



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

ADVISORY COUNCIL REGULAR MEETING

MONDAY
OCTOBER 3, 2016
10:00 A.M.

1ST FLOOR BOARD ROOM
375 BEALE STREET
SAN FRANCISCO, CA 94105

AGENDA

1. **CALL TO ORDER - ROLL CALL – PLEDGE OF ALLEGIANCE**

The Council Chair shall call the meeting to order and the Clerk of the Boards shall take roll of the Council members. The Council Chair shall lead the Pledge of Allegiance.

Staff/Phone (415) 749-

2. **APPROVAL OF THE MINUTES OF JULY 19, 2016**

Clerk of the Boards/5073

The Advisory Council will consider approving the draft minutes of the Advisory Council Regular Meeting of July 19, 2016.

3. **WELCOME**

J. Broadbent/5052
jbroadbent@baaqmd.gov

The Executive Officer/APCO will address the Council.

4. **PUBLIC COMMENT ON AGENDA MATTERS**

Pursuant to Government Code Section 54954.3, the public has the opportunity to speak on any agenda item. All agendas for Council meetings are posted at the Air District, 375 Beale Street, San Francisco, California 94105 at least 72 hours before a meeting.

This meeting will be webcast. To see the webcast, please visit <http://www.baaqmd.gov/about-the-air-district/advisory-council/agendasreports> at the time of the meeting.

5. **COUNCIL DELIBERATION ON THE KEY QUESTION**

J. McKay/4629
jmckay@baaqmd.gov

The Council will deliberate on its draft opinion regarding the efficacy of GHG caps for local refineries, considering information provided to date. The Council will review a summary of its prior deliberations and opinions.

6. **AIR DISTRICT CLEAN AIR PLAN: AREAS FOR FUTURE FOCUS**

J. McKay/4629
jmckay@baaqmd.gov

The 2017 Clean Air Plan will include a discussion of topics that may be appropriate for potential rules, research, control measures, and strategies in the future. The Air District will ask for the Advisory Council's expertise in considering the topics that should be included in this forward-looking portion of the Plan.

OTHER BUSINESS

7. **PUBLIC COMMENT ON NON-AGENDA MATTERS**

Pursuant to Government Code Section 54954.3, an opportunity is provided for the public to speak on any subject within the Council's purview. Speakers are typically limited to three minutes each.

8. **COUNCIL MEMBER COMMENTS / OTHER BUSINESS**

Council members may make a brief announcement, provide a reference to staff about factual information or ask questions about subsequent meetings.

9. **TIME AND PLACE OF NEXT MEETING**

At the call of the Chair.

10. **ADJOURNMENT**

The Council meeting shall be adjourned by the Chair.

CONTACT:

MANAGER, EXECUTIVE OPERATIONS
375 BEALE STREET, SAN FRANCISCO, CA 94105
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(415) 749-5016
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BAAQMD homepage:
www.baaqmd.gov

- To submit written comments on an agenda item in advance of the meeting. Please note that all correspondence must be addressed to the “Advisory Council” and received at least 24 hours prior, excluding weekends and holidays, in order to be presented at that Council meeting. Any correspondence received after that time will be presented to the Council at the following meeting.
- To request, in advance of the meeting, to be placed on the list to testify on an agenda item.
- Any writing relating to an open session item on this Agenda that is distributed to all, or a majority of all, members of the body to which this Agenda relates shall be made available at the District’s offices at 375 Beale Street, Suite 600, San Francisco, CA 94105, at the time such writing is made available to all, or a majority of all, members of that body.

Accessibility and Non-Discrimination Policy

The Bay Area Air Quality Management District (Air District) does not discriminate on the basis of race, national origin, ethnic group identification, ancestry, religion, age, sex, sexual orientation, gender identity, gender expression, color, genetic information, medical condition, or mental or physical disability, or any other attribute or belief protected by law.

It is the Air District’s policy to provide fair and equal access to the benefits of a program or activity administered by Air District. The Air District will not tolerate discrimination against any person(s) seeking to participate in, or receive the benefits of, any program or activity offered or conducted by the Air District. Members of the public who believe they or others were unlawfully denied full and equal access to an Air District program or activity may file a discrimination complaint under this policy. This non-discrimination policy also applies to other people or entities affiliated with Air District, including contractors or grantees that the Air District utilizes to provide benefits and services to members of the public.

Auxiliary aids and services including, for example, qualified interpreters and/or listening devices, to individuals who are deaf or hard of hearing, and to other individuals as necessary to ensure effective communication or an equal opportunity to participate fully in the benefits, activities, programs and services will be provided by the Air District in a timely manner and in such a way as to protect the privacy and independence of the individual. Please contact the Non-Discrimination Coordinator identified below at least three days in advance of a meeting so that arrangements can be made accordingly.

If you believe discrimination has occurred with respect to an Air District program or activity, you may contact the Non-Discrimination Coordinator identified below or visit our website at www.baaqmd.gov/accessibility to learn how and where to file a complaint of discrimination.

