

# Navigating Arizona's Ozone Nonattainment Emission Offsets

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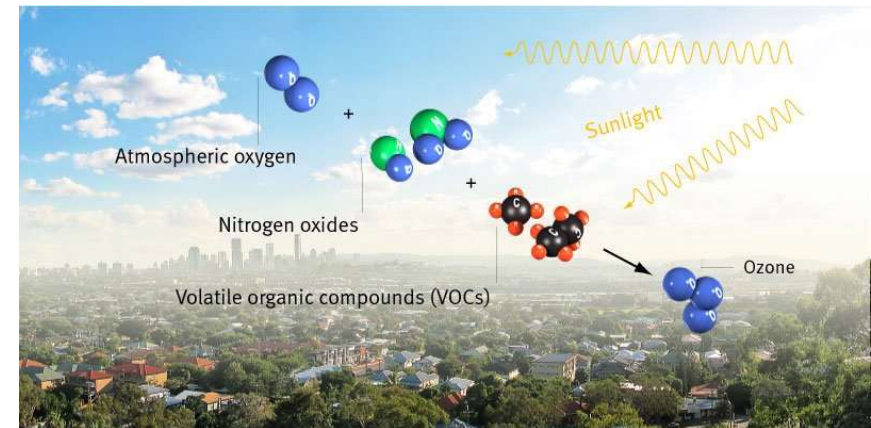
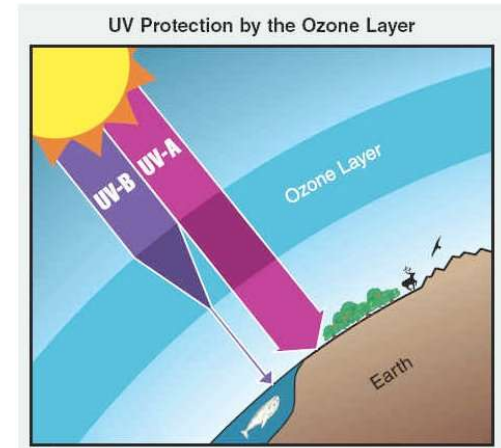
## Agenda

1. Background on the Development of the MCAQD Emission Reduction Credit Program
2. What are Emission Offsets?
3. Upcoming Ozone Nonattainment Status Changes
4. Emission Reduction Credit Opportunities

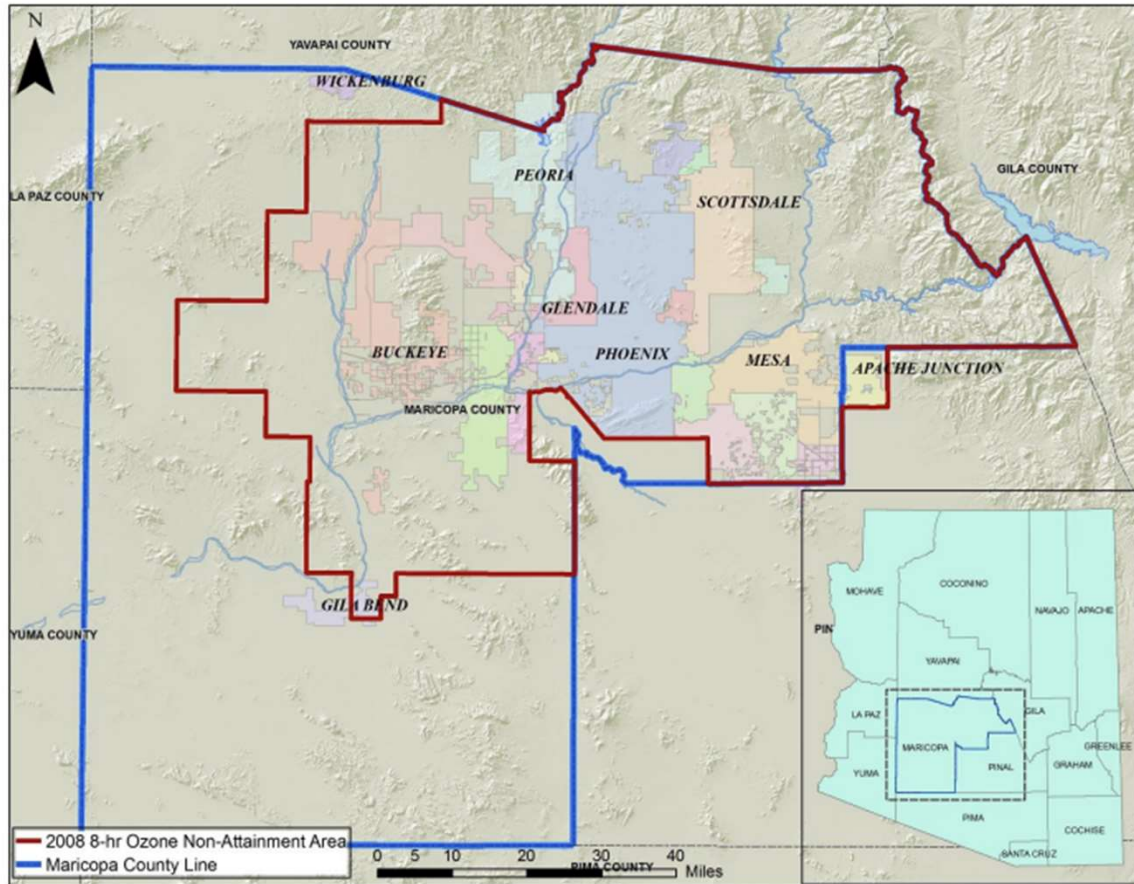
# 1. Background on the Development of the MCAQD Emission Reduction Credit Program

