



# Proposed Updates to BACT Guidelines

**BACT Scientific Review  
Committee Meeting #1  
February 23, 2023**

**Join Zoom Meeting**

**<https://scaqmd.zoom.us/j/94053989814>**

**Meeting ID: 940 5398 9814**

**Call-in number: 1-669-900-6833**

# Agenda

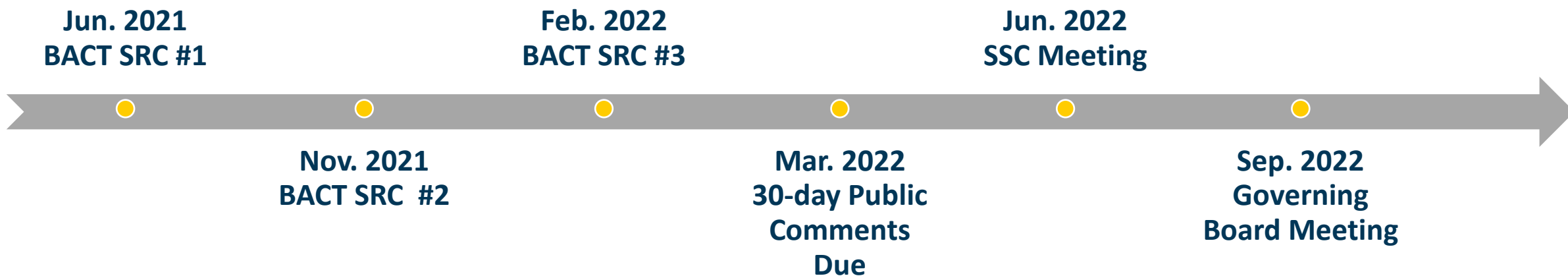
- Sep. 2022 Adopted Latest Revision to LAER/BACT Guidelines
  - Proposed New/Updates to Part B
  - Proposed New/Updates to Part D
  - Proposed Amendments to Overview, Policy & Procedures
  - Other BACT Updates
  - Discussion
- Next Steps

# September 2022 Adopted Latest Revision to LAER/BACT Guidelines



- **Administrative changes to Table of Contents, Overview, Parts A, C, and D**
- **Part B, Major Polluting Facilities (LAER/BACT) – Section I and Section II**
  - Three new & three updated listings
- **Part C, Policy and Procedures: Non-major Polluting Facilities**
  - Update maximum cost effectiveness criteria
- **Part D, Non-Major Polluting Facilities (BACT)**
  - One new & four updated listings and clarifications/updates to existing listings

## Previous BACT Guidelines Update Timeline



# Part B- LAER/BACT Determination for Major Polluting Facilities

## Section I – South Coast AQMD LAER/BACT Determinations

### Proposed New Listing

#### ➤ Fugitive Emission Sources at Petroleum Refineries

- Achieved In Practice Case (Permit to Operate Issued in May 2013)
  - All fugitive components in VOC service (greater than 10% by weight) in Naphtha Hydrodesulfurization Unit, except for pumps, compressors, and drains
  - Leak Standards:

Emissions	Proposed LAER/BACT	Current LAER/BACT
VOC (ppmv)	200	500

- Volatile Organic Compounds (VOCs) are the only pollutant of concern emitted from leaking petroleum refinery valves and connectors
- A leak greater than 200 ppm but less than 1,000 ppm measured as methane above background as measured using EPA Method 21, shall be repaired within 14 days of detection





# Part B- LAER/BACT Determination for Major Polluting Facilities

## Section I – South Coast AQMD LAER/BACT Determinations

### Proposed New Listing

#### ➤ Heater, Natural Draft Operation

- Achieved In Practice Case (In operation since Mar. 2021)
  - Ultra Low NOx Process Burners
  - Total Max Heat Input Rate: 12.5 MMBTU/HR
  - Heater is located at a terminal and used for the flash distillation process to separate produced gasoline/diesel (transmix) blends to recover individual fractions.