Questions regarding this Policy should be directed to the Air District’s Non-Discrimination Coordinator, Rex Sanders, at (415) 749-4951 or by email at rsanders@baaqmd.gov.

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT
375 BEALE STREET, SAN FRANCISCO, CALIFORNIA 94105
FOR QUESTIONS PLEASE CALL (415) 749-5016 or (415) 749-4941**

**EXECUTIVE OFFICE:
MONTHLY CALENDAR OF AIR DISTRICT MEETINGS**

OCTOBER 2016

<u>TYPE OF MEETING</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>ROOM</u>
Advisory Council Meeting <i>(At the Call of the Chair)</i>	Monday	3	10:00 a.m.	1st Floor Board Room
Board of Directors Regular Meeting <i>(Meets on the 1st & 3rd Wednesday of each Month)</i> - CANCELLED	Wednesday	5	9:45 a.m.	1st Floor Board Room
Board of Directors Executive Committee <i>(Meets on the 3rd Monday of each Month)</i> - CANCELLED	Monday	17	9:30 a.m.	1st Floor Board Room
Board of Directors Stationary Source Committee <i>(Meets on the 3rd Monday of each Month)</i> - CANCELLED	Monday	17	10:30 a.m.	1st Floor Board Room
Board of Directors Regular Meeting <i>(Meets on the 1st & 3rd Wednesday of each Month)</i>	Wednesday	19	9:45 a.m.	1st Floor Board Room
Board of Directors Public Engagement Committee <i>(At the Call of the Chair)</i>	Thursday	20	9:30 a.m.	1st Floor Board Room
Board of Directors Budget & Finance Committee <i>(Meets on the 4th Wednesday of each Month)</i> - CANCELLED	Wednesday	26	9:30 a.m.	1st Floor Board Room
Board of Directors Mobile Source Committee <i>(Meets on the 4th Thursday of each Month)</i>	Thursday	27	9:30 a.m.	1st Floor Board Room

NOVEMBER 2016

<u>TYPE OF MEETING</u>	<u>DAY</u>	<u>DATE</u>	<u>TIME</u>	<u>ROOM</u>
Board of Directors Regular Meeting <i>(Meets on the 1st & 3rd Wednesday of each Month)</i>	Wednesday	2	9:45 a.m.	1 st Floor Board Room
Board of Directors Regular Meeting <i>(Meets on the 1st & 3rd Wednesday of each Month)</i>	Wednesday	16	9:45 a.m.	1 st Floor Board Room
Board of Directors Climate Protection Committee <i>(Meets on the 3rd Thursday of every other Month)</i>	Thursday	17	9:30 a.m.	1 st Floor Board Room
Board of Directors Executive Committee <i>(Meets on the 3rd Monday of each Month)</i>	Monday	21	9:30 a.m.	1 st Floor Board Room
Board of Directors Stationary Source Committee <i>(Meets on the 3rd Monday of each Month)</i>	Monday	21	10:30 a.m.	1 st Floor Board Room
Board of Directors Budget & Finance Committee <i>(Meets on the 4th Wednesday of each Month)</i>	Wednesday	23	9:30 a.m.	1 st Floor Board Room
Board of Directors Mobile Source Committee <i>(Meets on the 4th Thursday of each Month)</i>	Thursday	24	9:30 a.m.	1 st Floor Board Room
HL – 9/26/16 (2:45 p.m.)				G/Board/Executive Office/Moncal

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairperson Stan Hayes and Members
of the Advisory Council

From: Jack P. Broadbent
Executive Officer/APCO

Date: September 19, 2016

Re: Approval of the Minutes of July 19, 2016

RECOMMENDED ACTION

Approve the attached draft minutes of the Advisory Council meeting of July 19, 2016.

DISCUSSION

Attached for your review and approval are the draft minutes of the Council meeting of July 19, 2016.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Marcy Hiratzka
Reviewed by: Maricela Martinez

Attachment A: Draft Minutes of the Advisory Council Meeting of July 19, 2016

Draft Minutes – Advisory Council Regular Meeting of July 19, 2016

Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105
(415) 749-5073

DRAFT MINUTES

Advisory Council Regular Meeting
Tuesday, July 19, 2016

*Note: An audio recording of the meeting is available on the website of the
Bay Area Air Quality Management District at
<http://www.baaqmd.gov/about-the-air-district/advisory-council/agendasreports>*

1. CALL TO ORDER

Advisory Council (Council) Member Stan Hayes called the meeting to order at 10:08 a.m.

Roll Call:

Present: Council Chair Hayes, Council Vice Chair Kleinman, and Members: Professor Borenstein, Dr. Harley, Dr. Lipman, and Dr. Long.

Absent: Ms. Doduc.

Also Present: Cupertino Councilman Rod Sinks, Board of Directors (Board) Liaison.