## Ozone Nonattainment Background

- ▶ Ground level ozone is formed by a chemical reaction among sunlight, **nitrogen oxides (NO<sub>x</sub>)** and **Volatile Organic Chemicals (VOCs)**.
- ▶ Primarily concentrated in Maricopa County
- ▶ “Bad Ozone” or “Ground-Level Ozone”
- ▶ Nonattainment is determined by the ambient concentration in the atmosphere



# Nonattainment Area (NAA) within Maricopa County



## 2. What are Emission Offsets?

## Purpose of Emission Offsets

- ▶ The EPA has established **national ambient air quality standards (NAAQS)** for criteria pollutants
  - NAAQS represent the maximum levels of pollutant allowed in the atmosphere
- ▶ Areas that fail to attain the NAAQS value are subject to additional permitting requirements.
- ▶ One requirement is the **owner of a new major source or major modification** to **offset the increase of emissions** with voluntary decreases of emission from other sources.



## What is the Emission Reduction Credit Program?

- ▶ The Emission Reduction Credit program allows companies to generate, store, and trade **Emission Reduction Credits (ERCs)** for pollutants, including **NO<sub>x</sub> and VOC**
- ▶ ERCs can be stored in the ADEQ-operated Arizona Emissions Bank
- ▶ The bank allows a business that voluntarily reduces its emissions to sell those reductions to another business that needs offsets
  - **Emissions Bank is currently empty**



# How to Generate ERCs

## ► Current pathways for ERC generation:

### • By Permit

- ◆ Reducing emissions by an amount greater than required under regulations and agreeing to enforceable permit conditions
- ◆ Authority from MCAQD Rules 204 and 205

### • By Rule

- ◆ Offset Creation Rule put in place by MCAQD
- ◆ Example: Rule 242 – PM<sub>2.5</sub> Offsets for Voluntary Paving of Roads

### • By Emission Reduction Plan

- ◆ If ADEQ or MCAQD approves Emission Reduction Plan establishing a process for generating creditable reductions that is approved by EPA.

#### Emissions Reduction Credit (ERC) Program

##### 3. Eligibility Requirements:

In order to be eligible for ERCs, the Permittee shall comply with the following:

- a. Upon installation of the low NOx Victory Energy boilers, the Permittee shall permanently remove the Superior boilers, BOL001 and BOL002, from the nonattainment area or render the replaced equipment permanently disabled and dispose of in a manner that complies with all applicable local, state, and federal laws.
- b. The Permittee shall provide evidence of proper disposal or removal upon request from the Control Officer or from the permitted source using the ERCs as offsets. Evidence shall include at a minimum, the serial number and location of where or how the equipment was disposed or removed and the date of disposal or removal.

