



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

2017 Clean Air Plan Overview

Annual BACWA Committee Meeting

June 21, 2017

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Rule Development

What Is This Plan?

Multi-pollutant plan to update 2010 Clean Air Plan

A comprehensive strategy of 85 measures to:

- reduce ozone and fine particles throughout the region
- reduce air toxics in impacted communities
- reduce GHGs toward long-range targets
 - 40% below 1990 levels by 2030
 - 80% below 1990 levels by 2050





How Does This Plan Address Stationary Sources?

Through a three-pronged strategy that aims to

Decrease Greenhouse Gas Emissions

- Improve industrial efficiency
- Stop methane leaks

Reduce Criteria Pollutants from Large Sources

- Execute Refinery Strategy
- Address PM in Bay Area
- (Agenda #3)

Lower Exposure to Toxics

- Use latest HRA guidance
- Focus on existing sources (Agenda #5)



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Basin-Wide Methane Strategy (SS16)

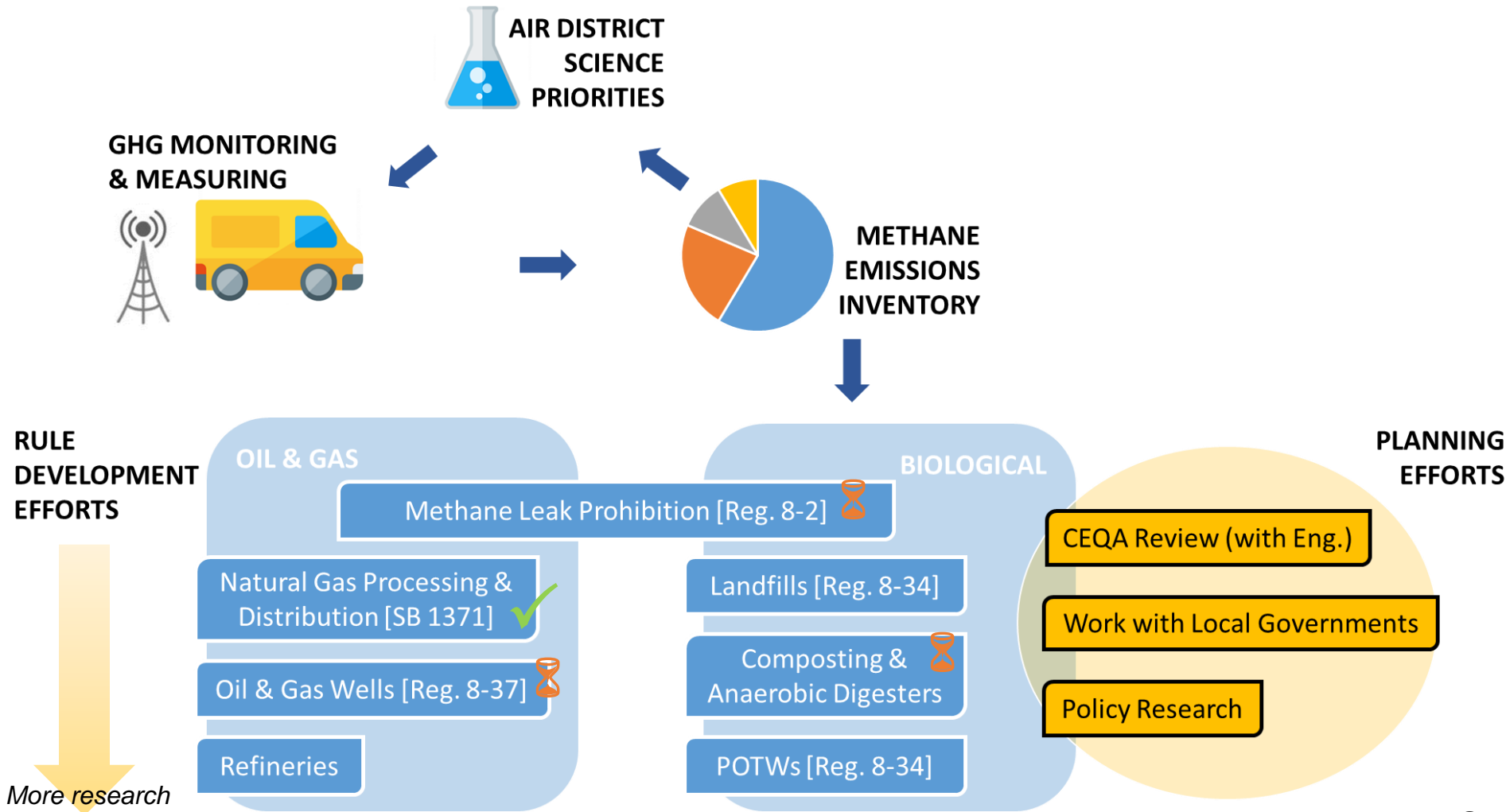
Stop methane leaks

Reduce region's CH₄ emissions in support of ARB's SLCP strategy

- Improve methane emissions inventory (SL3)
- Prohibit significant methane leaks in the region
- Remove methane exemption from relevant rules
- Rulemaking to reduce methane emissions from
 - Natural gas & oil production (SS13, SS14)
 - Natural gas distribution network (SS15)
 - Landfills (WA1) and Composting Operations (WA2)
 - POTWs (WR1)
- Use incentives, best practices and other tools to reduce methane from the agriculture sector (AG2, AG3, AG4)

Basin-Wide Methane Strategy

Coordination Framework





2017 Clean Air Plan *Implementation*

Multiple measures in the Plan affect BACWA

How can BACWA collaborate with the Air District on these?

- Join our Methane Expert Workgroup
- Share any air emissions research/data available
- Join efforts to better understand air emissions (including CH₄ and N₂O) from POTWs, including pilot studies
- Participate on Clean Air Plan and rule-specific stakeholder meetings (we will send invites!)
- Provide public comment on developing rules



Implementation: 2017 & 2018

Rule Development Calendar

CM #	2017 Control Measures