2. APPROVAL OF THE MINUTES OF APRIL 25, 2016

Vice Chair Kleinman made a motion, seconded by Member Borenstein, to approve the minutes of April 25, 2016; and the motion carried by the following vote of the Council:

AYES: Borenstein, Harley, Hayes, Kleinman, Lipman, and Long.
NOES: None.
ABSTAIN: None.
ABSENT: Doduc.

3. WELCOME

Jack Broadbent, Executive Officer/Air Pollution Control Officer welcomed the Council to the Air District's new building, which he said was designed to be a center for regional government. He thanked the Council for its deliberation at the April 25th meeting, and for Chair Hayes' presentation of the Council's preliminary conclusions at the June 15th Board meeting. Mr. Broadbent explained that the Council's primary conclusions contributed to staff's development of Rule 12-16, which will be presented at the July 20th Board meeting. Jeffrey McKay, Deputy

Air Pollution Control Officer, described the items on the July 19th Advisory Council agenda, including an interactive session to finalize the Council’s primary conclusions regarding the efficacy of greenhouse gas (GHG) caps for local refineries.

4. PUBLIC COMMENT ON AGENDA MATTERS

Kevin Buchan, Western States Petroleum Association (WSPA), stated that WSPA is in alignment with the Council’s primary deliberations, which supported not pursuing caps on emissions for refineries. Mr. Buchan stated that he is concerned that some members of the Board have dismissed and disregarded the Council’s opinion, and urged staff to continue utilizing the Council to procure sound science in order to produce sound policy.

Mr. Broadbent and Director Sinks both disputed Mr. Buchan’s comments, explaining that many of the Board members are interested in the Council’s recommendations. Mr. Broadbent added that the question of whether to cap *only* GHG emissions, *and/or* localized toxics, is a sub-topic for passionate discussion for the development of this rule.

5. UPDATE ON REFINERY RULEMAKING

Jean Roggenkamp, Deputy Executive Officer, thanked the Council for discussing the efficacy of GHG caps at refineries in April. She listed the five emission (criteria pollutants and toxics only) reduction regulation amendments that the Board adopted between December 2015 and April 2016: Rule 6-5, Particulate Emissions from Refinery Fluidized Catalytic Cracking Units; Rule 8-18, Equipment Leaks; Rule 11-10, Hexavalent Chromium Emissions from all Cooling Towers and Total Hydrocarbon Emissions from Petroleum Refinery Cooling Towers; Rule 9-14, Petroleum Coke Calcining Operations; and Rule 12-15, Petroleum Refining Emissions Tracking. After acknowledging the District’s ongoing goal of achieving a 20% reduction in refinery emissions (criteria pollutants) by 2020, Ms. Roggenkamp spoke about the topic of limits, or caps, about which the Board heard from public, staff, Chair Hayes, and stakeholders on June 15. She said that the Board directed staff to propose schedules for both a staff-recommended proposal and the community-worker proposal (numeric emission caps at refineries), both of which are to be presented to the Board on July 20. Ms. Roggenkamp then described the elements and EIR timeline of the staff-recommended proposal called the “Toxic Risk Cap proposal,” which will be presented at the July 20 Board meeting.

Public Comments:

No requests received.

Council Comments:

The Council and staff discussed: the divergent foci of each proposal (staff and community-worker); guidance documents from the Office of Environmental Health Hazard Assessment (OEHHA) that translates the measure of emissions into risk, and how risk factors have evolved and increased; the definition and context of “100 in a million”; the District’s role in administering the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) which requires stationary sources to report the types and quantities of certain substances routinely released into the air; whether or not the two proposals include ways to monitor and mitigate

fugitive emissions, and the District’s plans to monitor methane leakage; the extent to which the benefits of the community-worker proposal would be local versus region-wide; other types of particulate matter (PM) that can be incorporated into the staff proposal’s Health Risk Assessments (HRA); the status of District negotiations with the California Air Resources Board (ARB) on limiting local GHG emissions; the correlation between climate change and public health; whether or not caps are the appropriate approach to direct regulation of toxics, and if the District does pursue the caps, whether or not the District should implement this separately from the ARB’s efforts; and the possibility that the health of disproportionately impacted residents may not be positively affected by the implementation of caps on GHG emissions, and may even be further compromised.

Council Action:

None; receive and file.

6. COUNCIL DELIBERATION ON KEY QUESTION

Chair Hayes explained how the Council’s preliminary deliberations regarding the efficacy of GHG caps on refineries took shape on April 25. He further explained that, since April, staff had formatted and enhanced the Council’s deliberations and returned them back to the Council for a final review on July 19.

Council Comments:

The Council and staff discussed: whether or not it is appropriate to include criteria pollutants and toxics in the cap with GHG emissions; the definition of “toxic air contaminants”; how implementing numeric emission caps on Bay Area refineries would only shift the generation of air contaminants to plants outside the Bay Area (“leakage”); the difference between “carbon free” and “renewable”; the need for alternative solutions besides caps that can be presented to the Board, such as putting efficiency standards on furnaces and process heaters, locating and repairing “super-emitting” industrial equipment, or controlling GHG emissions from a top-down approach; the District’s current monitoring efforts and the accuracy of inventory; whether or not the California Energy Commission (CEC) should measure efficiency standards for refineries at a statewide level; how permit fees that polluters pay the District are inconsistent with the cost it imposes on the community; and the difference between capping actual emissions and capping the potential to emit.