[SIP Rule 220 §302.2] [Rule 204 §305.2(d)]



# What is Required to Create ERCs?

## ▶ Real

- To demonstrate that emission reductions are real, proof is needed that engine/vehicle substitution has/will actually occur.

## ▶ Surplus

- The emission reductions resulting from the substitution/control device cannot be required by any regulation.

## ▶ Quantifiable

- Calculations must be used to justify the decrease in emissions.

## ▶ Enforceable

- Permit conditions, contracts or some other means of ensuring that the continued generation of surplus emissions reductions are generally required.

## ▶ Permanent

- Control Device or substitution of equipment can not be undone in a future permit action.

## What are Mobile ERCs?

- ▶ Mobile ERCs are generated from replacing fleets of mobile vehicles or engines with lower emission alternatives
  - Best candidates are usually heavy-duty diesel vehicles and engines
- ▶ MCAQD **Rule 205** establishes requirements to generate MERCs:
  - Fleet owner/operator must have or obtain a stationary source air permit
  - Vehicles involved in MERC generation must be operated (or replaced by equivalent vehicles) for 20 years
  - Fleet vehicles must be “captive” – must remain in Phoenix-Mesa NA area

# Mobile vs. Stationary ERC Examples

## Mobile ERC

- ▶ Heavy-duty diesel vehicles and engines
  - Garbage Trucks
  - Buses
  - Non-road engine
- ▶ MCAQD Rule 205



## Stationary ERC

- ▶ Boilers, Heaters, Dryers, Stationary Engines/Generators etc.
- ▶ MCAQD Rule 204



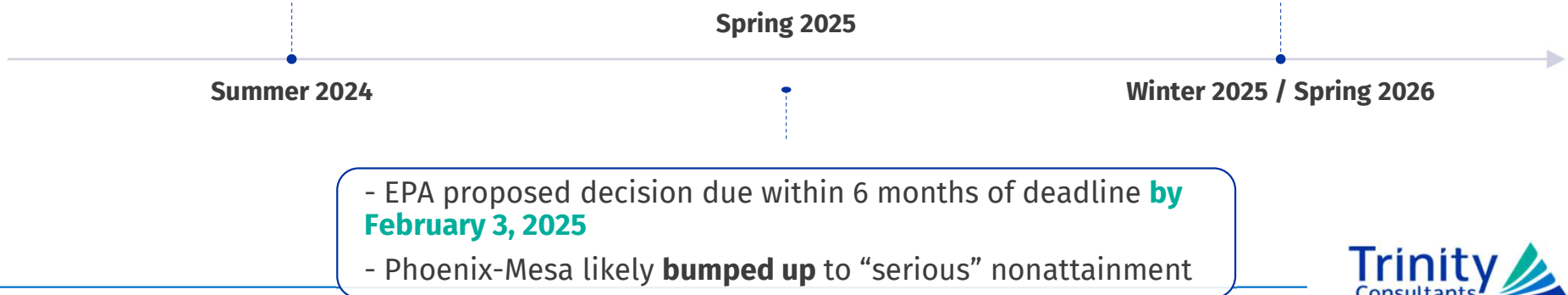
### 3. Upcoming Ozone Nonattainment Status Changes

## Ozone Timeline

- ▶ Maricopa County will be redesignated to serious nonattainment
- ▶ Rulemaking would start **after 2024 presidential election**
- ▶ 6-month clock started 11/17/2023 to submit a revised SIP
  - Otherwise, 18-month clock to trigger NO<sub>x</sub>/VOC offset sanction
    - ◆ Emission offset ratio for NO<sub>x</sub>/VOC would be increased from **1.15:1 to 2:1**

- Deadline to attain NAAQS by **August 3, 2024**  
 - Data suggests area will not attain the standard.

