BOARD MEETING DATE: June 5, 2015 AGENDA NO. 20

REPORT: Legislative Committee

SYNOPSIS: The Legislative Committee met on Friday, May 8, 2015 following the Board Retreat. The next Legislative Committee meeting is scheduled for Friday, June 12, 2015 in Conference Room CC8.

RECOMMENDED ACTION:
Receive and file this report.

Judith Mitchell
Chair
Legislative Committee

LBS:GSA:PFC:jf

Attendance *[Attachment 1]*
Committee Chair Judith Mitchell and Committee Members Michael Antonovich and Janice Rutherford were present.

Report on Federal Legislative Issues *[Attachment 2]*
South Coast AQMD's federal legislative consultants the Carmen Group and Kadesh & Associates each provided a written report on various key Washington, D.C. issues.

Update on State Legislative Issues *[Attachment 3]*
South Coast AQMD's state legislative consultants Joe A. Gonsalves & Son and Gonzalez, Quintana & Hunter each provided a written report on various key Sacramento issues.

Briefing Paper on Potential Use of Unmanned Aircraft for Air Quality Data Gathering *[Attachment 4]*
Dr. Laki Tisopulos, Assistant Deputy Executive Officer of Science & Technology Advancement provided an update to the committee on emerging technology innovations and new federal regulations relating to unmanned aircraft vehicles (UAVs), also known as drones. Dr. Tisopulos also discussed possible beneficial and cost-effective air

monitoring applications of UAVs, while taking into account various limitations and concerns.

The committee identified and discussed some potential concerns involving the use of UAVs, including, but not limited to, those relating to privacy, airspace operations and technological limitations, as well as safety and liability issues. Staff outlined possible approaches and ongoing efforts to address such concerns. Committee Chair Mitchell noted the valid concerns over privacy and other issues previously stated. She advised staff to continue to monitor legislation relative to UAVs with the agency's priority being to proceed with caution and explore the feasibility for partnered deployment with emergency responders (e.g. police and fire department).

Greenhouse Gas Related Legislation *[Attachment 5]*:
Senior Public Affairs Manager of Legislative and Public Affairs, Guillermo Sanchez provided the committee with a brief overview of greenhouse gas (GHG) state legislation introduced this year. These bills, each with their contending priorities, are seeking to utilize the growing Greenhouse Gas Reduction Fund.

Mr. Sanchez outlined South Coast AQMD's next steps in this policy area. He also explained that through this legislative activity and the budget, there is a major opportunity for the SCAQMD to maximize the benefit of the state's investments by securing co-benefit emission reductions of criteria pollutants, along with GHG emission reductions. Executive Officer Dr. Barry Wallerstein also mentioned the Committee's and full Board's approved position on SB 32 (Pavley) that endorsed staff efforts to seek such co-benefit emission reductions.

Report from SCAQMD Home Rule Advisory Group *[Attachment 6]*
Please refer to Attachment 6 for written report.

Other Business:
None

Public Comment Period:
None

Attachments
1. Attendance Record
2. Federal Legislative Update
3. State Legislative Update
4. Potential Use of Unmanned Aircraft for Air Quality Data Gathering
5. Greenhouse Gas Related Legislation
6. SCAQMD Home Rule Advisory Group Report

ATTACHMENT 1

ATTENDANCE RECORD –May 8, 2015

DISTRICT BOARD MEMBERS:
Councilmember Judy Mitchell, Chair
Supervisor Michael Antonovich
Supervisor Janice Rutherford

STAFF TO COMMITTEE:
Lisha B. Smith, Deputy Executive Officer
Derrick Alatorre, Assistant Deputy Executive Officer/Public Advisor
Guillermo Sanchez, Senior Public Affairs Manager
Julie Franco, Senior Administrative Secretary

DISTRICT STAFF:
Barry R. Wallerstein, Executive Officer
Barbara Baird, Chief Deputy Counsel
Philip Fine, Deputy Executive Officer
Bayron Gilchrist, Assistant Chief Deputy Counsel
Fred Minassian, Assistant Deputy Executive Officer
Matt Miyasato, Deputy Executive Officer
Mohsen Nazemi, Deputy Executive Officer
Kurt Wiese, General Counsel
Philip Crabbe, Community Relations Manager
Patti Whiting, Staff Specialist

OTHERS PRESENT:
Mark Abramowitz, Governing Board Member Consultant (Lyou)
Sue Gornick, WSPA
Jacob Haik, Governing Board Member Consultant (Buscaino)
Bill LaMarr, California Small Business Alliance
Chung Liu, Governing Board Member Consultant (Mitchell)
Rita Loof, RadTech
Peter Okurowski, CEA
Marissa Perez, Governing Board Member Consultant (Mitchell)
Bill Quinn, CCEEB
David Rothbart, Los Angeles County Sanitation Districts
Andrew Silva, Governing Board Member Consultant (Rutherford)
Claire Spencer, Tesoro
Susan Stark, Tesoro
Lee Wallace, So Cal Gas

Carmen Group
INCORPORATED

ATTACHMENT 2A

MEMORANDUM

To: Members of the South Coast Air Quality Management District Legislative Committee

From: Mia O'Connell, Gary Hoitsma, and Stewart Harris, Carmen Group

Date: May 1, 2015

Subj: Updated on Federal Legislative Issues

Please find the following information regarding Carmen Group's Federal Legislative update for the District's Legislative Committee. We would be pleased to answer any questions from you or the Committee regarding these items.

1) **MAP-21 Status:** With surface transportation authorizations expiring at the end of this month, Congress' exact plan for going forward remains uncertain. With the House out this week and both the House and Senate out the week of Memorial Day at the end of the month, some action will need to be taken by May 22nd at the latest. Despite some differences between the House and the Senate that have to be worked out in the coming days, it now appears most likely that there will be a two-month extension of existing authority for all programs carrying through to the first of August. This can be done without any new revenue, since the Highway Trust Fund is now officially reported to have enough money to last that long. This will give Congress more time to identify the approximately $11 billion in new revenue that will then be needed to sustain current programs through the end of the calendar year. Thus passage of any new comprehensive bill with serious policy changes and longer-term funding – possibly rooted in tax reform of some kind -- will most likely be deferred until the November/December timeframe. At least that is the scenario that seems most likely right now.

2) **AQMD MAP-21 Issues**: Draft bills continue to be worked on behind the scenes in the House and the Senate. From what we have learned so far, the next MAP-21 bill will include a new freight formula program with its amount of funding – like that for all other program categories -- tied to however big the overall bill turns out to be. So far, we are told there are no air-quality related or other set-asides being carved out from this freight formula distribution. At the same time, CMAQ program eligibilities are being changed to encourage much greater use of those funds on AQMD-favored advanced clean vehicle technologies that are believed to have a much higher benefit-cost ratio for improving air quality than are other more traditional CMAQ approaches. Committee staffs believe these changes, coupled with increased funding for CMAQ, will incentivize states and local jurisdictions to put more CMAQ dollars directly in the kind of advanced technology projects AQMD is trying to promote.

