

# ADEQ Regional Haze State Implementation Plan 2028 Emissions Projection Methodology

ADEQ has developed the following framework for projecting the 2028 emissions for selected permitted facilities in Arizona. While the emissions projection should be determined on a case-by-case basis, ADEQ has also recognized the importance of consistency.

## Emissions Database Used for 2028 Emissions projection

ADEQ relies heavily on the emissions inventory data from ADEQ State and Local Emissions Inventory System (SLEIS). ADEQ is working diligently on reviewing the emission data for the 2018 reporting year; however, a complete review of all permitted sources will not be finalized prior to the August 31<sup>st</sup> deadline for ADEQ to provide modeling inputs the Western Regional Air Partnership (WRAP). Therefore, the 2015-2017 emission data, coupled with the 2016-2018 throughput data, serve as a starting point for the 2028 emissions projection. The 2018 emission data are used when necessary. The projected air pollutants include PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, NH<sub>3</sub> and VOCs. <sup>1</sup>

## 2028 Emissions Projection Methodology

The following steps outline ADEQ's methodology for the 2028 emissions projection.

1. Gather the 2015-2018 SLEIS data spreadsheets for selected permitted facilities (Table 1).
2. For a permitted source, review emission units, unit processes, process throughputs (inputs or outputs), and emissions for pollutants.
3. Calculate a scaling factor for each pollutant for each unit process:

$$\text{Scaling Factor} = (\text{Annual Emission}) / (\text{Annual Process Throughput})$$

4. Calculate the average scaling factor over the three years (2015-2017).
5. Calculate the average process throughput over the last three years (2016-2018).
6. For each unit process, calculate the projected annual emissions:

$$\text{Projected Emission} = (\text{2015-2017 Average Scaling Factor}) * (\text{2016-2018 Average Process Throughput})$$

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<sup>1</sup> Selected pollutants were specified by WRAP in email communication between Ryan Templeton (ADEQ) and Farren Herron-Thorpe (WRAP Emission Inventory and Modeling Subcommittee lead).

Table 1: A list of selected permitted facilities<sup>2</sup>

Source
AEPCO - Apache Generating Station
APS - Cholla Power Plant
ASARCO LLC - Hayden Smelter
ASARCO LLC - Mission Complex
ASARCO LLC - Ray Operations
CalPortland - Rillito Cement Plant (APCC)
Lhoist NA - Nelson Plant
SRP - Coronado Generating Plant
Drake Cement LLC
EPNG - Willcox Compressor Station
EPNG - Williams Compressor Station
Freeport-McMoran - Miami Smelter
Freeport-McMoran - Morenci Inc.
Freeport-McMoran - Sierrita Inc.
Phoenix Cement - Clarkdale
Tucson Electric Power Co - Irvington
Tucson Electric Power Co - Springerville

7. Identify emission units/unit processes that are related to the following circumstances:
  - a. Emissions units were not operated during the recent years but could be restarted at any time in the future under the current permit.
  - b. Emission controls were installed recently to meet the first-round Regional Haze requirements for Best Available Retrofit Technology (BART) sources and Reasonable Progress (RP) sources.
  - c. Emission controls will be installed or operations will be changed (such as natural gas conversion) to meet the first-round Regional Haze requirements for BART sources.
  - d. Emission controls were installed recently to achieve National Ambient Air Standard (NAAQS) compliance.
  - e. The process throughput was changed recently in accordance with an issued permit.
  - f. New emission units were added in accordance with an issued permit.

The projected emissions for these units/processes are adjusted following Step 8. If the circumstances above do not apply, go to step 10.

8. Re-estimate the emissions for emission units/processes identified in Step 7 based on the following methodologies (Table 2):

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<sup>2</sup> These sources were identified as having 2014 emissions which exceeded the ADEQ Q/D regional haze screening threshold of 10.

Table 2: Exceptional circumstances for emission projection and the adjusted projection methodology

Circumstances	Projection Methodology
Emissions units were not operated during the recent years but could be restarted in the future	Average three-year historical emissions just prior to non-operation
Emission controls were installed recently and the post-control emissions were fully or partially reflected in 2018 data	(2018 post-control emission scaling factor <sup>3</sup> )* (2016-2018 average process throughput)
Emission controls were installed recently but the post-control emissions were not reflected in 2018 data	(Enforceable emission limit)*(2016-2018 average process throughput)
Emission controls will be installed or operations will be changed prior to 2028	(Enforceable emission limit)*(2016-2018 average process throughput or permitted process throughput)
Process throughput was changed recently without changing emission controls	(2015-2017 average emission scaling factor)*(permitted process throughput)
Changes were made to both process throughput and emission controls recently	(2018 post-control emission scaling factor <sup>2</sup> or enforceable emission limit)*(permitted process throughput)
New emission units were permitted recently	Maximum allowable emissions in accordance with the permit

9. For emission units/unit processes identified in Step 7, replace projected emissions in Step 6 with projected emissions in Step 8.
10. Summarize the emissions by emission units and determine the facility-wide emissions.

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<sup>3</sup> The 2018 post-control emission scaling factor can be determined based on a full year dataset or partial-year dataset. ADEQ is accelerating the review of the 2018 emission data for the emission units of interested to ensure that the 2018 emission data for these units are QA/QCed before use.