SS 11	Refinery Emissions Cap (Rule 12-16) <i>[June]</i>
SS 15	Natural Gas Processing and Distribution <i>[CPUC; June]</i>
SS 20	Toxics Risk Cap (Rule 11-18) <i>[September]</i>
SS 9, 17	GHG BACT and Crude Slate in Permits (Rule 2-1, 2-2) <i>[October]</i>
SS 31, 35, 36, 37	Particulate Matter (Rule 6, 6-1, 6-6, 6-7, 6-8)
SS 12	Refinery Carbon Intensity Limits (Rule 13-1)
SS 16	Basin-Wide Methane Strategy <i>[Implementation planning]</i>

CM #	2018 Control Measures
SS 5, 6, 7	Refinery Sulfur Emissions (Rule 9-1)
SS 22	Stationary Gas Turbines (Rule 9-9)
SS16	Methane Mega-leak Prohibition
SS 1	Fluid Catalytic Cracking in Refineries (Rule 6-5, Phase 2)
SS 13	Oil and Gas (Rule 8-37)
WA 2	Composting Operations

Thank you for your attention!



Any questions?

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Backup Slides to Follow: Don't print



Decreasing GHG Emissions

Improve Industrial Efficiency

Basin-wide Combustion Strategy (SS18)

Approach to stabilize and increase combustion efficiency

- Phase 1: Carbon Intensity (CI) Caps
 - CI = CO₂ emitted per unit of input or output
 - CI limits for refineries, power plants and cement
- Phase 2: Source-by-Source Rulemaking
 - Identify cost-effective and technically feasible efficiency improvements leading to GHG and CAP emission reductions

Rules in Development

- Draft Rule 12-16 caps refinery GHG and criteria emissions (SS11)
- Draft Rule 13-1 limits refinery carbon intensity (SS12)
- Draft Rule 2-2 lowers GHG BACT threshold (SS17)



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Reducing Criteria Pollutants from Large Sources: *Refinery Strategy*

Refinery Emission Reduction Strategy

On track toward goal of 20% emissions reduction by 2020

Rule	Addresses	CM	Adoption Date
6-5	Reduces PM from FCCUs	SS1	Dec. 2015
8-18	Reduces VOC from equipment leaks	SS2	
11-10	Reduces VOC & toxics from cooling towers	SS3	
9-14	Reduces SO ₂ from coke calcining operations	SS8	Apr. 2016
12-15	Tracks crude slate changes and emissions	SS10	

17% reduction in total refinery CAP emissions from adopted rules



Reducing Criteria Pollutants from Large Sources: *Refineries and Others*

Refinery Emission Reduction Strategy (goal: 20% by 2020)

What's Next?