Public Comments:

No requests received.

Council Action:

None; receive and file.

The meeting was adjourned for lunch at 12:50 p.m. The meeting reconvened at 1:34 p.m.

7. CLEAN AIR PLAN AS A FRAMEWORK FOR FUTURE COUNCIL TOPICS

Ms. Roggenkamp stated that the Clean Air Plan addresses the reduction of GHG, criteria pollutants, and toxics, and was last updated in 2010. She explained that because the Plan is just now being updated again, staff thought it would be a good opportunity to engage with the Council on this topic. Ms. Roggenkamp introduced Henry Hilken, Director of Planning and Climate Protection, who gave the staff presentation *2016 Clean Air Plan and Regional Climate Protection Strategy Update*, including: planning context; overview of climate action; climate protection resolution; Bay Area GHG emissions; Bay Area GHG projection to 2050 with key state programs; economic sector analysis; tools and objectives; transportation; stationary sources; energy; buildings; waste and water; agriculture and natural and working lands; short-lived climate pollutants; and key questions.

Public Comments:

No requests received.

Council Comments:

The Council and staff discussed: how the total of 2015 GHG emissions by sector is actually closer to 90 MM CO₂e, rather than 80 as shown on slide 6 of the presentation; how the Bay Area GHG projection to 2050 is based on the assumption that refineries will produce less or export more and how current policies are insufficient to achieve the projected targets; the increase of agencies that are implementing Community Choice Aggregation; staff's proposed schedule for the Plan's circulation and Board adoption; the District's leadership role(s) in the prioritized programs outlined in the climate strategy that show potential for affecting other states and regions; possible venues for a review of the overall coherency and strategic assessment of the Plan; the transportation sector as the largest source of GHG emissions, PM, ozone precursors, and toxics; the alignment of goals and methods; power plants being categorized into the energy sector, versus in the stationary source sector, for the purposes of this discussion; whether or not the Plan analyzes market failure and the cost-effectiveness of the measures that are about to be proposed to the Board; the possibility of including induction-based heating appliances in the home to the building measures for which energy may be decarbonized; the Council's ability to prioritize the sector programs that captures its interest and apply them to the District's rulemaking schedule; the Council's request for the Board's program prioritization so that the Council may address the Board's questions and not diverge from the Board's goals, and the speculation that the Board would welcome any non-refinery regulatory and incentive suggestions for Director Gioia to take to the ARB; the tradeoffs of using District grant monies to fund non-GHG-focused initiatives that would still improve respiratory health; the general sense that the Board strives to improve climate change but that addressing public health is its fundamental mandate; and the update of the District's Multi-Pollutant Evaluation Methodology.

Council Action:

None; receive and file.

OTHER BUSINESS

8. PUBLIC COMMENT ON NON-AGENDA MATTERS

No requests received.

9. COUNCIL MEMBER COMMENTS / OTHER BUSINESS

Vice Chair Kleinman gave his report out on the Air and Waste Management Association’s 109th Annual Conference that was held from June 20–23. His report included his role as Chair of the Critical Review given by David Allen called “Emissions from Oil and Gas Operations in the United States and Their Air Quality Implications,” and planning next year’s critical review dealing with waste water and fracking.

Chair Hayes’ report out on the same conference included his enjoyment of getting to know District staff, the synergy that comes from collaborating with agencies from all over the country, and learning about volatile organics from refineries.

Chair Hayes said that a final report should be generated about the issues that the Council has discussed over the previous months.

10. TIME AND PLACE OF NEXT MEETING:

Chair Hayes directed staff to poll the Council for meeting dates in September.

11. ADJOURNMENT

The meeting adjourned at 3:18 p.m.

Marcy Hiratzka
Clerk of the Boards

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairperson Stan Hayes and Members
of the Advisory Council

From: Jack P. Broadbent
Executive Officer/APCO

Date: September 19, 2016

Re: Council Deliberation on the Key Question

RECOMMENDED ACTION

None; receive and file.

DISCUSSION

The Council will discuss the efficacy of Greenhouse Gas (GHG) caps for local refineries, considering information provided to date. The discussion may include topics such as toxics co-benefits, the reduction of emissions from sources not covered by Cap-and-Trade, and leakage and opportunity costs. The Council will review a summary of their prior deliberations and opinions.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Jeff McKay

Attachment 5A: Draft Bay Area Air Quality Management District Advisory Council Efficacy of Greenhouse Gas Caps on Bay Area Refineries

BAY AREA AIR QUALITY MANAGEMENT DISTRICT ADVISORY COUNCIL EFFICACY OF GREENHOUSE GAS CAPS ON BAY AREA REFINERIES

KEY QUESTION BEFORE THE COUNCIL

Air District staff asked the Advisory Council to consider the following question:

“What is the efficacy of imposing greenhouse gas caps on Bay Area refineries?”