3) **Targeted Airshed Grant Program:** Earlier this week, Congressman Calvert was briefed by EPA regarding the DERA and Targeted Airshed Grant Programs. The briefing served as an opportunity for the Congressman to clarify for EPA the intent of language regarding Targeted Airshed Grants in the FY15 Appropriations bill. We will be working with Lisha and her team to update the Targeted Airshed Grant language for Congressman Calvert to use in the FY16 Interior Environment Appropriations bill, which is currently under development.

4) **FY 2015 Diesel Emission Reduction Act RFP:** On Thursday, April 30th, EPA released their Fiscal Year 2015 DERA Request for Proposals. We will be working with Lisha and her team to determine whether the District will be submitting an application (due June 15th), and will again work with Congressman Calvert's office to support the District proposal.

ATTACHMENT 2B

Kadesh & Associates
Legislative Report to the SCAQMD board
5/8/15

Appropriations

The House passed the Energy and Water Appropriations bill on May 1 by a vote of 240-177 and the Senate is expected to begin the process of marking up its own bill later this month. The President has issued a veto threat to the House bill stating that this is because it "drastically underfunds critical investments" in clean energy and climate change. There were several notable amendments to the bill including one that blocks funds from being used to finalize DOE furnace efficiency rules.

As you recall the Energy and Water Appropriations bill includes the program that has funded our zero emissions goods movement projects the past few years. We received $10 million from the fiscal year 2014 bill and are still awaiting the Agency's request for proposals for the 2015 program.

Senator Feinstein's staff have relayed to us that they have heard from several entities regarding the Zero Emissions Goods Movement funds allocated to the agency, specifically in 2012. We continue to work with SCAQMD staff and the Senator's office to resolve any concerns and try for future funding. Senator Feinstein was the Subcommittee chair and in charge of writing the Senate bill until the Republicans took over the Senate this year. She now serves as the Ranking member.

Separately we have also been working with staff from DOE EERE (where the zero emissions program is housed) to provide information on ways to further incent zero emission vehicular infrastructure.

Meanwhile the Senate Interior Appropriations committee recently held a hearing with EPA witnesses on the 2016 Interior appropriations as a prelude to marking up an Interior appropriations bill. The Interior Appropriations bill of course funds DERA among all the many important EPA programs that affect SCAQMD.

These are notable developments as Congress has struggled to pass appropriations bill on time and through regular order the past few years so Appropriators are working hard to return to the traditional normalcy in the appropriations process.

Energy Efficiency bill

The President signed into law the Energy Efficiency Improvement Act of 2015 which establishes a voluntary, market-driven approach for commercial building owners and their tenants to reduce energy consumption. This is a subset of the more comprehensive Shaheen-Portman and Portman-Shaheen energy efficiency bills that have

fallen short over the past couple of Congresses. On April 30, the Senate Energy and Natural Resources committee held a hearing and received testimony on 22 general energy efficiency proposals and proponents of the more comprehensive Portman-Shaheen legislation are hopeful that additional energy efficiency legislation can be passed this Congress.

Transportation Bill

Transportation authorization runs out at the end of the month. There is still nothing close to any sort of Congressional consensus on funding options. The Repatriation proposal put forth by Senators Boxer and Rand Paul which pays for highway spending by providing companies a tax break on their overseas earnings has been rejected by Senator Hatch and Congressman Ryan, the Chairs of Senate Finance and House Ways and Means. A recent Joint Committee on Taxation analysis pegged the cost of the bill at $118 billion.

Just this week, Senator Wyden (Ranking member of Senate Finance) and Senator John Hoeven introduced legislation that would offer up to $180 billion in tax-exempt bond authority and up to $45 billion in infrastructure tax credits over the next decade aimed at increasing private investment in transportation projects. Despite the bipartisan support, we don't expect this bill to get much traction either. In fact, virtually all potential funding streams have been rejected outright by key legislators.

At this point we don't expect Congress to let the authorization or the funding lapse so we expect a short term extension which realistically could last all the way through the rest of the calendar year and even into 2016. Most likely the funding will have to come from the general fund with no real offset.

And earlier this week (On May 5), the Senate Commerce Committee held another hearing on a surface transportation reauthorization bill. As always we will inform SCAQMD staff of anything notable that comes out of the hearing. The Commerce Committee oversees the freight piece of the legislation in the Senate.

Air Quality

Lastly, we are working with Senator Feinstein's office to answer their request for information about the effects of the ongoing California drought on air quality in our region.

ATTACHMENT 3A

Joe A. Gonsalves & Son
Anthony D. Gonsalves
Jason A. Gonsalves
Paul A. Gonsalves
PROFESSIONAL LEGISLATIVE REPRESENTATION
925 L ST. · SUITE 250 · SACRAMENTO, CA 95814-3766
916 441-0597 · FAX 916 441-5061
Email: gonsalves@gonsalvi.com

STATE LEGISLATIVE UPDATE

FRIDAY, MAY 1ST, 2015

RECAP OF MEETINGS WITH BOARD MEMBER MITCHELL:

On April 21st and April 22, 2015, our office had the pleasure of arranging and attending meetings in Sacramento with Board Member Mitchell and key Members of the Legislature and Legislative Committees. With roughly 80% of the Legislature having less than 2 years' experience; we thought this was a great opportunity to establish relationships with these newly elected members of the Legislature.

The purposes of these meetings were twofold:

1. A "meet and greet" introducing the Legislators to SCAQMD and the role the District plays in their communities.
2. Offer the District as a resource to the Legislators.

Board Member Mitchell met with the following Legislators:

- Senator Fran Pavley, 27th Senate District, Chair of the Senate Natural Resources and Water Committee.
- Assembly Member Das Williams, 37th Assembly District, Chair of the Assembly Natural Resources Committee.
- Rebecca Newhouse, Consultant, Senate Environmental Quality Committee.
- Assembly Member Chad Mayes, 42nd Assembly District, which is covered by SCAQMD.
- Assembly Member Chris Holden, 41st Assembly District, Assembly Majority Floor Leader.
- Assembly Member Bill Quirk, 20th Assembly District, Chair of the Select Committee on California's Clean Energy Economy.
- Assembly Member David Hadley, 66th Assembly District. Member of the Assembly Natural Resources Committee.
- Assembly Member Anthony Rendon, 63rd Assembly District, Chair of the Assembly Utilities and Commerce Committee.

WATER REGULATIONS:

On Tuesday, April 28th, 2015, Governor Brown met with various Mayors from across the State of California on the Proposed 25% water Reduction he called for in the beginning of April. At the press conference following the meeting with California Mayors, Governor Brown announced he will propose legislation to help local officials better enforce conservation requirements and will direct state agencies to streamline environmental review of local water supply projects.

The proposed legislation will give new enforcement authority to local entities that don't currently have it and increase potential penalties against water wasters. It will specifically:

- Establish a new penalty of up to $10,000 per violation, expanding on $500 per day maximum infraction established in last year's drought legislation.
- Allow penalties to be issued administratively by wholesale and retail water agencies, as well as city and county governments. This change speeds up an infraction process involving courts that was established in last year's emergency drought legislation.
- Enable these entities to enforce local water restrictions against water waste, as well as conservation restrictions established by the State Water Resources Control Board.
- Allow local public agencies to deputize staff to issue water conservation-related warnings and citations.