- Emissions:

Emissions *	Proposed LAER Limits	Source Test Results
NOx (ppmv)	7	6.25
CO (ppmv)	100	<2.00

\* @ 3% O<sub>2</sub> on a dry basis

- Source test was performed in 2021 using South Coast AQMD Method 100.1



# Part B- LAER/BACT Determination for Major Polluting Facilities

## Section I – South Coast AQMD LAER/BACT Determinations

### Proposed New Listing



- **Linear Generator, Non-Emergency Electrical Generator, Natural Gas Fired**
  - Achieved In Practice Case (Permit to Operate Issued in Apr. 2022)
    - Two 240 kWe linear generators, each consists of two identical 120 kWe cores
    - Each core is vented to a CO oxidation catalyst
    - Linear generators use a low-temperature reaction to produce electricity
  - Emissions:

Emissions *	Proposed LAER Limits	Source Test Results			
		Core 1	Core 2	Core 3	Core 4
NOx (ppmv)	2.5	1.66	1.91	1.94	1.13
CO (ppmv)	12	1.80	2.17	1.80	1.90
VOC (ppmv)	25	4.35	4.03	2.64	4.01

\* @ 15% O<sub>2</sub> on a dry basis

- Source test was performed in 2022 using South Coast AQMD Method 100.1 for NOx, O<sub>2</sub>, and CO and Method 25.3 for VOC



# Part B- LAER/BACT Determination for Major Polluting Facilities

## Section I – South Coast AQMD LAER/BACT Determinations

### Proposed New Listing

#### ➤ Sulfur Recovery (Claus) Unit

- Achieved In Practice Case (Permit to Operate Issued in May 2017)
  - Tail Gas Treatment Unit, Tail Gas Incinerator and Caustic Scrubber
  - Low NOx Burner, Max Heat Input Rate: 50.1 MMBTU/HR
  - Sulfur removal capacity is 235 long tons per day
- Emissions:

Emissions	Proposed LAER Limits	Source Test Results
NOx (lb/MMBTU natural gas)	0.05	0.04
CO (lb/MMBTU natural gas)	0.03	0.00
SOx (ppmv)*	12	0.22

\* @ 0% O<sub>2</sub> on a dry basis

- Source test was performed in 2015 using South Coast AQMD Method 6.1 for SO<sub>2</sub> and Method 100.1 for NOx and CO



# Part B- LAER/BACT Determination for Major Polluting Facilities

## Section I – South Coast AQMD LAER/BACT Determinations

### Proposed New Listing



#### ➤ Tank Truck Loading Racks

- Achieved In Practice Case (Permit to Operate Issued in Sep. 2015)
  - Vapor recovery collection and disposal system (VCDS) controls vapors generated from storage tank and loading rack operations
  - VOC laden vapors vented to the thermal oxidizer
  - Max Heat Input Rate: 78 MMBTU/HR

- Emissions:

Emissions *	Proposed LAER Limit	Source Test Result
VOC (lb/1000 gals)	0.02	0.01

\* Overall control efficiency is 99% for the vapor recovery/disposal system

- Source test was performed in 2010 using South Coast AQMD Method 25.1/25.3





# Part B- LAER/BACT Determination for Major Polluting Facilities

## Section II - Other LAER/BACT Determinations

### Proposed New Listing

#### ➤ Boiler, Natural Gas or Propane Fired > 20 MMBTU/HR

- Achieved In Practice Case (Permit Issued in Sep. 2018); SJVAPCD
  - Natural gas fire-tube boiler with Low-NOx burner and Selective Catalytic Reduction (SCR) System, rated at 29.47 MMBTU/HR
  - Boiler provides steam for corrugated container manufacturing

#### ■ Emissions:

Emissions *	Proposed LAER Limits	Source Test Results
NOx (ppmv)	2.5	1.4
CO (ppmv)	50	<0.1

\* @ 3% O<sub>2</sub> on a dry basis

- Source test was performed in 2020
- SJVAPCD updated their boiler BACT/LAER determinations in November 2022.



