
Expedited BARCT Implementation
Schedule- Shasta County Air Quality
Management District

2018

DECEMBER 20, 2018

Shasta County AQMD



AB 617 BARCT Implementation Schedule

Summary

Assembly Bill 617 (AB 617) was signed into law by the governor on July 26, 2017. AB 617's goal is to improve air quality in communities most impacted by air pollution. AB 617 amends the *California Health and Safety Code* (CH&SC) requiring all air districts designated as nonattainment for one or more air pollutants to adopt by January 1, 2019, an expedited schedule for implementation of Best Available Retrofit Technology (BARCT) by the earliest feasible date, but no later than December 31, 2023, for each industrial source that, as of January 1, 2017, was subject to the California Greenhouse Gas cap-and-trade requirements. Sources at affected facilities that have implemented BARCT on or after 2007 are not subject to the expedited schedule. Districts are to give the highest priority to those permitted units that have not modified emissions-related permit conditions for the greatest period of time.

BARCT is defined as “an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source¹.”

Goals

The Goal of BARCT implementation under AB 617 is to reduce criteria pollutant emissions from sources that currently participate in the cap-and-trade system or are subject to the CARB Mandatory Greenhouse Gas Reporting Regulation. While the intent of the cap-and-trade system is to reduce greenhouse gas emissions, criteria pollutants as well as toxic air contaminants (TACs) have been shown to be associated with certain greenhouse gas emission sources. This document presents the District's proposed schedule for implementing BARCT, together with an assessment of the anticipated rule development activities. A detailed analysis of emission standards, control technologies, and cost-effectiveness will be performed during the development of each rule.

Regulatory Context

AB 617 requires that:

- The California Air Resources Board (CARB) develop a uniform statewide system of annual reporting of emissions of criteria air pollutants and toxic air contaminants (TACs) for use by certain categories of stationary sources. The bill requires those stationary sources to report their emissions annually.

¹ HSC Section 40406.

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- By October 1, 2018, CARB must prepare a monitoring plan for monitoring criteria pollutants and TACs and the need for any additional community monitoring systems. It also requires that the state board select, based on the monitoring plan, the highest priority locations for deployment of community monitoring systems. An air district containing a selected location shall deploy a community monitoring system by July 1, 2019. It also authorizes air districts to require a stationary source that emits air pollutants to deploy a fence line monitoring system or other specified real-time, on-site monitoring. CARB must annually update the plan. The data collected by the monitoring systems must be published on CARB's website.
 - By October 1, 2018, and at least every 5 years after, CARB must develop a statewide strategy to reduce emissions of TACs and criteria pollutants in communities affected by a high cumulative exposure burden. CARB must offer grants to those communities for technical assistance and to support community participation. For air districts containing a selected location, within one year of CARB's selection, must adopt a community emissions reduction program.
 - Air districts that are nonattainment for one or more air pollutants must adopt an expedited schedule for the implementation of best available retrofit technology for each industrial source that, as of January 1, 2017, was subject to a specified market-based compliance mechanism, and give highest priority to those permitted units that have not modified emissions-related permit conditions for the greatest period of time.
 - CARB must establish and maintain a statewide clearinghouse that identifies the best available control technology for criteria air pollutants, and related technologies for the control to TACs.
 - The maximum generally applicable criminal and civil penalties for violations of air pollution laws from non-vehicular sources was increased to \$5,000, which will now annually adjust based on California Consumer Price Index.

CARB and air districts may be reimbursed for some costs mandated by the Bill.

SHASTA COUNTY AQMD ATTAINMENT STATUS DESIGNATION

Table 1 shows the District’s designations for the state and federal criteria pollutant standards.

Table 1. District’s Designations for State and Federal Pollutant Standards

Pollutant	California Standard Designation	Federal Standard Designation
Ozone	Nonattainment	Attainment
Particulate Matter, Less than 10 Microns in Diameter (PM10)	Attainment	Attainment
Particulate Matter, Less than 2.5 Microns in Diameter (PM2.5)	Attainment	Attainment
Carbon Monoxide	Attainment	Unclassified/ Attainment
Nitrogen Dioxide	Attainment	Unclassified/ Attainment
Sulfur Dioxide	Attainment	Unclassified
Lead	Attainment	Unclassified/ Attainment
Hydrogen Sulfide	Unclassified	(No Standard)
Sulfate	Attainment	(No Standard)
Visibility Reducing Particles	Unclassified	(No Standard)

The Shasta County Air Quality Management District (SCAQMD) is designated nonattainment for the California state ozone standard. Therefore, the expedited BARCT schedule applies to the control of these pollutants and their precursors. Volatile organic compounds (VOCs) and nitrogen oxides (NOx) are precursors to ozone formation.

Preliminary BARCT Evaluation and Identification of Potential Rule Development Projects

The District conducted preliminary BARCT evaluations of facilities subject to the AB 32 cap-and-trade program to determine which sources would be subject to rule development. The District’s process will be as follows:

- Identify pollutants of concern;
- Determine sources subject to the expedited BARCT schedule;
- Perform BARCT evaluation per H&SC Section 40920.6;
- Prioritize BARCT evaluations.

Pollutants of Concern

As demonstrated above in Table 1, SCAQMD is designated as attainment for all measured pollutants with the exception of the California Ozone standard. As a result, per the requirements of AB 617, the District must adopt an expedited BARCT implementation schedule for each nonattainment pollutant. In this case, the District will develop the schedule based on nonattainment for ozone and its precursors. Precursors for ozone are Nitrogen Oxides (NOx) and Volatile Organic Carbons/Reactive Organic Gasses (VOC/ROG).