Rule	Addresses	CM	Scheduled
9-9	Nitrogen oxides (NO _x) from gas turbines	SS22	2018
TBD	Further refinery SO ₂ reductions	SS5, 6, 7	2018
6-5	Condensable PM & SO ₂ reductions from FCCUs (Phase 2 of Rule)	SS1	2018

Other Large Sources

- Amended Rule 9-13 to limit SO₂ and ammonia from cement manufacturing (SS19)



Reducing Criteria Pollutants from Large Sources: *Reduce PM*

New and Amended Regulation 6 Rules

Prioritize largest PM emissions reductions in the region

- Amendments to Rule 6-1 to reduce PM limits **(SS31)**
- Rule 6-6: PM from trackout **(SS36)**
- Rule 6-7: PM from asphalt operations **(SS37)**
- Rule 6-8: PM from bulk material storage, handling and transport, including coke and coal **(SS35)**

Evaluate Cost-Effective Strategies for Other PM Sources

- Commercial cooking **(SS34)**
- Fugitive dust **(SS38)**



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Lowering Exposure to Toxics

Include Latest Science

Toxics New Source Review (NSR) Program (Rule 2-5) now includes latest health risk assessment (HRA) guidelines (SS21)

Background

- Rule 2-5 implements Air District's HRA and Risk Management (RM) procedure through NSR program
- OEHHA released HRA and RM guidance in 2015

Amendments to Rule 2-5 adopted in Dec 2016

- Update the Air District's HRA and RM procedures to follow statewide guidelines (also updated by ARB and CAPCOA)
- Increase stringency of the program with higher number of projects triggering HRAs and implementing risk reduction



Lowering Exposure to Toxics

Focus on Existing Sources

NEW Draft Rule 11-18 (SS20)

Reduces public's exposure to localized health risks

- Hundreds of facilities will be evaluated, including refineries
- Health Risk Assessments (HRAs) conducted by Air District staff **using latest OEHHA guidelines**
- Threshold for facilities to develop and execute District-approved Risk Reduction Plans reduced from 100 per million (100/M) to 10/M
- Refineries have among highest priority for HRAs (Phase 1)
- Rule 11-18 ready for Board action in 2017

Draft Rule 13-1

First Rule of Combustion Strategy

Draft Rule 13-1 limits each refinery's carbon intensity at a level consistent with current operations

- Carbon intensity defined on a simple barrel basis

$$\text{Carbon Intensity} = \frac{\text{Annual GHG Emissions (MT CO}_2\text{e)}}{\text{Annual Throughput (barrels of crude oil)}}$$

- Accounts for GHGs from all power, H₂ and steam inputs
- Incentivizes execution of energy efficiency projects with simple payback of 10 years or less
- Provides a mass-based GHG emissions limit as an alternate compliance option
- Has flexibility for new regulatory requirements / Air District permits



Refinery Strategy

Emissions Reductions

Rule	Pollutant	Amount Reduced [tons/yr]
Rule 6-5: Fluid Catalytic Cracking Units	PM	222
Rule 8-18: Equipment Leaks	ROG, toxics	1,227
Rule 11-10: Cooling Towers	ROG, toxics	861
Rule 9-14: Petroleum Coke Calcining	SO ₂	430

Total Emissions Reductions: **2,740 tons per year** or **~17%** of total refinery criteria pollutant emissions.



Rule 11-18 Planned *Implementation Phases*

- **Phase 1 (Prioritization Score > 250)**
 - Health Risk Assessments (2017-2018) - 1 Year to complete
 - Risk Reduction Plan Development and Approval (2018-2019) ~ 9 months
 - Risk Reduction Plan Implementation (2019-2022) – 3 years
- **Phase 2 (Prioritization Score > 10)**
 - Mixed Source Facilities (2019-2025)
- **Phase 3**
 - Diesel Internal Combustion Engines (2021-2027)
- **Phase 4**
 - Retail Gas Stations (2023-2028)