SUMMARY

Based on the material that it has considered, its deliberations, and its collective expertise and experience, the Council has reached the following conclusions:

- **Key Question:** The Council has concluded that facility-level caps on Bay Area refinery greenhouse gas (GHG) emissions likely would not be effective in mitigating global climate change.
- **Policy Recommendation:** Rather than caps, the Bay Area Air Quality Management District (Air District) should continue to encourage or require Bay Area refineries to reduce GHG emissions by methods that reduce total global GHG emissions, and also encourage state regulators to implement state-wide refinery policies on these topics.
- **Related Policy Recommendation:** Toxics and criteria pollutants should be regulated directly through established programs, rather than indirectly as co-benefits of GHG reduction policies. The most effective place for Bay Area GHG emissions policy is within a comprehensive multipollutant strategy that accounts for the realities of conflicting effects where present.
- **Related Policy Recommendation:** The Air District should continue to coordinate with the California Air Resources Board (CARB) and other agencies when expanding its role in GHG emission reduction beyond refineries. The Air District’s collaboration with CARB on landfills provides a template for such partnering.

DISCUSSION

It is the mission of the Air District to “create a healthy breathing environment for every Bay Area resident while protecting and improving public health, air quality, and the global climate.”

Toward that end, the Air District has regulated toxics and criteria pollutants for over 60 years. During this time, there has been continuous improvement in Bay Area air quality due to Air District efforts, along with CARB, the U.S. Environmental Protection Agency (USEPA), and other contributors. This process of continuous improvement has incorporated evolving understanding of atmospheric science, toxics and criteria pollutant health effects, and improving emissions control technology. The Air District has acted within a framework of State, Federal and local regulations, while also enacting its own rules.

Over a period of decades, the Air District has implemented a number of effective and proven regulatory programs and adopted rules to ensure that clean air health and other environmental standards are met.

These programs are specifically directed at toxics [e.g., New Source Review of Toxic Air Contaminant for new sources, emission and/or performance standards for hazardous air pollutants, the Community Air Risk Evaluation (CARE) Program, the California Air Toxics “Hot Spots” Program for existing sources] and criteria pollutants [e.g., Multi-Pollutant Clean Air Plan (which also includes GHGs), New Source Performance Standards for new sources, emission and/or performance standards for existing sources]. The Air District also has enacted a number of rules directed specifically at reducing toxics and criteria pollutant emissions from refineries, with additional such rules the subject of currently on-going rulemaking.

Similarly, the Air District seeks to take effective action to reduce global climate change [e.g., Climate Protection Program, Regional Climate Protection Strategy, GHG emission inventories, Plan Bay Area (with the Metropolitan Transportation Commission and others)].

Climate change is one of the most serious and urgent challenges confronting not just the Bay Area, but the entire world. That is why, for more than a decade, since 2005, the Air District Board, Staff, and Advisory Council have worked together in efforts that today place the Air District at the leading-edge of climate protection efforts by local agencies in California and throughout the U.S.

In determining the most effective path forward for its climate protection efforts, the Air District works within a framework of existing climate regulations enacted by the State of California, USEPA, and others. Unlike toxics and criteria pollutants, for which effects of concern typically occur adjacent to emitting sources (tens of meters) or near-downwind (hundreds of meters to several kilometers), the relevant effects of climate change (and the GHGs that cause it) are global. In the Bay Area, results will include flooding from sea level rise, and increases in airborne pollutants from wild fires.

Climate change is one-world in scope, driven not just by GHG emissions from a single facility, localized area, or even a large geographical region, but by the world-wide total of all GHG emissions. While a ton of GHGs emitted anywhere in the world has the same effect on global climate as a ton of GHG emitted in the Bay Area, this is not a rationale for inaction but rather a call for leadership.

The Council strongly supports climate protection efforts by the Air District, State and Federal authorities, and others, and the Council views as urgent further efforts by all to take effective steps to address global climate change.

To be effective, efforts directed at global climate change must reduce total global GHG emissions. It is not sufficient to reduce GHG emissions in one place if those emissions are simply moved elsewhere to another part of the world, an effect called “leakage.” Avoiding leakage, or at least minimizing its risk, is key to ensuring the climate protection effectiveness of adopted policies and measures.

The Council is concerned about the potential for such GHG leakage. In permitting, refineries, like other stationary sources, are required to install emission controls sufficient to ensure that operations meet clean air toxics and criteria pollutant health standards, even if the refinery were to be operated at its theoretical maximum emission rate. If the effect of a cap is to prevent a refinery from processing the volume of materials it would otherwise have processed within its permit, the total amount of crude processed globally will not be reduced – rather the amount processed by that refinery will be reduced, with the excess over the cap relocated elsewhere out of the Bay Area. Therefore, if a refinery GHG cap is set at current actual emissions, which are less than their permitted maximums, there is concern that leakage will be triggered.