Emissions *	SJVAPCD BACT	Rule 4320
NOx (ppmv)	2.5	2.5
CO (ppmv)	50	400

\* @ 3% O<sub>2</sub> on a dry basis

# Part B- LAER/BACT Determination for Major Polluting Facilities

## Section II - Other LAER/BACT Determinations

### Proposed New Listing

#### ➤ Gas Turbine - Simple Cycle, Natural Gas

- Achieved In Practice Case (Permit to Operate Issued in Nov. 2015); BAAQMD
  - 760 MW simple cycle power plant
  - Four natural gas fired combustion turbine generators (190 MW each), equipped with SCR and Oxidation Catalyst, to generate electrical power
- Emissions:

Emissions *	Proposed LAER Limit	Current LAER Limit	Source Test Results	
			Unit 1	Unit 4
CO (ppmv)	2	4	0.2	0.34

\* @ 15% O<sub>2</sub> on a dry basis

- The NO<sub>x</sub> limit for these gas turbines is 2.5 ppm
- Source test was performed in 2019 (unit 1) and 2021 (unit 4) using EPA Method 7E for NO<sub>x</sub>, EPA Method 3A for O<sub>2</sub> and EPA Method 10 for CO



# Part D- BACT Determination for Non-Major Polluting Facilities

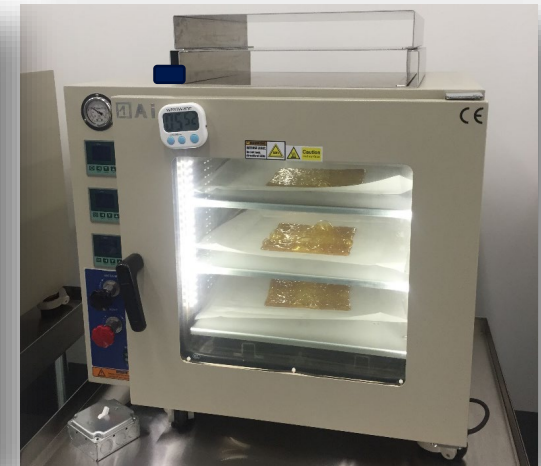
## South Coast AQMD BACT Determinations

### Proposed New Listing

- **Cannabis Extraction/Processing (Butane/Propane Mixture)**
  - Achieved In Practice Case (In operation since Mar. 2018)
    - Solvent extraction system, hot column purge, and vacuum ovens
  - Emissions:
    - Source test was performed in 2022 to quantify the VOC emissions

Emissions	Proposed BACT Limit	Source Test Result
VOC (Recovery Eff.)	95%	96.5%

- Cost-effectiveness Evaluation - In Progress





# Part D- BACT Determination for Non-Major Polluting Facilities

## South Coast AQMD BACT Determinations

### Proposed New Listing

#### ➤ Crumb Rubber/Asphalt Oil Blending System

- Achieved In Practice Case (In operation since 2018)
  - The mixing tanks and storage tank are vented to air pollution control, consisting of condenser and steel wool for each tank, ESP for the mixing tanks, and carbon adsorber (two canisters in series)

- Emissions:

- Source test was performed in 2021 using South Coast AQMD Method 25.1/25.3

Emissions	Proposed BACT Limit	Source Test Result
VOC (Control Eff.)	90%	97.6%

- Cost-effectiveness Evaluation - In Progress





# Other BACT Updates

## Overview, Policy and Procedures

### ➤ Overview

#### ■ MAJOR POLLUTING FACILITY EMISSION THRESHOLDS

Table 1  
Actual or Potential Emission Threshold Levels (Tons per Year)  
for Major Polluting Facilities

Pollutant	South Coast Air Basin	Riverside County Portion of Salton Sea Air Basin	Riverside County Portion of Mojave Desert Air Basin
VOC	10	<del>25</del> 10	100
NOx	10	<del>25</del> 10	100



#### ■ CALCULATION PROCEDURES FOR EMISSION INCREASES

- Add a link to footnote 7 in order to include Policies & Procedures to determine pre-modification Potential To Emit (PTE)

#### ■ BACT SCIENTIFIC REVIEW COMMITTEE (BACT SRC)

- List of interested parties for the BACT SRC membership
- Change Engineering and Compliance to Engineering and Permitting