This legislation will give all water agencies and local governments a consistent, minimum set of enforcement authorities to achieve required water conservation. Local water agencies with existing authorities to enforce against water waste can continue to use those authorities. Under the proposed legislation, any monetary penalties from this enforcement will be used for local conservation efforts.

Separately, to streamline environmental permitting for critical water supply projects, the Governor has directed his Office of Planning and Research and other state agencies to help local water agencies reduce the time required to comply with state-required environmental reviews. These permit streamlining efforts will focus on projects that can increase local water supplies with limited environmental impacts. The Governor's Office will also explore legislative changes that can speed-up delivery of critical water supply projects.

UPCOMING LEGISLATIVE DEADLINES:

There are a few upcoming legislative deadlines I would like to make the Committee aware of:

- May 1 – Last day for policy comm. to hear and report bills to the Appropriations Committee.
- May 15 – Last day for policy committees to hear non fiscal bills.
- May 22 - Last day for policy committees to meet until June 8, 2015.
- May 29 - Last day for Appropriations Committees to meet until June 8, 2015.
- June 5 – Last day for bills to be passed out of their house of origin.

ATTACHMENT 3B

915 L Street, Suite 1480 ? Sacramento, CA 95814
Tele: 916 930-0796 ? Fax: 916 930-0050
www.gqhlobby.com

GONZALEZ, QUINTANA & HUNTER, LLC

May 1, 2015

TO: Members of the South Coast AQMD Legislative Committee
FROM: Will Gonzalez, SCAQMD Consultant
RE: State Legislative Update

AB 513 (Beall) – Carl Moyer Modernization

AB 513 (Beall) is sponsored by the CA Air Pollution Control Officer's Association (CAPCOA) and supported by SCAQMD. The bill makes several updates to the Carl Moyer program to ensure significant sources of mobile air pollution are eligible to receive incentive funding to reduce their emissions. The bill was heard in the Senate Transportation and Housing Committee on April 21st and passed with a strong bipartisan vote of 10-0. Subsequently, the bill was heard in the Senate Environmental Quality Committee on April 29th and despite several questions raised by committee members regarding the structure of vehicle fees and categories of fund recipients, also passed with a strong bi-partisan vote of 7-0. CAPCOA and SCAQMD will be working with committee members to respond to these inquiries.

Governor Brown's Executive Order on Climate Change

Governor Jerry Brown issued an executive order on April 29th establishing a state goal of reducing GHG levels to 40% of 1990 levels by 2030. Brown's executive order establishes an interim target between the existing AB 32 statute (1990 levels by 2020) and Governor Schwarzenegger's Executive Order (80% of 1990 levels by 2050). The new 2030 interim target will likely accelerate the pace of GHG reductions most industries are undertaking to meet the existing 2050 target.

SB 32 (Pavley) – GHG Reduction Goals

SB 32 (Pavley) easily cleared its first committee hearing by a vote of 5-2 and now heads to Senate Appropriations committee. The bill directs the CA Air Resources Board to establish new industry GHG reduction targets to achieve a GHG reduction equivalent to 80% of 1990 levels. Senator Pavley announced she would be amending her bill to conform to Governor Brown's executive order establishing a 2030 interim GHG target.

SB 350 (de Leon) / AB 645 (Williams) – Renewable Energy

Two bills moving through the legislative process to establish a new 50% Renewable Portfolio Standard have cleared all policy committees with little drama. SB 350 recently cleared the Senate Environmental Quality committee by a vote of 5-2 and AB 645 cleared the Assembly Natural Resources committee by a vote of 6-3. Both bills are headed to fiscal committees but are not expected to face substantial challenges until the bills reach the Assembly Floor.

ATTACHMENT 4A

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Use of Unmanned Aircraft Vehicles for Air Monitoring Applications

White Paper

Laki Tisopulos, Ph.D.
Assistant Deputy Executive Officer
Andrea Polidori, Ph.D.
Quality Assurance Manager

3/18/2015

Introduction

Unmanned Aerial Vehicles (UAVs), commonly referred to as drones, are remotely operated platforms known for their easy maneuvering, great flexibility, and relatively low-costs. Once relegated solely to military and intelligence use, civilian, commercial and governmental applications are now proliferating around the world. Cumulative spending on aerial drones is expected to grow very rapidly and reach $98 billion over the next decade. Civilian and commercial applications will account for 12% of this spending (Business Insider Report; 2014). The size of a UAV can range from that of an insect to that of a commercial airliner (Figure 1). Smaller UAVs are usually employed for remote observation of hazardous environments, while larger autonomous drones weighing thousands of pounds are typically used by the military for combat operations.

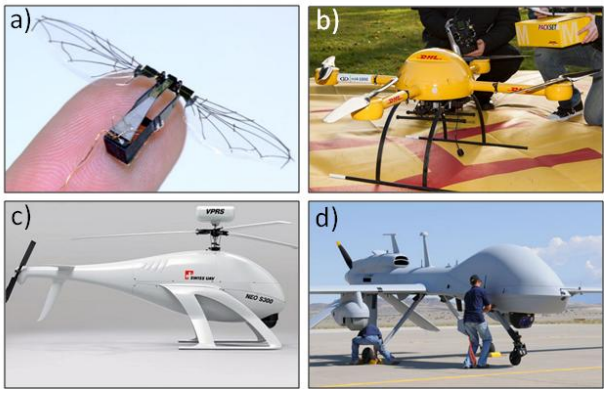


Figure 1 Example of a micro aerial vehicle prototype (a), a small UAV used for delivery of medicine (b), a helicopter-type UAV for aerial photography and HD video filming (c), and a large drone for military operations (d)

Because of recent technological advancements, small UAVs can now be employed for aerial meteorological and air quality measurements using commercially available sensors and sensor devices. These versatile platforms can be launched and deployed within minutes from the occurrence of an incident response situation with potential community impact implications (e.g. large-scale industrial accidents, wildfires, etc.) and are capable of sending data back to the operator in real time. While the newest generation of commercial UAVs opens the door to innovative techniques in sampling that were previously either impractical or not cost-effective, the use of UAVs is not without challenges, both technical and logistical.

This short document mainly focuses on small UAVs [defined by statute as unmanned aircraft weighing less than 55 lb; Federal Aviation Administration (FAA), 2015], summarizes the current state of knowledge of small UAV technology, and discusses potential applications that may enhance current SCAQMD air monitoring capabilities.

Why Should SCAQMD Be Interested In UAVs?

