



BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT

# **AB 617 Expedited BARCT Implementation Schedule Concept Paper**

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Bay Area Air Quality Management District  
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# AB 617 Expedited BARCT Implementation Schedule Concept Paper

## Summary

Assembly Bill 617 (AB 617), which was approved July 26, 2017, and amends California Health and Safety Code section 40920.6., requires each air district that is a nonattainment area for one or more air pollutants to adopt by January 1, 2019 an expedited schedule for implementation of best available retrofit control technology (BARCT) by the earliest feasible date, but no later than December 31, 2023. This requirement applies to each industrial source subject to California Greenhouse Gas (GHG) Cap-and-Trade requirements. The schedule must give priority to any sources that have not had emissions limits modified for the greatest period of time. The schedule does not apply to sources that have implemented BARCT since 2007.

## Goals

The overall purpose of BARCT implementation is to reduce criteria pollutant emissions from significant sources that currently participate in the GHG Cap-and-Trade system. The Cap-and-Trade system is designed to address and limit GHG emissions, and allows sources to comply with Cap-and-Trade limits by either reducing emissions at the source or purchasing GHG emission allowances. Emissions of criteria pollutants and toxic air contaminants are often associated with GHG emissions, and these criteria pollutants and toxic air contaminants may impact local communities that are already suffering a disproportionate burden from air pollution.

## Background

The Bay Area Air Quality Management District 2017 Clean Air Plan includes a long-range goal to eliminate disparities in air pollution exposure in the San Francisco Bay Area. The Air District has been explicitly working towards this goal since 2006, with the initiation of the Community Air Risk Evaluation (CARE) program. The CARE program identifies and assists communities that have higher air pollution levels and may experience more air pollution-related health impacts. Emissions from mobile sources, small and large stationary sources, and goods-movement related indirect sources can have localized impacts on pollution levels or contribute to cumulative levels of pollution that are experienced by nearby communities. The CARE program provides a framework for the Air District to target its incentive and enforcement efforts in the most impacted communities. However, many communities remain overburdened and there is more that must be learned and accomplished. Through a partnership with local communities and the state, the Air District has an opportunity to better understand local pollution and to develop strategies to better reduce people's exposure to air pollution.

With the adoption of AB 617, the state acknowledges that many communities around the state continue to experience disproportionate impacts from air pollution. To address these impacts, AB 617 directs all air districts to apply BARCT to all sources subject to Cap-and-Trade, and to identify communities with a "high cumulative exposure burden" to air pollution. Districts must then prioritize these communities for the development of

community air monitoring projects and/or emission reduction programs. The State requires that monitoring campaigns and emission reduction programs be developed through a community-based process. Requiring updated BARCT controls at industrial sources should provide some of the emission reductions for Community Emission Reduction Plans.

## Regulatory Context

AB 617 requires the following:

- Air Districts in nonattainment areas must implement BARCT on all sources subject to the AB 32 Cap-and-Trade Program (addressed in this Concept Paper).
- The California Air Resources Board (CARB) must establish and maintain a clearinghouse of best available control technology (BACT), and best available retrofit control technology.
- Air pollution violation maximum penalties are increased, and will adjust with inflation.
- CARB must prepare an air monitoring plan for all areas of the state by October 1, 2018.
- Based on air monitoring plan information, CARB must select communities with high cumulative exposure burden to both toxic and criterial air pollutants by July 1, 2019.
  - Each air district with a high cumulative burden community must deploy a community air monitoring system in that community within one year, and provide the air quality data to CARB for publication.
- By January 1, 2020, and each January 1 thereafter, CARB will select additional communities with high cumulative exposure burden.
  - Each air district with a high burden community must deploy a community air monitoring system in that community within one year, and provide the air quality data to CARB for publication.
- CARB must prepare a state-wide strategy to reduce emissions of toxic and criteria pollutants in communities affected by high cumulative exposure burden, by October 1, 2018, and update the strategy every five years. Criteria for the state-wide strategy include:
  - Disadvantaged communities and sensitive receptor location are a priority.
  - A methodology for assessing and identifying contributing sources, and estimating their relative contribution to elevated exposure (source apportionment).
  - Assessment of whether an air district should update and implement the risk reduction audit and emissions reduction plan for any facility if the facility causes or significantly contributes to the high cumulative exposure burden.
  - Assessment of available measures for reducing emissions including BACT, BARCT, and best available control technology for toxics (TBACT).