Sources Subject to BARCT Schedule

A list of facilities was provided by CARB on June 18, 2018, based on 2016 emissions inventories. The list identified facilities that were subject to the cap-and-trade program on January 1, 2017. The list did not identify which sources that have already implemented BARCT due to permit revisions or new permits issued since 2007.

SCAQMD has 10 permitted sources of air pollution that are required to participate in the cap-and-trade regulation. Two of these sources are in categories identified as potentially subject to BARCT based on their being subject to CARB’s Mandatory Greenhouse Gas Reporting Regulation.

Table 2. Affected Facilities and Emissions:

CARB ID#	Facility Name	Facility Address	Sector	NOx Tons/yr.¹	VOC/ROG Tons/yr.¹
101243	Dicalite Minerals	Burney, CA	Non-metallic Mineral Mining	16.0	6.2
101381	Lehigh Southwest Cement Company	Redding, CA	Cement Manufacturing	554.6	9.5

1) Emissions based on three year average 2015-2017.

Dicalite Minerals is a Non-metallic Mineral Mining operation in a remote part of Eastern Shasta County. Minerals are extracted from the earth and processed through a rotary kiln/furnace; a process known as calcining. The furnace is the primary source of NOx and VOC/ROG and is permitted to burn pipeline natural gas, propane, #2 diesel fuel, #6 diesel fuel and recycled oil that meets CH&SC specifications. This facility has not undergone a permit revision since 2007. The emission limits in the operating permit for this source meet the District’s Best Available Control Technology (BACT) Standards that were identified when the source was permitted. During the implementation schedule proposed in this document, the District will evaluate the technological and economic feasibility of current technology to reduce emissions further.

Lehigh Southwest Cement Company is a cement manufacturing facility located north of Redding. Minerals are extracted from nearby quarries and transported to the facility. At this point the raw minerals are processed in various processes to produce Portland cement. The primary sources of NOx and

VOC/ROG emissions are from a preheater tower, rotary kiln stack and six large diesel backup generator engines. Primary fuels used at this facility include: pipeline natural gas, coal, medium density fiberboard, coke, rice hulls, wood chips, automobile tires, and diesel fuel. The emission limits in the operating permits for this source meet the District's Best Available Control Technology (BACT) Standards that were identified when the source was permitted. Equipment located at this facility has undergone permit revisions since 2007, however, it is uncertain at this time whether the permit revisions will meet the BARCT requirements of this rule. As a result, during the implementation schedule proposed in this document, the District will evaluate the technological and economic feasibility of current technology to reduce emissions further.

Evaluation of Potential BARCT Options for Affected Sources

Process Heaters/Kilns

Technologies are available to reduce NO_x emissions from fuel combustion in process heaters and kilns: low-NO_x burners and selective catalytic reduction (SCR). Low-NO_x burners use flue gas recirculation, precise air-to-fuel ratio control, premix burners, and staged combustion to reduce peak flame temperatures, thereby reducing NO_x formation. In many applications, low-NO_x burners are capable of achieving NO_x emission concentrations less than 10 parts per million by volume (ppmv, corrected to an exhaust oxygen concentration of 3%).

SCR is a post-combustion control in which combustion exhaust gas passes through a catalyst bed, where NO_x reacts with a reducing agent, such as urea or ammonia. SCR systems typically are capable of achieving NO_x emission concentrations of only a few ppmv.

Portland Cement Kilns

Potential NO_x control options for Portland cement kilns include: selective catalytic reduction, selective non-catalytic reduction, calciner upgrade, bio-solids injection (BSI) and tire-derived fuel (TDF). The District will review the cost-effectiveness of all potential control options for Portland cement kilns, and review those findings at a public meeting prior to any District Rule modification or Permit amendment. District research has indicated that in some cases; establishing a limit in pounds of NO_x per ton of clinker produced has been identified as BARCT for cement production.

Internal Combustion (IC) Engines

The five internal combustion engines at Lehigh Southwest Cement Company are used to drive electrical generators that provide backup power during power outages. The engines are fueled with diesel fuel. The most common, effective control systems for engines of this type use nonselective catalytic reduction (NSCR), in which a three-way catalyst (catalytic converter) simultaneously controls emissions of NO_x, VOC, and carbon monoxide.

During the BARCT implementation process, the District will evaluate applicability to District Rule 3:28 and whether amendments to Rule 3:28 are necessary to reduce emissions from Lehigh’s engines to meet BARCT control levels.

AB 617 BARCT Implementation Schedule

AB 617 Facility	Emission Category	Implementation Schedule		
		Determination of BARCT Standards	Rulemaking (If Necessary)	
		Timeframe	Timeframe	Affected Rule
Lehigh Southwest Cement Company	Process Heaters	2020	2021	Rule 3:26 (Revision)
	IC Engines	2021	2022	Rule 3:28
Dicalite Minerals	Process Heaters	2020	2021	Rule 3:26 (Revision)

Public Meeting (H&SC §40920.6(d))

This expedited BARCT implementation schedule, and the results of the various control option and cost-effectiveness analyses, will be discussed at public meetings.

Local Public Health and Clean Air Benefits (H&SC §40920.6(d)(1))

None of the AB 617 BARCT sources represent a risk to local public health; each is in compliance with all current air quality-related health requirements, including all of criteria, hazardous and toxic air contaminants.

Cost Effectiveness (H&SC §40920.6(d)(2))

The District evaluates every rule proposal for cost effectiveness, and will do so for any rule that may be amended and/or adopted for AB 617.

Air Quality and Attainment Benefits (H&SC §40920.6(d)(3))

As the two AB 617 BARCT sources currently meet the Districts Best Available Control Technology (BACT) Standards, AB 617 BARCT implementation within the District may result in local air quality benefits. There may be minimal ozone attainment benefit for the Shasta Lake City Ozone Monitoring Station which is located downwind from the Lehigh Southwest Cement Plant.