There is tremendous synergy between what the rapidly evolving UAV technology can offer and the objectives of recent SCAQMD air monitoring initiatives. Specifically, SCAQMD just established a testing center (i.e. Air Quality Sensor Performance Evaluation Center, or AQ-SPEC) to evaluate the performance of "low-cost" sensors, many of which can be integrated in small UAVs for air monitoring purposes. Furthermore, SCAQMD is also aggressively exploring the use of more sophisticated fence-line optical remote sensing technologies for the purposes of improving its air monitoring capabilities, enhancing compliance with its regulatory program, and further developing its community and school alert initiatives. While presently SCAQMD is using fixed stations and mobile trailers to operate available air monitoring technologies, UAVs would provide alternative or additional platforms that are more versatile, nimble, and faster to deploy, which could greatly improve the effectiveness and usefulness of SCAQMD air monitoring programs.

UAV Types

The International Civil Aviation Organization (ICAO) classifies UAVs into *autonomous*- and *remotely piloted-aircraft*. While the former type is considered unsuitable for regulation due to legal and liability issues, the latter is subject to civil regulation under ICAO, FAA, and other relevant national aviation authorities. More commonly, drones are divided into two categories, namely *rotary-wing* and *fixed-wing* UAVs. The former type is a Vertical Take Off and Landing (VTOL) aircraft that can hover over a desired location (Figure 2). While its relative payload capacity is less than its fixed wing counterpart, it allows for extremely stable positioning near the location of interest (e.g. a smoke stack or other elevated pollution sources) and for both fixed and in-motion sampling/monitoring. Conversely, fixed-wing UAVs are small aircraft that require a runway or other launch system to take-off/land, and do not have the ability to hover over desired locations for stationary sampling/monitoring (Figure 2). However, they typically provide longer flight times, can fly at higher cruising speeds, and can support larger payloads.

Figure 2 Typical rotary-wing (left) and fixed-wing (right) UAVs used for civilian applications

UAV Characteristics

- Payload: The carrying capacity of civilian UAVs varies widely and is typically between 0.5 and over 10 kg depending on the size and type of drone. This has important implications on the type of sensors and other equipment that the UAV can carry.
- Flight time and range: Flight time varies greatly, spanning from 15-30 minutes for purely electric UAVs to over 10 hours for gasoline powered UAVs. Flight range is also highly variable and for civilian drones it spans from a few hundred meters to a few kilometers.
- Flight altitude: For most civilian UAVs, flight altitude ranges from 300 to 1000 meters.
- Wind resistance: Typically, small UAVs cannot be operated during strong wind conditions. This has important implications in terms of risk and safety and limits their ability to monitor air quality or collect air samples during high wind events.
- Cost: Cost is highly variable depending on the payload, range capabilities, flight time and other technical considerations and may vary between a few hundred dollars to over $10,000.
- Other considerations: Many commercially available UAVs are made of advanced lightweight materials such as injected foam, fiberglass, carbon fiber and aluminum. Small rotary-wing UAVs are typically 100% electric to minimize emissions and vibration. Vibration dampening components are often used to minimize malfunctions of the sampling/monitoring components and to stabilize video images.

Potential Air Monitoring Applications

Because of their light weight, a wide variety of modern low-cost air monitoring sensors can easily be integrated in commercially available UAVs and used for several useful applications, including:

- Meteorological measurements: Temperature, relative humidity, pressure, and winds (e.g. vertical wind profiles).
- Continuous gas monitoring: Ozone, nitrogen oxides, carbon monoxide, and other gases
- Integrated gaseous sampling: Sorbent tubes and other passive samplers and small canister samplers for VOC collection.
- Particulate matter measurements: Real-time (e.g. using light scattering techniques) and integrated sampling (e.g. using small impactors for collecting size-segregated particles).

  It should be noted that SCAQMD relies on stationary monitoring stations to obtain such meteorological, gaseous and particulate measurement data. UAVs may provide an opportunity to augment SCAQMD's current stationary network capabilities.

- Horizontal and vertical gradient studies: Real-time air pollution measurements in close proximity and further away from the source (e.g. at different distances from a freeway, near a smoke stack, and at different elevations). This application may include the measurement and characterization of air pollution plumes with the aim of identifying the source of the emissions. Information on the horizontal and vertical gradients could also be used to validate and improve the results of existing dispersion models.
- Emergency response: Wildfires, refinery accidents and other major facility incidences such as the recent fire at Port of LA, releases of air toxics, and other hazardous situations where accessibility for ground measurements to what is considered as the "hot zone" is typically prohibited. UAVs can augment current SCAQMD capabilities by providing faster and more refined temporal and spatial distribution of the plume during such incidences, all critical pieces of information in formulating prompt and appropriate alerts for the public. Off-shore platforms is yet another example of a source with limited accessibility where UAVs can be useful in monitoring emissions.
- Odor identification and monitoring: UAVs could be helpful in locating sources of odors in remote or inaccessible locations, such as off-shore. They can also be used to collect samples or provide real-time measurements during odor events.
- Perimeter/fence-line monitoring and video surveillance: Refineries, industrial complexes and other large facilities.
- Remote sensing: Recently, UAVs have been outfitted with spectral cameras with different bands, Light Detection and Ranging (LiDAR), and other spectroscopic instruments for monitoring gaseous pollutants over large areas.

The selection of sensors/instruments that can be mounted on a drone depends largely on its payload capacity, as well as the specific applications. Real time air monitoring data can be transmitted directly to the operator via telemetry and the exact UAV position can be recorded continuously using an on-board Global Positioning System (GPS). Also, autonomous modes can be flown with pre-programmed flight paths and waypoints to repetitively document environmental changes over time (Figure 3).

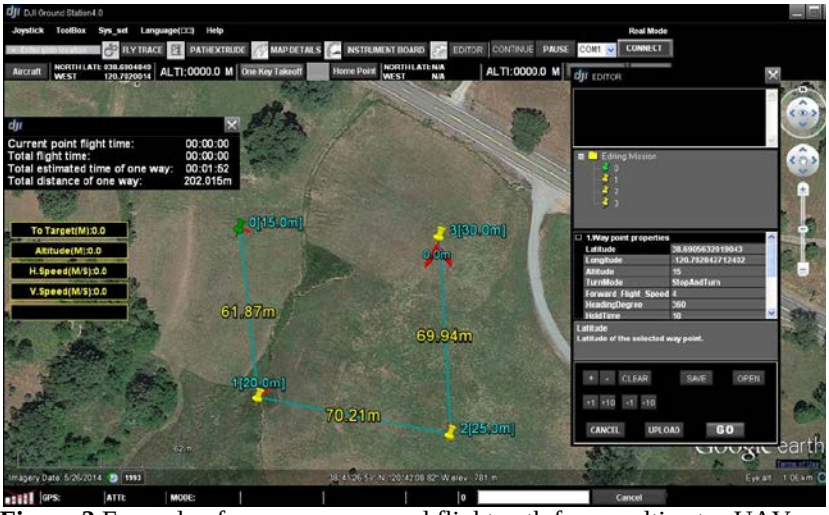


Figure 3 Example of a pre-programmed flight path for a multi-rotor UAV system (courtesy of *T&B systems; Valencia, CA*)