- CARB will select locations for preparation of Community Emission Reduction Plans by October 1, 2018. CARB will select additional locations annually thereafter.
  - Within one year, the air district will adopt Community Emission Reduction Plans in consultation with CARB, individuals, community-based organizations, affected sources, and local governmental bodies.
  - The Community Emission Reduction Plans must be consistent with the state-wide strategy, and include emission reduction targets, specific reduction measures, a schedule for implementation of the measures, and an enforcement plan.
  - The Community Emission Reduction Plans must be submitted to CARB for review and approval.
    - CARB must initiate a public process to achieve an approvable Community Emission Reduction Plan if the Plan is initially not approvable.
    - CARB must develop and implement applicable mobile source elements in the Community Emission Reduction Plans to achieve emission reductions.
  - The Community Emission Reduction Plans must achieve emission reductions in the community, based on monitoring or other data.
  - The air district must prepare an annual report summarizing the results and actions taken to further reduce emissions.
- CARB will provide grants to community-based organizations for technical assistance and to support community participation in identification of communities with high exposure burden, and development and implementation of the Community Emission Reduction Plans.

AB 617 represents a significant enhancement to the approach CARB and local air districts take in addressing local air quality issues. The Air District has begun implementing programs that would be required from AB 617; these programs include the Community Air Risk Evaluation (CARE) Program, Health Risk Assessments for the AB 2588 Air Toxics “Hot Spots” Program, and Air District Rule 11-18: Reduction of Risk from Air Toxic Emissions at Existing Facilities. However, the requirements of AB 617 formalize the requirements and establish challenging goals and timelines for implementation.

## Preliminary BARCT Evaluation and Identification of Potential Rule Development Projects

Air District staff conducted preliminary BARCT evaluations of affected sources to determine which sources are suitable for rule development. Staff’s process for developing the schedule of potential rule development projects involved:

- Identifying pollutants of concern and affected facilities and sources
- Screening out sources with limited potential emission reductions and sources not subject to the expedited schedule
- Conducting preliminary BARCT evaluations
- Identifying and prioritizing potential BARCT rule projects

## Nonattainment Pollutants

The Bay Area air basin is in attainment with both the National Ambient Air Quality Standards and California Ambient Air Quality Standards for carbon monoxide (CO), SO<sub>2</sub>, NO<sub>2</sub>, and Lead. The air basin is designated as nonattainment for ozone (O<sub>3</sub>) and particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>) California ambient air standards, therefore the BARCT review was conducted focusing on the following pollutants:

- Nitrogen Oxides (NO<sub>x</sub>)
- Reactive Organic Gases (ROG)
- Particulate Matter less than 10 microns (PM<sub>10</sub>)
- Particulate Matter less than 2.5 microns (PM<sub>2.5</sub>)
- Sulfur Dioxide (SO<sub>2</sub>)

Note that NO<sub>x</sub> and ROG are included because they are precursors for ozone formation. Similarly, SO<sub>2</sub> is included because it is a precursor for secondary PM<sub>2.5</sub> (i.e. formed in the atmosphere from reactions with ammonia to form ammonium sulfate). In some sources, SO<sub>2</sub> can also contribute to formation of condensable PM (i.e. formed in the emissions plume from the stack), so PM controls may include SO<sub>2</sub> limits.

## Affected Facilities and Source Screening

A list of facilities, sources, and emissions were developed from the 2016 Reporting Year Emissions Inventory. The Bay Area has 80 facilities subject to Cap-and-Trade, which encompass 3,246 individual sources in 61 source categories.