Because petroleum companies are large, globally integrated industries, the Council considers it likely that refinery production (and the GHGs associated with that production), if displaced from the Bay Area as a result of Refinery GHG caps, would move elsewhere, out from underneath the caps and negating their intended climate benefit.

The ready mobility of global refinery production and gasoline shipment re-equilibration, and thus the strong potential for GHG leakage, is illustrated by a recent example in Southern California. In February 2015, an explosion and fire at a large refinery in Torrance shut down the refinery for more than a year. Almost immediately, the loss of gasoline production was made up by large outside shipments.

According to the U.S. Energy Information Administration (October 13, 2015), “Over a five-month period following an explosion at a California oil refinery in February 2015, imports of gasoline into California increased to more than 10 times their typical level, drawing from sources that include India, the United Kingdom, and Russia.”

The Council is concerned that merely shifting Bay Area refinery GHG emissions to other locations outside the Bay Area will not truly reduce total global GHG emissions, and as a result, will not provide the climate protection expected and needed. In fact, should such a shift result in additional transport of displaced refinery products, as happened in the Torrance example, the carbon footprint of those products would actually increase.

Concern for leakage is not an excuse for inaction, however. There is much that can and must be done in the Bay Area and elsewhere to reduce total global GHG emissions, including those from petroleum based sources, and there exist important opportunities for the Air District to provide leadership. The question is not whether to reduce global GHG emissions, but how to do it in a manner that will be effective in mitigating global climate change.

For example, emissions of high global warming potential (GWP) pollutants such as methane are not covered under cap-and-trade when emitted as fugitives, meaning emissions that are unintentional and do not pass through a stack, or other equivalent opening. However, the GWP of methane is up to 25 times greater than that of carbon dioxide. The Air District can play a significant role in addressing fugitive emissions of methane in the Bay Area, whether by accidental discharges or from routine fugitive emissions at facilities.

More generally, the Air District should coordinate with CARB on its Short Lived Climate Pollutant (SLCP) strategy which will be finalized later in 2016. The strategy addresses emissions of other high-GWP pollutants such as soot (black carbon), fluorinated gases and hydrofluorocarbons. In addition, at the federal level, there is already a Prevention of Significant Deterioration requirement for GHG.

Points of opportunity for Air District refinery focus include:

- Enhanced monitoring of high-GWP emissions such as methane
- Enhanced regulation of fugitive emissions of high-GWP emissions such as methane
Enhanced energy efficiency reviews
- Increased focus on energy efficiency in the definition of GHG best practices and best available control technology

The Air District can also influence Bay Area GHG emissions in other ways:

The Council strongly encourages Air District efforts to identify, systematically evaluate and prioritize, and adopt Bay Area GHG reduction policies and measures, including ones directed at refineries as appropriate, that are effective in reducing total global GHG emissions, minimizing leakage risk, and complementing and reinforcing GHG reduction measures adopted by the State (e.g., CARB's GHG cap-and-trade and methane reduction programs), USEPA, and others.

To maximize climate protection afforded by policies directed at petroleum-based GHGs, it is important to target both stationary and mobile sources. For example, in the Bay Area, as elsewhere in California, petroleum-fueled mobile sources collectively are the largest emitters of GHGs. Approximately 80% of the GHGs emitted over the life-cycle of a barrel of petroleum used to produce gasoline are produced when that gasoline is burned as fuel in motor vehicles, that is, from “tank-to-wheels.” By comparison, refining accounts for about 12% of those petroleum life-cycle GHGs.

Relevant refinery GHG emissions information includes the following:

- Refineries emit approximately 16% of Bay Area GHG emissions, compared to transportation sources, which emit about 38%, two-thirds of which is from passenger cars/trucks.
- Refineries are five of the six largest emitters of GHGs among Bay Area stationary sources.
- Refining accounts for approximately 12% of the well-to-wheels GHG emissions from internal combustion engine transportation.
- Burning of fuel in vehicle engines (tank-to-wheels) accounts for approximately 80% of the well-to-wheels GHG emissions for internal combustion engine transportation.
- Refinery GHG emissions are primarily from process heaters and boilers, and from fluid catalytic cracking units, which together emit more than 90% of refinery GHGs.

Global emissions of petroleum-based GHGs can be reduced most directly by reducing demand for petroleum-based fuels. Past experience suggests that gasoline demand is inelastic, that is, it is relatively insensitive to gasoline price over a broad range. This implies that GHG-reduction policies that reduce gasoline demand may be more effective in reducing gasoline usage (and resulting GHG emissions) than policies that rely on increased price.