Past and Current Air Monitoring Studies

Due to restrictions imposed by the Federal Aviation Administration (FAA), the research of UAV applications in air quality monitoring has been limited. Watai et al. (2012) reported on the development of a non-dispersive infrared (NDIR) sensing system on a small UAV to monitor atmospheric CO2 concentrations. The authors designed and built an economic and accurate gas sensor system (±0.26 ppm precision) and performed several flight tests with a one hour flight autonomy and 3.5 kg payload. McGonigle, et al. (2008) reported the measurements of volcanic gases with a helicopter UAV at La Fossa crater, Volcano (Italy), using an ultraviolet and infrared spectrometer to measure SO2 and CO2 gas concentrations. This UAV had a 3 kg payload weight and 12 minutes flight autonomy. Khan, et al. (2012) developed a greenhouse gas analyzer using a vertical cavity surface emitting laser (VCSELs) embedded in a helicopter UAV. CO2, CH4 and water vapor were targeted by developing a sensing module for each targeted gas, with a vertical and horizontal resolution of less than 1 meter. Malaver et al. (2015) have recently developed a wireless sensor network and an UAV powered by solar energy to measure concentrations of CH4 and CO2 at ground and low aerial altitudes, simultaneously. Data collected during this study was transmitted in real time to a central node for analysis and 3D mapping of the target gas. T&B Systems, an environmental consulting firm that has locations in Valencia (CA) and Placerville (CA) has been collaborating with SCAQMD on several air monitoring activities. They have outfitted a commercially available multi-rotor UAV (i.e. quad-copter; Figure 4) with different types of low-cost sensors and other equipment to monitor particulate and gaseous samples in real time and collect integrated air samples. The use and capabilities of this particular system were presented during the Air Quality Sensor Workshop organized by SCAQMD on November 21, 2014. It should be noted that the California Air Response Planning Alliance (CARPA) is currently trying to get FAA approval to employ small UAVs for port and refinery monitoring.

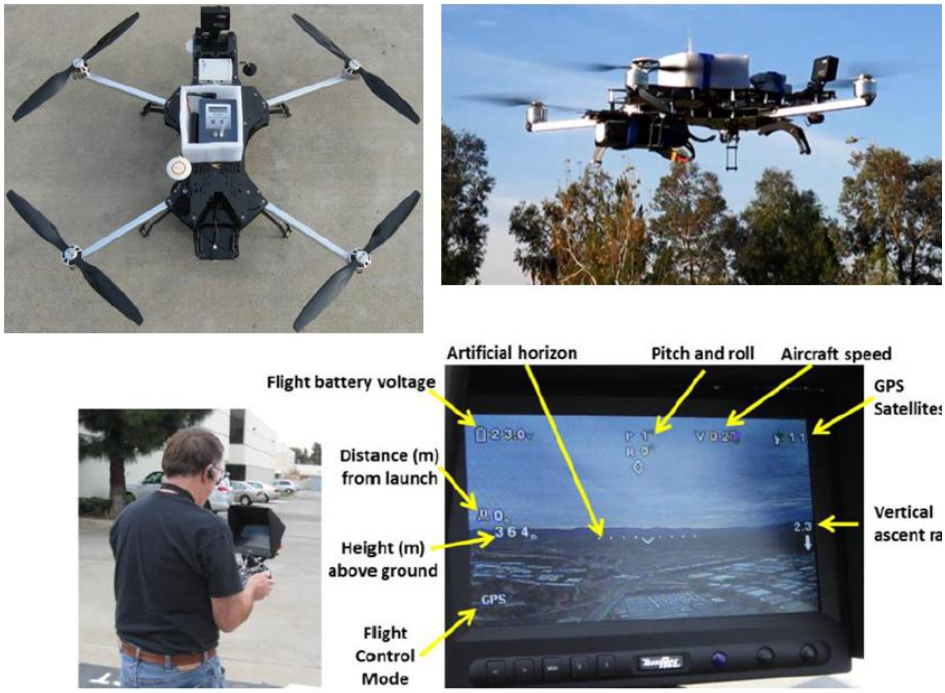


Figure 4 Commercially available multi-rotor UAV (i.e. quadcopter) outfitted with a UV photometric (Federal Equivalent Method; FEM) ozone analyzer. This unit is equipped with precise flight controls with first person view, display of flight parameters and air to ground telemetry of key data (*courtesy of T&B Systems; Valencia, CA*)

Limitations and Other Concerns

- Payload capacity and flight time: Small UAVs are usually battery powered, and power technology is the primary limiting factor in defining their payload capacity and flight time. Dramatic gains in both of these parameters have been achieved in the last several years.
- Safety: While work is underway, most drones cannot yet sense and avoid obstacles, making them a potential hazard to people and property. Safety, protection of property, and other similar issues must be addressed before UAVs can be fully integrated with available next generation air monitoring devices and used for routing air monitoring operations.
- Radio frequency interference: The radio frequency sensitivity of some electronic components can create flight issues, compromise the safe operation of UAVs, and interfere with the correct functioning of the sensors. Electronic shielding is often needed to minimize these unwanted effects.
- Measurement instruments performance: The performance of low-cost sensors is still uncharacterized in challenging environmental conditions (e.g. when temperature and pressure change rapidly and/or in the presence of strong winds). Results from our recently funded AQ-SPEC program will help identify sensors and sensor devices that are ideal for UAV integration and deployment.
- Privacy: Although new rules have recently been proposed by FAA to regulate the civilian and commercial use of small UAVs, it is clear that the rapidly expanding use of unmanned aircraft is already outpacing the regulations that govern them. As policy makers begin to contend with the advent of new UAV technologies, the paramount issues to be addressed are safety and privacy. In the United States today, only government

agencies, some public universities, and a handful of private companies hold the few hundred existing FAA permits to fly private drones for non-recreational purposes.

Regulatory Front - Federal Aviation Administration (FAA) draft rule

On Feb. 15, 2015, the FAA released its proposed rules for commercial drone operation that paves the way for commercial drone usage in the United States by 2017. The proposed rules are now open for a 60-day public comment period, which the FAA will take into account in formulating its final regulations. The proposed rules apply to the operation of small UAVs weighing 55 pounds or less for non-hobby or non-recreational purposes. The proposed rules do not affect recreational drone use, which is already permitted as long as users obey certain safety requirements. Once the final regulations are in place, governmental agencies, first responders and research institutions may continue to operate UAVs technologies under FAA permits granted on a case by case basis known as "Certificate of Waiver or Authorization", or they may avail themselves of the less restrictive commercial drone rules. The proposed rule establishes UAV operator requirements and operating limitations designed to minimize risks to other aircraft and people and property on the ground:

- A small UAV operator would have to be at least 17 years old, pass an aeronautical knowledge test and obtain an FAA UAV operator certificate. A small UAV operator would not need any further private pilot certifications.
- The small UAV must be operated within the line of site of the operator.
- A small UAV operator must avoid manned aircraft and, if there is a risk of collision with other aircraft, the UAV operator must be the first to maneuver away.
- The operator must discontinue the flight when continuing would pose a hazard to other aircraft, people or property.
- A small UAV operator must assess weather conditions, airspace restrictions and the location of people to lessen risks if he or she loses control of the UAV.
- A small UAV may not fly over people, except those directly involved with the flight.
- Flights should be limited to 500 feet altitude and no faster than 100 mph.
- Operators must stay out of airport flight paths and restricted airspace areas.