- Serious Nonattainment SIP Revision due  
 - Multiple impacts to stationary sources



- EPA proposed decision due within 6 months of deadline by **February 3, 2025**  
 - Phoenix-Mesa likely **bumped up** to “serious” nonattainment

## Ozone Nonattainment Redesignation Impacts

- ▶ New source review (NSR) requires that emission offsets must be obtained in a NAA in order to:
  - Propose to construct a **major modification** of an existing source
  - **Construct a new major source**
- ▶ Currently ERCs are needed for projects resulting in emissions greater than 100 tpy of NO<sub>x</sub>/VOCs.
- ▶ After 2024/2025, ERCs are expected to be needed for projects resulting in emissions **greater than 50 tpy** of NO<sub>x</sub>/VOCs.

Ozone Nonattainment Classification	VOC/NO <sub>x</sub> Major Source Threshold (tpy)	VOC/NO <sub>x</sub> Offset Ratios
Moderate	100	1.15:1
Serious	50	1.2:1



## 4. Opportunities to Generate ERCs

## Potential ERC Generating Activities/Equipment

- ▶ ERC Candidates
  - Equipment with fossil-fuel fired burners
    - ◆ Boilers
    - ◆ Kilns
    - ◆ Dryers
  - ≤Tier 2 Engines
  - Turbines
- ▶ MERC Candidates
  - Haul Trucks
  - Large Diesel Construction Equipment
    - ◆ Dozers
    - ◆ Excavators
  - Switcher Locomotives



## ERC Pricing

- ▶ ERC transaction history 2021 – Present, in the ADEQ Emissions Bank and Over the Counter transactions (registration with the bank is not required)
  - 202 tons of NO<sub>x</sub>
  - 11.2 tons of VOC
- ▶ Unlike other ERC markets, ADEQ does not report transaction pricing
- ▶ Historically, one large tech industry buyer has aggregated and transacted ERCs with emissions over 100 tons of VOC and NO<sub>x</sub>
- ▶ Trades have been reported at **\$175,000/ton**



## Example – Hypothetical NO<sub>x</sub> ERC Generation Project

- ▶ Facility looking to bank ERCs from two (2) 60 MMBtu/hr natural gas-fired boilers
  - Looking to replace with two (2) 61 MMBtu/hr, 30 ppm low-NO<sub>x</sub> units
- ▶ Baseline emissions calculated as average of actual reported emissions from representative 2-Year Period. This example: 2021-2022

Gas Usage – 2021-2022 Average (MMscf/yr)	Projected Gas Usage (MMscf/yr)	New EF (lb/MMscf)	New NO <sub>x</sub> Emissions (tpy)	Old NO <sub>x</sub> Emissions– 2021-2022 Average (tpy)	Reduction (tpy)
283	288.66	37.71	5.44	14.15	8.71

Current Indicative Broker Quote ~\$175,000/ton

**Purchase Gross Revenue = 8.71 tons x \$175,000/ton = ~ \$1.52M**



## How to Obtain ERCs

- ▶ Review the Arizona Emissions Bank Registry which lists emission reduction credits
- ▶ Shop for emission reductions by offering to control pollution from other permitted stationary sources
- ▶ Buy emission credits from stationary sources that have shut down
- ▶ Buy out and close stationary sources, so the emission reductions achieved through closure can be credited to the new major source
- ▶ Cooperate with ERC Broker to generate ERCs

## How can Trinity assist you with ERCs?

- ▶ Develop Potential-to-Emit calculations to quantify ERC generation
- ▶ Develop applications for ERCs
- ▶ Technological Feasibility and Financial Assessments
- ▶ Reporting and Recordkeeping Requirements
- ▶ Identify potential ERC generating sources
  - Emission Inventory Review

## Conclusions

- ▶ With a serious redesignation on the horizon, and a short supply of ERCs, permitting major modifications/sources will become more difficult due to requirements for ERCs
- ▶ Current industrial boom in Maricopa County could mean a lot of potential buyers.
- ▶ Positive public outreach/PR/good neighbor opportunity.
- ▶ Reduction in emissions profile.

# Questions?





# Contact Me

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