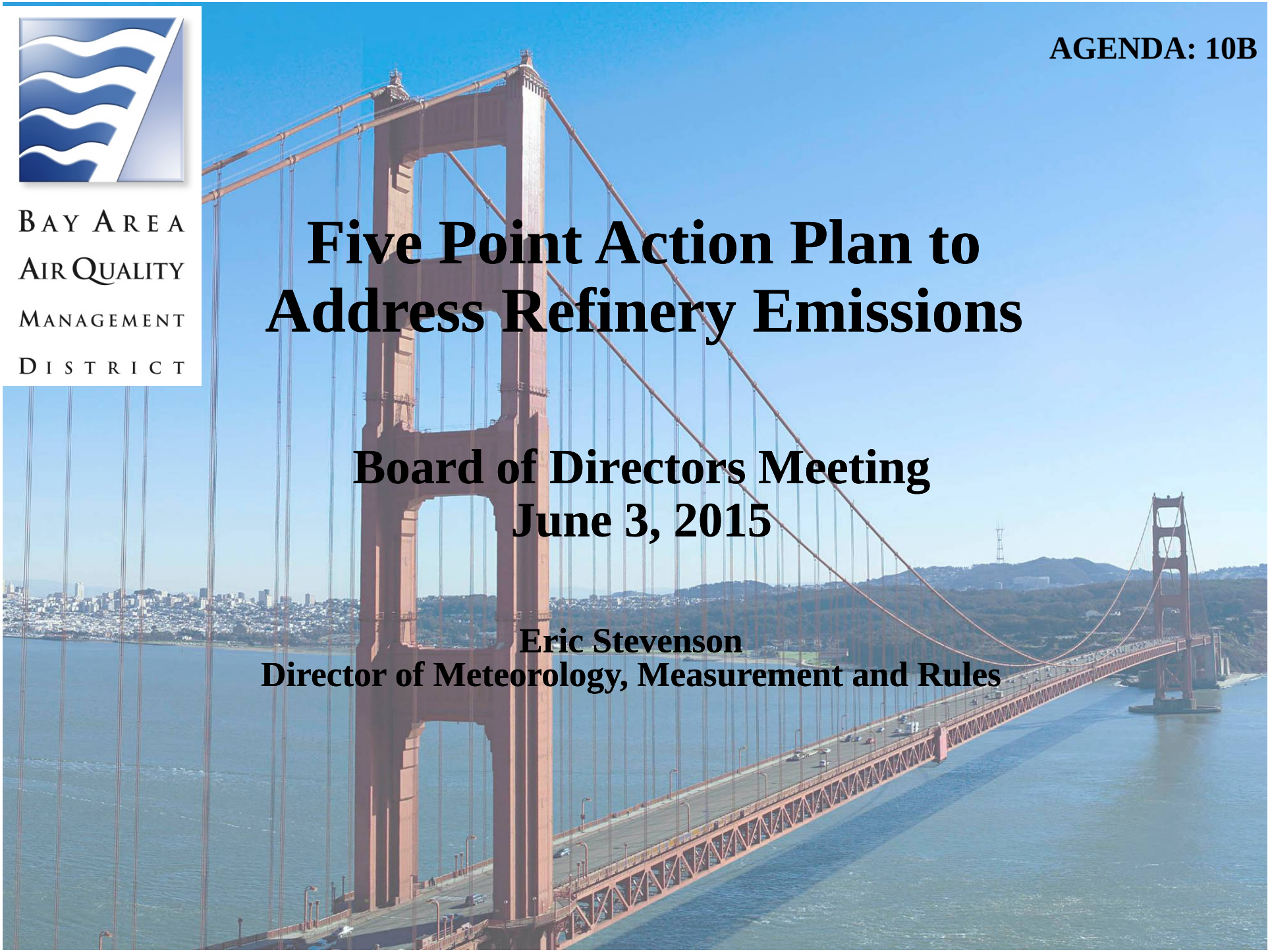
BAY AREA AIR QUALITY MANAGEMENT DISTRICT