In conjunction with the release of the FAA's proposed rules, the White House issued a memorandum setting forth guiding principles governing domestic drone usage by US federal agencies aimed at safeguarding privacy, civil rights and civil liberties, while leaving the US Department of Commerce to implement the specifics of such safeguards. As the White House memorandum relates only to privacy considerations for drone use by the federal government, it is up to each State to address how UAVs may or may not infringe on privacy rights and expectations.

Regulatory Front - State Response to UAVs

State legislatures across the country are debating if and how UAV technology should be regulated, taking into account the benefits of their use, privacy concerns and their potential economic impact. According to the National Conference of State Legislatures, by the end of 2014 20 states have enacted laws addressing UAV issues. Common issues addressed in the legislation include defining what a UAV or drone is, how they can be used by law enforcement or other state agencies, how they can be used by the general public, and regulations for their use

in hunting game. For its part, California has just begun to address the issue. On February 17, 2015, the Senate Judiciary Committee held its first oversight hearing regarding the use of unmanned drones. The hearing was intended as an initial discussion addressing four principle issues:

- How well is California prepared for the increasing prevalence of drones in our skies?
- When is the use of a drone appropriate and when does it become an invasion of privacy?
- How do we balance our right of privacy with technological innovation?
- How do we ensure that our legitimate concerns about privacy and civil liberties do not hamper innovations that benefit society?

So far this year, five bills related to UAV technologies have been introduced in the California Legislature and are pending their first hearing.

Conclusions

In recent years there have been significant advances in the technology, performance, and affordability of small commercially available UAVs. Although safety and privacy issues have still not been fully addressed by policy makers, the civilian and commercial UAV market in the United States is rapidly expanding and up to 30,000 UAVs could be in the Nation's skies by 2020. These systems provide a versatile sampling platform for a wide variety of environmental applications including air pollution monitoring. Currently, the commercial use of UAVs is limited by their relatively short flight time, their low carrying capacity, and other technical and FAA restriction issues. However, because of recent advances in low-cost sensor technologies and rapid changes in FAA regulations, the use of UAVs is likely to grow and these platforms will become viable tools to monitor air quality over large areas.

It is of paramount importance that federal, state and local authorities collaborate to establish a regulatory framework that strikes the right balance between privacy and civil right issues. This includes the right to harness the potential of UAV technology in a manner that will allow air quality agencies to explore the possibility of using drones to augment their air monitoring and emergency response capabilities.

References

Business Insider Report: https://newdronas.files.wordpress.com/2014/11/drones-market-research-2014.pdf

Khan, A.; Schaefer, D.; Tao, L.; Miller, D.J.; Sun, K.; Zondlo, M.A.; Harrison, W.A.; Roscoe, B.; Lary, D.J. (2012): Low Power Greenhouse Gas Sensors for Unmanned Aerial Vehicles, *Remote Sensing*; 4(5), 1355-1368

Malaver, A.; Motta, N.; Corke, P.; and Gonzalez (2015): Development and Integration of a Solar Powered Unmanned Aerial Vehicle and a Wireless Sensor Network to Monitor Greenhouse Gases, *Sensors*; 15(2), 4072-4096

McGonigle, A.J.S.; Aiuppa, A.; Giudice, G.; Tamburello, G.; Hodson, AJ; Guerrieri, S. (2008): Unmanned aerial vehicle measurements of volcanic carbon dioxide fluxes, *Geophysical Research Letters*; 35, doi: 10.1029/2007GL032508

Proposed FAA Rule:
http://www.faa.gov/regulations_policies/rulemaking/recently_published/media/2120-AJ60_NPRM_2-15-2015_joint_signature.pdf

SCAQMD Air Quality Sensor Workshop: http://www.aqmd.gov/home/library/technology-research/technology-forums.

Watai, T.; Machida, T.; Ishizaki, N.; and Inoue, G. (2006): A Lightweight Observation System for Atmospheric Carbon Dioxide Concentration Using a Small Unmanned Aerial Vehicle, *Journal of Atmospheric and Oceanic Technology*; 23, 700–710.

ATTACHMENT 4B

Use of Unmanned Aircraft Vehicles (UAVs) for Air Monitoring Applications

Special Legislative Committee Meeting
May 8, 2015

Laki T. Tisopulos, Ph.D., P.E.
Science & Technology Advancement

Background

- Unmanned Aerial Vehicles (UAVs; or drones)
  - Easy operation and fast deployment
  - Very nimble and versatile
  - Civilian, commercial, and governmental uses
- Rapid proliferation
  - Cumulative spending for civilian and commercial applications expected to reach ~$12 billion by 2025
  - Civilian and commercial UAV market in the U.S. is rapidly expanding; up to 30,000 UAVs in the Nation's skies by 2020
- Integration with available "low-cost" sensors
  - Small UAVs can be used for air quality measurements
  - Potential to augment monitoring capabilities of air quality agencies

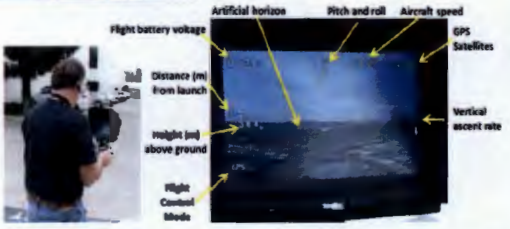



Background (continued)

- Small (civilian) UAV characteristics
  - Type
    - *Rotary-wing*: Vertical Take Off and Landing (VTOL), small payload, low cruising speeds, stable positioning
    - *Fixed wing*: require a runway to take-off/land, larger payloads, higher cruising speeds
  - Flight range
    - *Electric UAVs*: 15-30 min
    - *Gasoline UAVs*: up to 10 hours
  - Flight altitude
    - 300 to 1000 meters
  - Cost
    - From a few hundred dollars to over $10,000

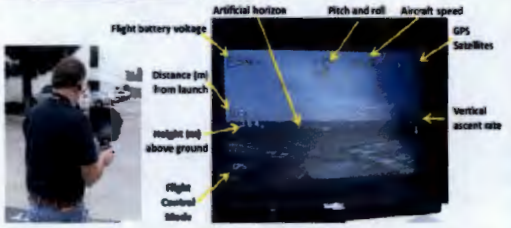
Air Monitoring Applications

- Meteorological measurements
  - Temperature, relative humidity, pressure, and winds
- Continuous gas monitoring
  - Ozone, nitrogen oxides, carbon monoxide, and others
- Integrated gaseous sampling
  - Sorbent tubes and small canisters for VOC collection
- Particulate matter measurements
  - Real-time and integrated sampling
- Horizontal / vertical gradient studies
  - Real-time measurements at different distances from emission source
  - Measurement and characterization of air pollution plumes



Air Monitoring Applications (continued)