Staff focused on sources that emit more than 10 lbs per day of each pollutant (1.8 tons per year). This level is consistent with the Air District's BACT threshold for new sources per the New Source Review Rule, Section 2-2-301. Staff assumes that potential emissions reductions from sources with relatively low annual emissions are small and not likely to be cost-effective. This approach reduced the population of sources as follows:

- NO<sub>x</sub>: 38 source categories, 356 sources (29% of sources) representing 97% of the emissions, (7,238 tpy)
- ROG: 32 source categories, 340 sources (12% of sources) representing 92% of the emissions, (5,242 tpy)
- PM: 27 source categories, 187 sources (11% of sources) representing 91% of the emissions (2,460 tpy)
- SO<sub>2</sub>: 23 source categories, 129 sources (10% of sources) representing 97% of the emissions (5,398 tpy)

Staff then screened out sources where BARCT has already been applied. Existing regulations that have been amended and/or adopted since 2007 are considered to reflect current BARCT levels, per AB 617. Sources subject to these regulations are therefore already assumed to meet BARCT, and no further BARCT determination or rulemaking is required. After screening for these sources already achieving BARCT, the population of sources was reduced to the following:

- NO<sub>x</sub>: 15 source categories, 99 sources representing 33% of the emissions (2,426 tpy)
- ROG: 32 source categories, 340 sources representing 92% of the emissions (5,242 tpy)

- Note – recent ROG regulations address sources at facilities not subject to Cap-and-Trade requirements
- PM: 27 source categories, 174 sources representing 87% of the emissions (2,358 tpy)
- SO<sub>2</sub>: 22 source categories, 127 sources representing 72% of the emissions (4,006 tpy)

These sources and source categories require further BARCT evaluation and determination.

### BARCT Determination Process

Staff reviewed available information on current achievable emission limits and potential controls for each source category and pollutant. This information included guidelines and recent determinations of BACT, reasonably available control technology (RACT), and lowest achievable emission rate (LAER) from EPA, CARB, and other air districts. Staff determined:

- Current levels of BACT controls and emissions (and next more stringent levels of BACT, if available);
- Potential emission reductions and incremental additional potential emission reductions; and
- Estimated capital and annual costs for retrofit of controls to existing facilities as required by AB 617.

Estimated emission reduction cost effectiveness and incremental cost effectiveness were calculated, and any resulting cost effectiveness within reasonable bounds consistent with recent BARCT determinations was considered to be a potential rule development project. Staff also identified facilities where emission reductions were too small to be cost effective.

Based on these preliminary BARCT determinations, nine potential rule development projects have been identified as candidates for the Expedited BARCT Implementation Schedule. Criteria for the selection and prioritization of these nine projects are as follows:

- Potential for localized clean air and public health benefits through reduction of localized exposure to harmful pollutants
- Potential for substantial emissions reductions (greater than ten tons per year), with a focused consideration of potential PM emissions reductions for reducing localized PM health impacts
- Prioritization of source categories where BARCT rules have not been adopted or evaluated for the greatest period of time
- Cost-effectiveness of controls

Potential Rule Development Projects listed by priority are shown in Table 1. Scopes for each of these projects is described in Attachment A.



**Table 1: Potential Rule Development Projects**

	<b>Rule Development Projects</b>	<b>PM</b>	<b>NOx</b>	<b>ROG</b>	<b>SO<sub>2</sub></b>
1	Organic Liquid Storage Tanks			<b>X</b>	
2	Petroleum Wastewater Treating			<b>X</b>	
3	Portland Cement Manufacturing	<b>X</b>			<b>X</b>
4	Refinery Fluid Catalytic Crackers and CO Boilers	<b>X</b>			<b>X</b>
5	Refinery Heavy Liquid Leaks			<b>X</b>	
6	Internal Combustion (Reciprocating) Engines			<b>X</b>	
7	Fiberglass Manufacturing	<b>X</b>	<b>X</b>		
8	Municipal Solid Waste Landfills			<b>X</b>	
9	Petroleum Coke Calcining		<b>X</b>		

Through this BARCT evaluation and review process, staff also identified two source categories with large estimated PM emissions that merit further study. Air District estimates of PM emissions from Landfills and Cooling Towers indicate that these are large sources of PM and substantial emission reductions may be achievable. However, staff recognizes that PM emissions from these sources have historically been difficult to quantify, and that current estimates may not adequately reflect the actual emissions and the efficacy of existing controls at these sources. Staff intends to further study these sources and evaluate the potential for PM reductions when more refined emissions estimates can be developed. Therefore, rule development projects for PM emissions from these sources are not being proposed in the Expedited BARCT Implementation Schedule at this time.

