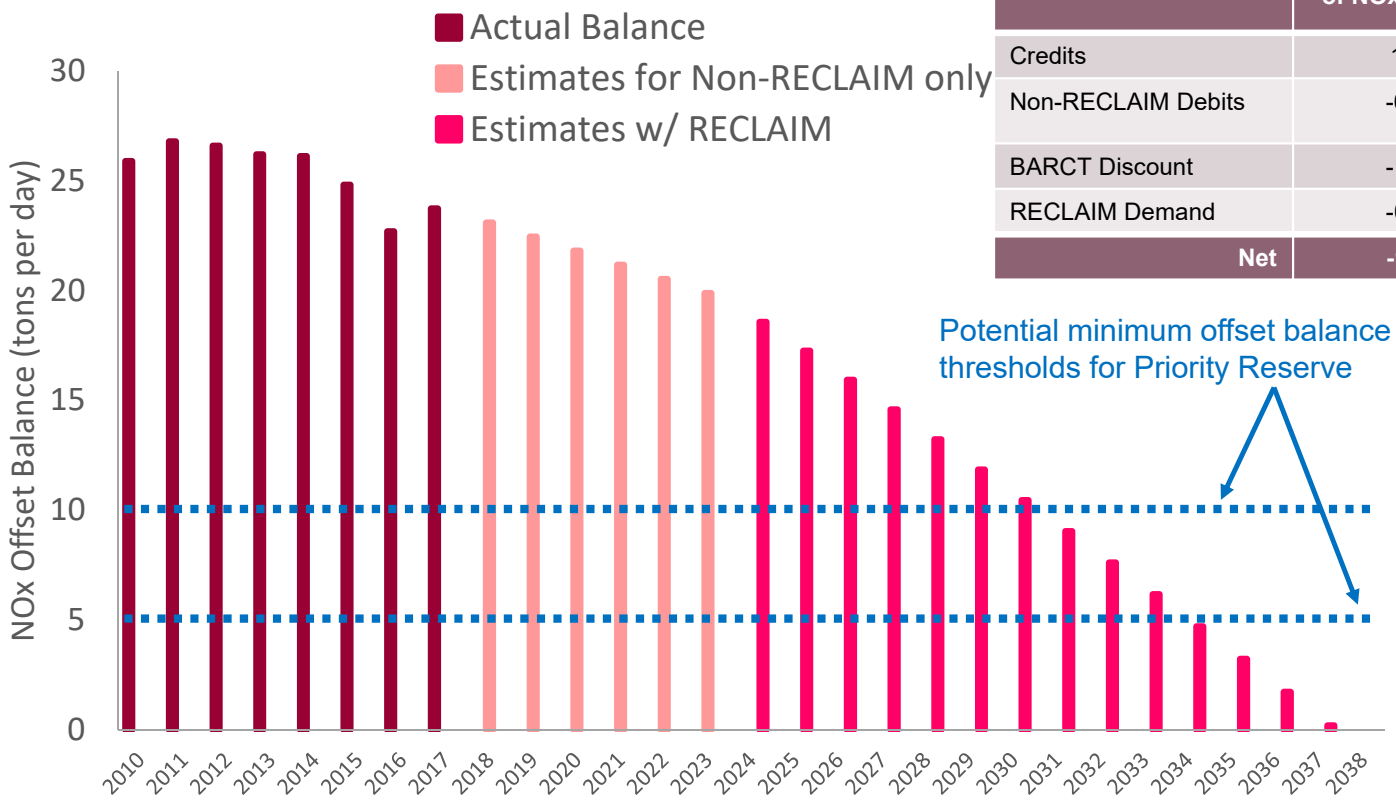
- Projected potential supply and demand of internal offsets post-RECLAIM (2024+)
- Projection assumptions:
  - 5-year average (2013 – 2017) for Non-RECLAIM credits, debits, and BARCT discount
  - 5-year average (2011 – 2015) for RECLAIM demand

Assumptions	Tons per day of NOx annually
Credits	1.18
Non-RECLAIM Debits [1]	-0.19
BARCT Discount	-1.63
RECLAIM Demand [2,3]	-0.65
Net	**-1.29**

[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

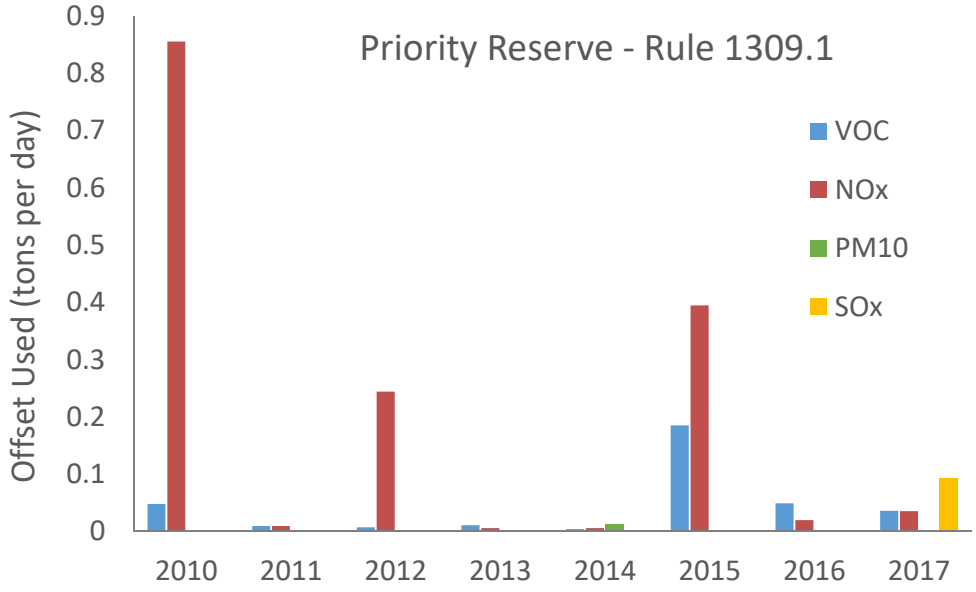
- Offsets supply will further depreciate with RECLAIM demand
- Supply of offsets can potentially be depleted by 2030s
- Depletion of offsets would be sooner if offsetting calculation changed to Actual-to-PTE
- Does not account for potential offsets that can be generated from RECLAIM facilities



Assumptions	Tons per day of NOx annually
Credits	1.18
Non-RECLAIM Debits	-0.19
BARCT Discount	-1.63
RECLAIM Demand	-0.65
Net	**-1.29**

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



Pollutant	Historical Priority Reserve Demand	
	Max	8-yr average (2010 – 2017)
	tons per day	
VOC	0.185	0.06
NOx	0.86	0.2
PM10	0.01	-
SOx	0.09	-

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

General RECLAIM Questions	New Source Review	
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