AGENDA: 10B

Five Point Action Plan to Address Refinery Emissions

Board of Directors Meeting
June 3, 2015

Eric Stevenson
Director of Meteorology, Measurement and Rules



Overview

- Progress to date
- Five Part Action Plan
- Comprehensive Greenhouse Gas (GHG) program
- Comments and responses
- Precedent setting actions
- Next steps

Progress to Date

- Regulatory Concept paper **(2012)**
- Industrial Facility Accidental Releases Work Plan **(2012)**
- Reg. 12, Rule 15 development **(2013 to the present)**
- Reg. 12, Rule 16 development **(Oct. 2014 to present)**
- Resolution Addressing Emissions from Bay Area Refineries **(Oct. 2014)**
- Refinery Emission Reduction Strategy **(Dec. 2014)**
- Workshops for 12-15 and 12-16 **(Mar. 2015)**

Goals of the Five Part Action Plan

- Address refinery operations/impacts on communities
- Set cap on Toxic Air Contaminants (TACs) and criteria pollutants
- Refinery operation changes will not increase health burden
- Reduce refinery criteria pollutant emissions and health risks by 20%

Five Part Action Plan Elements

- Regulation 12, Rule 15 (12-15)
- Regulation 12, Rule 16 (12-16)
- Permit review for crude oil changes
- Refinery Emission Reduction Strategy Rulemaking
- Refinery Methane Rulemaking

Regulation 12, Rule 15 Elements

- Annual emissions inventories
- Crude oil composition characteristics
- Fence line and community monitoring systems
- Health Risk Assessments (HRAs)
- Total climate change footprint

Regulation12, Rule 15 Elements (new)

- Additional crude oil composition characteristics
- Energy efficiency audit
- Next draft by July

Regulation 12, Rule 16 New Elements

- Risk limit - 25 in 1 million using HRA required in 12-15
  - Future changes will likely incorporate this limit for all Bay Area facilities
- Implement criteria pollutant cap
- Next draft by July

Permit Review for Crude Oil Changes

- Crude slate modifications trigger permitting review
  - Engineering review of criteria pollutants, GHG and/or TACs
- Best Available Control Technology (BACT) for criteria pollutants, GHG and/or TACs
  - New Source Review for all affected systems

Refinery Emissions Reduction Strategy Rulemaking

- 20% criteria pollutant reductions by 2020
  - Includes five specific refinery emission reduction regulations
  - Additional rulemaking is being investigated
- 20% reduction in risk by 2020
  - 12-16 sets total risk at 25 in 1 million
  - 12-15 HRA and additional monitoring requirements will identify sources for further reductions

Refinery Strategy Rules

Title	Pollutant(s)	Amount Reduced	Projected Completion
Rule 9-14: Petroleum Coke Calcining	SO_2	894 tons/year (tpy)	Fall 2015
Rule 6-5: Fluid Catalytic Cracking Units	Ammonia, PM	TBD	Fall 2015
Rule 8-18: Equipment Leaks	VOC, toxics, methane	1,227 tpy	Winter 2015
Rule 9-1: Sulfur Dioxide from Refineries	SO_2	926 tpy	Winter 2015
Rule 11-10: Cooling Towers	VOC, toxics, methane	514 tpy	Winter 2015

Total Reductions for 2015: **3,561 tons per year or 23%** of total refinery criteria pollutant emissions.

Additional rulemaking for further reductions planned for 2016.

Refinery Methane Rulemaking

- Limit methane emissions from refineries by:
  - Reducing equipment leaks
  - Reducing cooling tower emissions
  - Provides near-term climate benefits

- Limit emissions of specific sources not subject to Cap and Trade
- Investigate other areas that can provide methane emission reductions

Regulatory Program to Reduce GHG from Stationary Sources

- Incorporate GHG evaluation into permitting program
- Require BACT in New Source Review to limit GHG increases
- Develop regulatory proposals to limit short-lived climate pollutants
- Investigate and pursue areas for additional action to reduce GHG

Comments and Responses

- Suggestion to cap GHG
  - Response:
    - Comprehensive Regulatory Program to Reduce GHG from Stationary Sources
- Suggestion to address impacts “looking forward”
  - Response:
    - Changes to crude slate require permit review
    - Increases in criteria pollutant, GHG or TAC emissions trigger BACT