# Other BACT Updates (Cont'd)

## Overview, Policy and Procedures

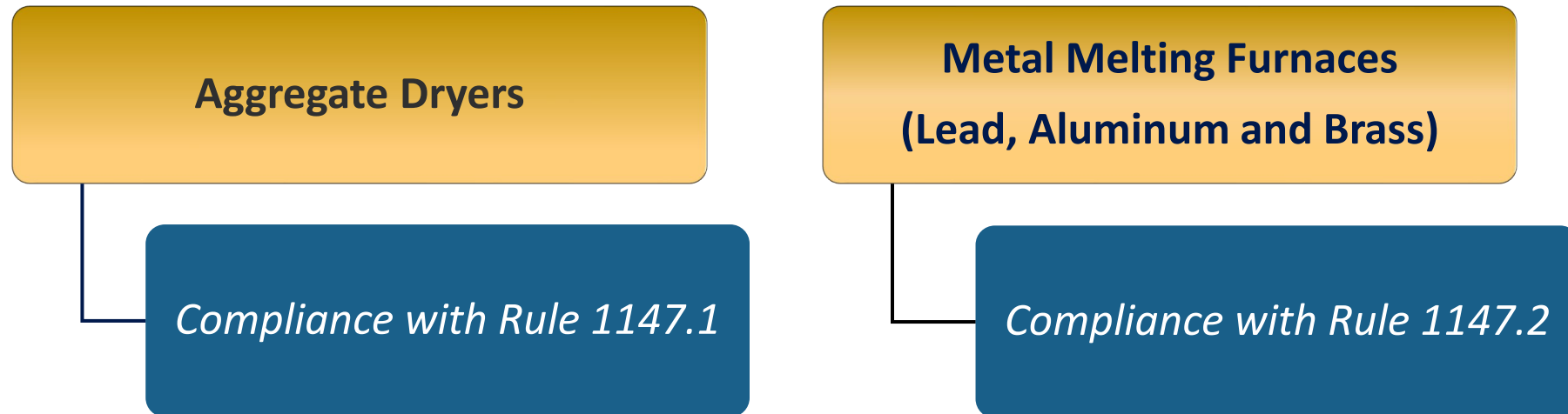
- **Part C - Policy and Procedures for Non-Major Polluting Facilities**
  - Update Maximum Cost Effectiveness values

2022 Quarter 3		
Pollutant	Average (\$/ton)	Incremental (\$/ton)
ROG	41,370	124,110
NOx	39,117	117,147
SOx	20,685	62,055
PM <sub>10</sub>	9,216	27,444
CO	819	2,355

# Other BACT Updates (Cont'd)

## Part D - BACT Determination for Non-Major Polluting Facilities

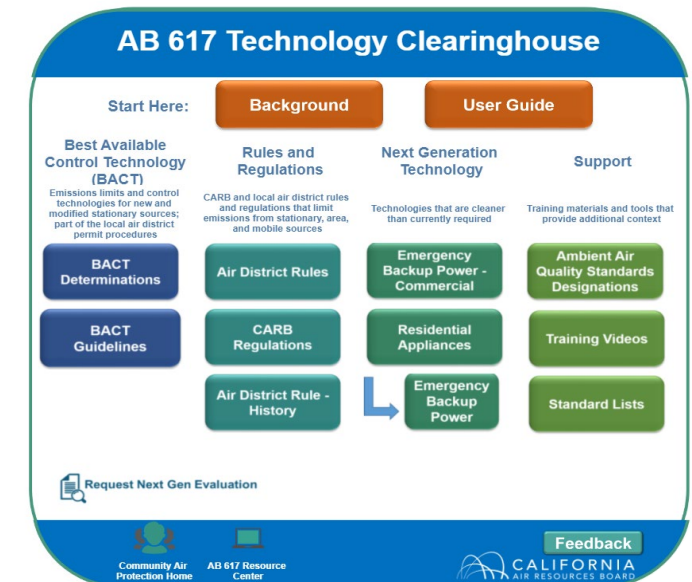
- **Updates for Consistency with Rules and Regulations**
  - **Rule 1147.1** NOx Reductions from Aggregate Dryers (8/6/21)
  - **Rule 1147.2** NOx Reductions From Metal Melting and Heating Furnaces (4/1/22)