Petroleum fuel demand can be reduced by lowering vehicle miles travelled (VMT) through a variety of local Bay Area policies, including, for example, ones that encourage more efficient and transportation integrated land use (e.g., Plan Bay Area, Smart Growth) and increased availability and use of public transit (e.g., increased transit funding, bike and car share programs, expanded public education). Many of these policies are already key elements in plans to reduce toxics and criteria pollutant air pollution, and will be compatible with efforts to reduce GHG emissions.

In addition to petroleum fuel demand reduction, complementary measures are being adopted that reduce per-vehicle-mile GHG emissions. Such measures include a requirement for lower carbon fuel intensity (e.g., Low Carbon Fuel Standard), more stringent mileage standards for petroleum-fueled vehicles, and replacement of petroleum-fueled vehicles with cleaner, non-petroleum-fueled alternatives (e.g., electric vehicles, ideally powered by renewable-generated electricity).

Current paths to reduce carbon emissions in the Bay Area will not attain the stated 2050 goals without significant additional policies aimed at decarbonizing power sources. Therefore, the Air District should support policy efforts at the state and federal level to encourage development and deployment of carbon capture and sequestration (CCS), especially of natural gas power plants.

Certain individual sources of GHGs and/or other pollutants are known to release atypically large emissions, disproportionately larger than other similar sources and materially higher than estimated using standard bottom-up GHG emission estimation methods. The Air District should consider a find-and-fix program to identify and repair GHG “super-emitters,” if and where present, reducing non-inventory “hidden” (but real) GHG emissions from such sources.

DRAFT

GUIDING PRINCIPLES

After deliberation, the Council has developed a list of guiding principles that it regards as useful when evaluating the efficacy of Refinery GHG caps:

1. Clear goals: The Air District should clearly state its goals. If the goal of a proposed GHG reduction measure, such as a Refinery GHG cap, is climate protection, then that goal should be explicitly stated. If, instead, the goal is to limit or reduce the amount or nature of crude throughput at Bay Area refineries, that is a different goal, and should be clearly stated. Similarly, if toxics reduction is the goal, that should be stated.
2. Systematic evaluation of policies to ensure that they actually support the goals: Air District policies, including refinery-related GHG measures, should be aligned with these goals and grounded in plausible and workable pathways specific to those goals, and careful of unintended consequences. The Air District should systematically evaluate and prioritize the effectiveness of GHG reduction options:
 - i) Total global GHG emissions must actually be reduced. To ensure effective climate protection benefits, the Air District should adopt policies that truly reduce total global GHG emissions, and not simply displace Bay Area GHG emission elsewhere outside the Bay Area through leakage.
 - ii) GHG regulations should be complementary and non-conflicting. The climate change regulatory landscape is complex. To be most effective, Air District policies should be complementary and non-conflicting with those established by CARB, USEPA, and others. iii) Interactions of GHG and other programs and policies should be evaluated. While GHG reduction policies and toxics and criteria pollutant control programs are often synergistic, they are not always so. It is important that interactions among such programs and policies be evaluated and addressed to maximize health and climate benefits.
3. Effective polices directed at methane and other high-GWP GHGs will benefit from additional measurement data: Discrepancies often exist between top-down and more standard bottom-up emission estimation methods. To ensure that emissions of methane and other high-GWP GHGs from refineries and other sources are better understood and more accurately characterized, additional measurement data are needed to improve estimates of methane emissions, perhaps including integrated top-down monitoring, focusing on the largest methane emission sources. The Air District should consider adopting requirements for such additional measurements, including coordination with other agencies, and especially the State of California.

CONCLUSIONS

Based on the material that it has considered, its deliberations, and its collective expertise and experience, the Council has reached the following conclusions:

- **Key Question:** The Council has concluded that facility-level caps on refinery GHG emissions likely would not be effective in mitigating global climate change. GHG reduction policies are effective in providing climate protection only if total global GHG emissions are reduced, and if leakage occurs, which is likely, refinery GHG caps would not provide such protection.
- **Policy Recommendation:** Rather than caps, the Air District should continue to encourage or require Bay Area refineries to reduce GHG emissions by methods that reduce the total global GHG emissions. Such policies should minimize leakage risk, focus on the largest GHG sources (e.g., process boilers and heaters, FCCUs), and incorporate increased fugitive methane emission monitoring and control. The Air District also should encourage State regulators to implement state-wide refinery policies on these topics.
- **Related Policy Recommendation:** Toxics and criteria pollutants should be regulated directly through established programs, rather than indirectly as co-benefits of GHG reduction policies. The most effective place for Bay Area GHG emissions policy is within a comprehensive multipollutant strategy that accounts for the realities of conflicting effects where present.
- **Related Policy Recommendation:** The Air District should continue to coordinate with CARB and other agencies when expanding its role in GHG emission reduction. The Air District's collaboration with CARB on landfills provides a template for such partnering. Because the relevant GHG inventory is global, such partnering is crucial to efficacy. Areas for continued partnering include electric vehicles, reduction of vehicle miles travelled, best practices for "top-down" methane emission monitoring and reduction, and best practices for monitoring and reduction of emissions of other high GWP sources, especially "super-emitters."