Comments and Responses (Continued)

- Suggestion to remove exemption for increased throughput
  - Response:
    - Exemption removed
- Cap criteria pollutant emissions
  - Response:
    - Required in 12-16

Precedent Setting Actions

- Fence-line and community monitoring required
- Updated HRA using latest methods
- Caps and reduces criteria pollutants
- Caps overall risk

- Identifies energy efficiency improvement opportunities
- Requires New Source Review for crude slate changes
- Reduces methane emissions from refineries
- Addresses GHG in permit review

Next Steps

- Finalize and bring 12-15 and 12-16 to the Board for consideration as soon as possible
- Finalize and bring new and modified regulations in the Refinery Strategy to the Board for consideration before the end of 2015
- Further develop and enact additional items in the five part action plan

Issue and Resolution Submitted by CBE and other Groups

"Bay Area refineries are in the process of infrastructure and crude oil changes that have the potential to result in the significant worsening of Air Quality"

"Direct Air District Staff to develop, for Board consideration in proposed Rule 12-16, enforceable numeric limits on criteria, toxic, and greenhouse gas air pollutant emissions that will prevent increased emissions from Bay Area refineries."

Staff Concerns with Proposed Solution

- Difficult to make demonstrations required in Health and Safety Code: necessity (H&SC §40727), non-duplication (H&SC §40727b), and cost effectiveness (H&SC §§40703 and 40920.6)
- Caps do not reduce emissions and so are difficult to justify as needed to comply with air quality standards.
- Caps could be considered duplicative with AB 32 Cap and Trade requirements and with existing permit limits.
- Costs and benefits are difficult to calculate since emissions are not reduced.
- Caps provide an advantage to refineries that are less efficient and less well controlled.
- Pulls staff resources away from rulemaking that reduces emissions.

Criteria Contaminants

CBE Issue: Community proposal to cap refinery contaminants

Staff Approach:

- Propose to cap the refineries at maximum permitted capacity.
- Refineries will be required to demonstrate compliance with applicable federal health standards for criteria pollutants at maximum capacity.
- Refineries will be required to reduce allowable emissions if they cannot show compliance with federal air quality standards.

Toxic Air Contaminants

CBE Issue: Cap each toxic pollutant at current levels

Staff Approach:

- Propose to take risk based approach, using latest science on risk.
- Consider the relative toxicity of the contaminants and the distance between emission point and neighboring community.
- Cap based on contaminant that drives risk.
- Based on proven regulatory approach utilized throughout California.

GHG Cap

CBE Issue: Establishing **Local** GHG Caps

Staff Approach:

- Refinery sector GHG emissions are already capped and required to decline under AB 32.
- Staff is not proposing to locally cap refinery facilities at this time.
- Staff recommends addressing GHG emissions through Air District permitting rules.
- Staff will proceed with rulemaking to control methane emissions from refineries and other sources.

Consideration for Local GHG Caps

- *Not a Local Problem: The principal GHG is carbon dioxide (CO_2), which is not a local health concern.*
- Efficiency: May not ensure most efficient GHG emission reductions.
- Production Shift: May shift business activity to outside of air basin.
- Emission Leakage: May result in increases of GHG emissions in other part of the State or *beyond.*
- Overall: May not affect overall global level of GHG emissions.

Richard Cory presentation to the Board of Directors on 5/6/15 – Italics item added

Comprehensive Regulatory GHG Approach

- Incorporating greenhouse gases in the Air District's regulatory program; and
- Incorporating greenhouse gases in the Air District's permitting program including evaluation of Best Available Control Technology in New Source Review; and
- Evaluation and adoption of appropriate methods to assure that greenhouse gases from stationary sources do not increase, including requiring reductions from sources subject to cap and trade; and
- Developing regulatory proposals to limit short-lived climate pollutants from stationary sources; and
- Investigating and pursuing all other opportunities to assure greenhouse gas reductions.

Comprehensive Regulatory GHG Approach (cont.)

- Stationary Source Committee to provide additional direction
- Board of Directors to consider staff recommendations on July 22, 2015