- **Clarifications to Part D listings** – more user friendly

# Other BACT Updates (Cont'd)

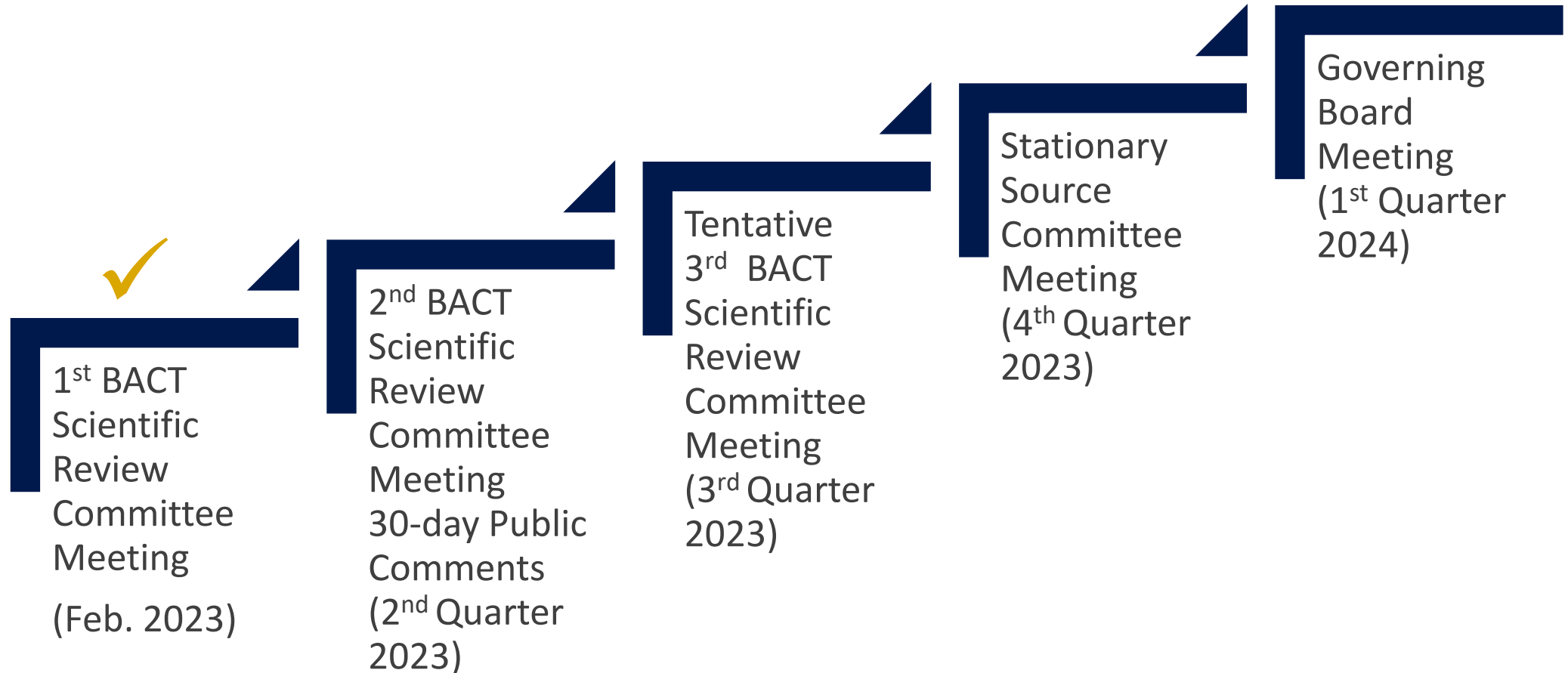
- **BACT Technical Assessment for Biogas Flares**
  - Continue to monitor new/existing organic and food waste digestion and co-digestion flare projects for ammonia NOx impacts
- **Emergency, Stationary I.C. Engine Testing Guidance**
  - Update on the status of the Testing Guidance
- **Discussion/Other Items**
  - AB617 BACT Technology Clearinghouse





# Next Steps

Please Provide Your Written Comments No Later  
than March 9, 2023





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