ATTACHMENT A
Advisory Council Members

Pursuant to California Health and Safety Code § 40260-40268, the Advisory Council consists of seven members “skilled and experienced in the fields of air pollution, climate change, or the health impacts of air pollution,” and the Air District Board Chair (or their representative) as an ex-officio member. Council members are appointed by the Air District Board and are “selected to include a diversity of perspectives, expertise, and backgrounds.” Members of the Advisory Council include:

Member	Background	Air Pollution	Health	Climate
Stan Hayes	Member, Advisory Council (1995-2007, 2009-) and former chair; emeritus Principal, Ramboll Environ; air-related research consulting	X	X	X
Severin Borenstein	Professor of Business Administration and Public Policy, Haas School of Business, University of California, Berkeley			X
Tam Doduc	Member and former chair, State Water Resources Control Board; served as Deputy Secretary, Cal/EPA, directed environmental justice	X	X	
Robert Harley	Professor, Civil Engineering, Chair, Energy, Civil Infrastructure and Climate Environmental Engineering, University of California, Berkeley; former member, Advisory Council	X		
Michael Kleinman	Professor, Environmental Toxicology, Co-Director, Air Pollution Health Effects Laboratory, Adjunct Professor, College of Medicine, University of California, Irvine	X	X	
Tim Lipman	Co-Director, Transportation Sustainability Research Center, energy and environmental technology, economics, and policy researcher and lecturer; University of California, Berkeley	X		X
Jane CS Long	Chair, California’s Energy Future Committee, California Council on Science and Technology			X

ATTACHMENT B
Process and Speakers

DELIBERATIVE PROCESS

Presentations to the Council were made by more than a dozen speakers from the Air District, CARB, the California Energy Commission (CEC), and various interested stakeholders. A full list of speakers is provided below.

Speakers included Richard Corey, Executive Officer, CARB; Jack P. Broadbent, Executive Officer/APCO and other senior management and staff of the Air District; and senior representatives of Communities for a Better Environment, 350 Bay Area (by letter), the California Council for Environmental and Economic Balance, and the Western States Petroleum Association.

Council deliberation was conducted in five full-day meetings on December 3, 2015, and February 3, April 25, July 19, and October 3, 2016.

SPEAKERS

- Bay Area Air Quality Management District
 - Jack P. Broadbent, Executive Officer/APCO
 - Brian Bunger, General Counsel
 - Jeff McKay, Deputy APCO
 - Jim Karas, Director of Engineering
 - Henry Hilken, Director of Planning and Climate Protection

- California Air Resources Board
 - Richard Corey, Executive Officer
 - Sam Wade, Chief, Transportation and Fuels Branch
 - Jason Gray, Manager, Climate Change Market Monitoring Section

- California Energy Commission – Gordon Schremp, Senior Fuels Specialist

- Stakeholders
 - Communities for a Better Environment (CBE) – Greg Karras
 - 350 Bay Area – Letter
 - California Council for Environmental and Economic Balance (CCEEB) and Western States Petroleum Association (WSPA) – Bill Quinn and Berman Obaldia; Gary Rubenstein, Sierra Research on behalf of CCEEB and WSPA

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairperson Stan Hayes and Members
of the Advisory Council

From: Jack P. Broadbent
Executive Officer/APCO

Date: September 16, 2016

Re: Air District Clean Air Plan: Areas for Future Focus

RECOMMENDED ACTION

None; receive and file.

BACKGROUND

The Air District is updating the 2010 Bay Area Clean Air Plan. The updated Clean Air Plan/Regional Climate Protection Strategy (Plan) will be a roadmap for the Air District's efforts over the next few years to reduce air pollution and protect public health and the global climate. The 2017 Plan is required by the California Clean Air Act to identify potential rules, control measures, and strategies for the Air District to implement in order to meet state ambient air quality standards for ozone or "smog." The Plan also addresses measures and programs to reduce emissions of fine particulates and toxic air contaminants. In addition, the Bay Area's first-ever comprehensive Regional Climate Protection Strategy will be included in the 2017 Plan - which will identify measures that the Air District can pursue to reduce greenhouse gas emissions throughout the Bay Area.

DISCUSSION

The 2017 Plan will also include discussion of topics that may be appropriate for potential rules, research, control measures, and strategies in the future. The Air District will ask for the Advisory Council's expertise in considering topics that should be included in this forward-looking portion of the Plan. During these deliberations, the Council may wish to provide input on topics such as the evolving understanding of the health effects of air pollutants, the Air District's role in reducing Vehicle Miles Travelled in the Bay Area, the Air District's role in electrification of transportation in the Bay Area, the Air District's role in de-carbonizing power generation in the Bay Area, and the possibility of the Air District supporting "tipping point" technologies or policies that could have state-wide effects. These topics are examples, and the Air District seeks the Advisory Council's opinion to include these or other topics.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Henry Hilken
Reviewed by: Jean Roggenkamp