- Emergency response
  - Wildfires, refinery accidents and other hazardous situations
- Odor identification and monitoring
  - Locate odor source(s) in remote or inaccessible locations (e.g. off-shore)
  - Collect samples or provide real-time measurements during odor events
- Perimeter/fence-line monitoring and video surveillance
- Remote sensing
  - Outfit UAVs with spectroscopic instruments for monitoring gaseous pollutants over large areas



Limitations / Concerns

- Payload capacity and flight time
- Safety
- Radio frequency interference
- Measurement instruments performance
- Privacy

Regulatory Front

- FAA draft rule for commercial drone operation (Feb. 15, 2015)
  - Applies only to small UAVs (i.e. < 55 pounds)
  - Does not affect recreational use
  - Paves the way for commercial use by 2017
  - Establishes operator requirements and operating limitations
- White House memorandum (Feb. 15, 2015)
  - Establishes principles for drone use by federal government
  - Aimed at safeguarding privacy, civil rights and civil liberties
  - Each State to address how UAVs may infringe privacy rights and expectations
- State Regulations
  - Multiple regs enacted or in the process of being enacted
  - California Senate Judiciary Committee oversight hearing (Feb. 17, 2015)
    - Balancing privacy and technological innovation
    - How do we ensure that privacy concerns do not hamper innovations?

Why Should SCAQMD Be Interested In UAVs?

- Viable and affordable tools to monitor air quality over large areas
- Can greatly improve the effectiveness and usefulness of SCAQMD air monitoring programs
- Synergy between rapidly evolving UAV technology and the objectives of recent SCAQMD air monitoring initiatives
  - AQ-SPEC
  - Fence-line optical remote sensing program

Potential Path Forward

- Proceed cautiously
- Explore feasibility of deployment
  - Prioritize emergency response scenario
- Seek to partner with other agencies (e.g. fire department, police) or third party contractors
  - Piggyback on their UAV deployment plans/operational experience
  - Provide funding for A.Q. Instrumentation

ATTACHMENT 5A

Greenhouse Gas Related Legislation in 2015

Issue: What is the South Coast AQMD's appropriate response to the over thirty still active greenhouse gas related bills?

Background:

EXISTING LAW AND FUNDING

Pursuant to the California Global Warming Solutions Act of 2006, the Air Resources Board (ARB) was required to adopt a statewide greenhouse gas (GHG) emissions limit regulations that achieve 1990 emissions levels by 2020 through the maximum technologically feasible and cost-effective GHG emission reductions. The Act further authorizes ARB to permit the use of market-based compliance mechanisms to comply with GHG reduction regulations. Accordingly, ARB established a cap-and-trade program that places a "cap" on aggregate GHG emissions from large emitters and allocates a certain number of allowances equal to the cap. Large emitters must obtain an allowance for each ton of carbon dioxide equivalent emitted. A portion of the allowances are auctioned by the state and the auction revenues are deposited into the Greenhouse Gas Reduction Fund (GGRF) and are available for appropriation by the Legislature to fund various programs intended to reduce GHG emissions.

The Governor's proposed budget for 2015-16 assumes the receipt of $1 billion in state revenue from cap-and-trade auctions and reflects the 2014-2015 Budget agreement. The Governor's proposal continuously appropriates 35% of cap-and-trade funds for investments in transit, affordable housing, and sustainable communities. The next 25% of revenues are continuously appropriated to the state's high speed rail project. The remaining 40% will be appropriated annually by the Legislature for investments in programs that include low-carbon transportation, energy efficiency and renewable energy, and natural resources and waste diversion.

SB 535 (De León, 2012), further requires that 25% of GGRF revenues fund projects that benefit disadvantaged communities with at least 10% of GGRF revenues to be expended directly within those communities.

Although the Governor's proposed budget assumes only $1 billion in state revenue from cap-and trade auctions, the Legislative Analyst's Office estimates that the actual revenue may exceed $2.3 billion. To the extent revenues exceed the amount assumed in the budget, those programs that are continuously appropriated specified percentages of auction revenue would receive significantly more funding in 2015-16 than is identified in the Governor's budget. The rest of the additional revenue would be available to be allocated by the Legislature in the budget or future years based on its priorities.

PROPOSED GHG RELATED LEGISLATION IN 2015

As of May 1, 2015, there were over 30 still active competing bills proposing modifications to how the Global Warming Solutions Act of 2006 is implemented or how funds deposited in the GGRF are

expended. Many of those bills are moving along with only minor amendments to date. The expectation is that the bills in this policy area in particular will be amended more substantially as they move through their respective second chamber. The policy objectives reflected in those bills range from establishing greater transparency in how those funds are expended, to focusing a greater portion of the funding to economically disadvantaged communities, to securing greater funding from the GGRF to a variety of different programs and priorities. The attached list of current bills reflects the more substantive legislative proposals that are still moving through the legislative process.

BOARD MEMBER JUDITH MITCHELL APRIL 2015 TRIP TO SACRAMENTO

On April 21 and 22, Board Member and Legislative Committee Chair Judith Mitchell met with a variety of state legislators in Sacramento. During her discussions with legislators, Chair Mitchell emphasized our priority in relation to the various greenhouse gas related bills: to optimize the benefit to the state from its GGRF investments by prioritizing those projects and grant opportunities that maximize criteria pollutant and toxic emissions reduction co-benefits. Most of the legislators were receptive to the comments and some agreed to carry our message, but they all made the following observations and recommendations:

- Given the limited state resources and the multitude of challenges the state faces, our focus on maximizing the benefit to the state from its existing planned investments (rather than diverting funds from other categories) is the optimal message to deliver.

- With few exceptions, all the contending GHG related bills will be resolved through the appropriations and budget processes.

- For our priority to be reflected in the resulting greenhouse gas legislation actually passed this year, the Agency should also seek budget language to be included in this year's budget agreement or related trailer bills.

Policy Framework:
Many of the bills have merit, but there are over 30 contending bills impacting how GGRF moneys will be expended. It is anticipated that the first significant narrowing of the bills will occur in the appropriations process that will culminate in the Appropriation Committees' Suspense Hearings scheduled at the end of May. As the surviving bills move through their respective second chamber, SCAQMD will wish to affirm its principal objective in regards to greenhouse gases - GGRF expenditures should maximize criteria pollutant and toxic emissions reduction co-benefits.

Consequently, staff will return to the Legislative Committee in June and present the priority GHG related bills for a SCAQMD position. On a parallel track, consistent with standing Board policy and with the specific recommendations made by the legislators, staff will also present for approval specific budget language and related materials to be used in communicating this Agency's priority message to legislative leadership regarding criteria pollutant and toxic emission reduction co-benefits so that SCAQMD's priorities are reflected in the 2015-2016 state budget agreement.

ATTACHMENT 5B

Select 2015 Legislation Related to AB 32 Implementation[1]

(Still active and without SCAQMD position as of May 1, 2015)

Proposals Impacting Expenditures from the Greenhouse Gas Reduction Fund (GGRF)

AB 450 (McCarty) Greenhouse gas: energy efficiency: financing.
Would authorize the use of the moneys in the Greenhouse Gas Reduction Fund to provide funding for the implementation of the PACE Reserve program.