Staff identified 15 additional potential rule development projects for the remaining sources and source categories not described above. These projects are not being proposed at this time for a number of reasons, including:

- Potential emission reductions that would be relatively small,
- Emissions that are anticipated to have low impact on local communities, and
- Emissions that are not expected to impact achieving attainment of the California clean air standards.

These additional 15 potential rule development projects are shown in Attachment B. Actions on these potential rule development projects are more appropriately considered as part of local Community Emission Reduction Plans.

## Expedited BARCT Implementation Schedule

### Rule Development Project Schedules

Figure 1 shows the estimated schedules for the nine potential rule development projects. This schedule assumes the Air District rule development group at full staffing, working on up to four of these projects in parallel each year for three consecutive years, along with other rule development projects currently being worked on as part of the 2017 Clean Air Plan.

**Figure 1: Expedited BARCT Implementation Schedule**

Project	2018			2019			2020			2021		
Organic Liquid Storage Tanks												
Petroleum Wastewater Treating												
Portland Cement Manufacturing												
Refinery Fluid Catalytic Crackers and CO Boilers												
Refinery Heavy Liquids Leaks												
Internal Combustion (Reciprocating) Engines												
Fiberglass Manufacturing												
Municipal Solid Waste Landfills												
Petroleum Coke Calcining												

### Rule Development Project Timelines

Most rule development projects take approximately 12 months from initiation to rule adoption at a Public Hearing. Staff assumes the first 9 months of a project require a full-time staff person to:

- Establish scope with internal workgroup
- Identify all affected sources
- Complete research on possible controls
- Refine estimates of emission reductions
- Confirm estimated capital and annual costs
- Determine cost effectiveness and incremental cost effectiveness, if applicable
- Work with and gather input from affected parties
- Draft rule language and workshop report
- Review/revise workshop documents
- Conduct workshops
- Initiate CEQA and Socioeconomic Analyses
- Receive and incorporate comments into final documents
- Review CEQA and Socioeconomic Analyses
- Finalize Public Hearing documents

Staff assumes the remaining 3 months of the project require about half-time staff person to complete the public hearing, assist in implementation, and submittal to CARB.

Some rule development projects may take more time during the technical assessment phase, especially if additional source testing or emissions profile testing is required. This information gathering phase can extend a project timeline up to 6 months. As shown in the Expedited BARCT Implementation Schedule in Figure 1, staff anticipates that additional information gathering time will be required for rule development projects for Cement Manufacturing and for Refinery Fluid Catalytic Crackers and CO Boilers.

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## Attachment A

### Scope Papers for Potential Rule Development Projects in Expedited BARCT Implementation Schedule

1. Organic Liquid Storage Tanks
2. Petroleum Wastewater Treating
3. Portland Cement Manufacturing
4. Refinery Fluid Catalytic Crackers and CO Boilers
5. Refinery Heavy Liquid Leaks
6. Internal Combustion (Reciprocating) Engines
7. Fiberglass Manufacturing
8. Municipal Solid Waste Landfills
9. Petroleum Coke Calcining

#### Further Study Required

- Cooling Towers

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## Attachment B

### Additional Potential Rule Development Projects for Further Consideration with Local Community Emission Reduction Plans

<b><u>Other Source Categories Being Considered</u></b>	<b>PM</b>	<b>NOx</b>	<b>ROG</b>	<b>SO<sub>2</sub></b>
Fuel Gas Combustion Practices <ul style="list-style-type: none"> <li>• Boilers</li> <li>• Gas Turbines</li> <li>• Hydrogen Furnaces</li> <li>• Process Heaters</li> </ul>	<b>X</b>		<b>X</b>	
Landfill Flares and Landfill Gas		<b>X</b>	<b>X</b>	<b>X</b>
Incinerators		<b>X</b>		
Marine Terminal Loading			<b>X</b>	
Natural Gas Furnaces		<b>X</b>	<b>X</b>	
Natural Gas Dryers		<b>X</b>	<b>X</b>	
Refinery Flares		<b>X</b>	<b>X</b>	
Solvent Cleaning			<b>X</b>	
Sulfur Plants	<b>X</b>	<b>X</b>		
Sulfuric Acid Plant		<b>X</b>		<b>X</b>
Thermal Oxidizers		<b>X</b>		
Wallboard Manufacturing	<b>X</b>			
Wastewater Treating – POTW/Other		<b>X</b>		