AB 590 (Dahle) Greenhouse Gas Reduction Fund.
Would create the Biomass State Cost Share Account within the Greenhouse Gas Reduction Fund to provide funding to maintain the current level of biomass power generation in the state and revitalize currently idle facilities in strategically located regions.

AB 678 (O'Donnell) Greenhouse gases: Energy Efficient Ports Program.
Would require the State Air Resources Board to develop and implement the Energy Efficient Ports Program to fund energy efficiency upgrades and investments at public ports.

AB 857 (Perea) California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program. Would revise the Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program to require the greater of 50% or $100 million of the GGRF funds appropriated between January 2, 2018 and January 1, 2023 for development of a broad range of medium- and heavy-duty truck technology be allocated instead to support commercial deployment of existing heavy-duty (>26,000 lbs GVWR) truck technology that meets specified low oxides of nitrogen (low NOx) emission standards.

AB 1030 (Ridley-Thomas) California Global Warming Solutions Act of 2006: Greenhouse Gas Reduction Fund. Would require a state agency that allocates moneys from the Greenhouse Gas Reduction Fund to prioritize projects that include project labor agreements with targeted hire goals, community workforce agreements that connect local residents to jobs or training opportunities, or partnerships with training entities that have a proven track record of placing disadvantaged workers in career-track jobs.

AB 1336 (Salas) California Global Warming Solutions Act of 2006: disadvantaged communities.
Would require a minimum of 40% of the available moneys in the GHGRF to be allocated to projects that provide benefits to disadvantaged communities.

SB 189 (Hueso) Clean Energy and Low-Carbon Economic and Jobs Growth Blue Ribbon Committee. Would create the Clean Energy and Low-Carbon Economic and Jobs Growth Blue Ribbon Committee. The bill would set the terms and qualifications of committee members and would require the committee to advise state agencies on the most effective ways to expend clean energy and GHG-related funds and implement policies in order to maximize California's economic and employment benefits.

[1] For additional information on a bill or author, please click on the respective underlined link.

SB 231 (Gaines) Transportation programs.
Would include water-borne transit as an eligible project that may be funded under the Low Carbon Transit Operations Program and the Affordable Housing and Sustainable Communities Program, which receive 5% and 20% respectively of the annual proceeds in the Greenhouse Gas Reduction Fund.

SB 367 (Wolk) Agricultural lands: greenhouse gases.
Would appropriate $50 million from the GGRF to the California Department of Food and Agriculture to establish a new grant program that supports on-farm practices that reduce greenhouse gas emissions and increase carbon storage in soil and woody biomass.

SB 398 (Leyva) Green Assistance Program.
Would establish the Green Assistance Program, to be administered by the Secretary for Environmental Protection, which would provide technical assistance to small businesses, small nonprofits, and disadvantaged communities in applying for moneys from the Greenhouse Gas Reduction Fund.

SB 400 (Lara) California Global Warming Solutions Act of 2006: Greenhouse Gas Reduction Fund. Would require the High-Speed Rail Authority to allocate not less than 25% of the moneys appropriated to the authority from the Greenhouse Gas Reduction Fund to environmental mitigation measures and projects that reduce greenhouse gas emissions from transportation sources and provide a cobenefit of improving air quality. The bill would give priority to measures and projects located in areas designated as extreme nonattainment.

SB 698 (Cannella) Active Transportation Program: school zone safety projects.
Would continuously appropriate an unspecified amount from the Greenhouse Gas Reduction Fund to the State Highway Account in the State Transportation Fund for purposes of funding school zone safety projects within the Active Transportation Program.

SB 706 (Pavley) Greenhouse Gas Reduction Fund: alternative fuels.
Would authorize the use of moneys in the Greenhouse Gas Reduction Fund to encourage the in-state production of alternative fuels with low carbon intensity from new and existing facilities using sustainable feedstocks.

SB 760 (Mendoza) Disadvantaged Community Enhancement Act of 2015.
Would require the Strategic Growth Council to develop and implement the Disadvantaged Community Enhancement Program to award grants to disadvantaged communities to facilitate projects for community enhancement improvements that reduce greenhouse gas emissions in furtherance of the goals of the California Global Warming Solutions Act of 2006 and that provide to eligible applicants multiple environmental benefits. The bill would authorize the council to expend moneys in the fund to implement the program. The bill would require the State Air Resources Board to determine a methodology for quantifying carbon reduction benefits of proposed projects and community enhancement improvements.

Other Proposals for Programmatic Modifications

AB 21 (Perea) California Global Warming Solutions Act of 2006: emissions limit: scoping plan.
Would require the State Air Resources Board, no later than January 1, 2018, to recommend to the Governor and the Legislature a specific target of statewide emissions reductions for 2030 to be accomplished in a cost-effective manner.

AB 23 (Patterson) California Global Warming Solutions Act of 2006: market-based compliance mechanisms: exemption. Would exempt distributors of fuels, including gasoline, diesel and natural gas, and any other entities that were not covered on January 1, 2013, from the cap-and-trade regulation adopted by the Air Resources Board (ARB).

AB 33 (Quirk) California Global Warming Solutions Act of 2006: Climate Change Advisory Council.
Establishes the Climate Change Advisory Council (Council) to make recommendations to the Air Resources Board (ARB) regarding various greenhouse gas (GHG) emission reduction strategies, including grid integration, building efficiency, and advanced transportation.

AB 720 (Cooley) California Global Warming Solutions Act of 2006: market-based compliance mechanisms. Would require the State Air Resources Board, for any market-based compliance mechanism that the state board might adopt, to allow participating entities to freely sell or transfer greenhouse gas emissions allowances held in a holding account, as defined, or compliance account, as defined, except for allowances that have been expressly retired to meet a compliance obligation, as defined.

AB 779 (Garcia, Cristina) Environmental quality: transit priority areas.
Would delay the effective date of revised California Environmental Quality Act (CEQA) guidelines to establish criteria for determining the significance of transportation impacts of projects within transit priority areas that, among other things, promote the reduction of greenhouse gas emissions, until July 1, 2017.

AB 1179 (Rendon) California Global Warming Solutions Act of 2006: disadvantaged communities: report. Would require the State Air Resources Board to prepare, and post on its Internet Web site, a specified report on the projects funded to benefit disadvantaged communities.

AB 1288 (Atkins) California Global Warming Solutions Act of 2006: regulations.
Would eliminate the December 31, 2020 sunset on the Air Resources Board's authority to use market-based compliance systems to implement the California Global Warming Solutions Act.

AB 1332 (Quirk) California Global Warming Solutions Act of 2006: offsets.
Would require the State Air Resources Board, as part of a market-based compliance mechanism, to create an offset protocol for renewable energy projects that are able to ramp up or down during peak energy demands.

AB 1345 (Dahle) California Global Warming Solutions Act of 2006: wildfires.
Would require the state board to develop, no later than January 1, 2017, an emissions baseline for wildfires by calculating the average of the annual greenhouse gas emissions associated with wildfires between the years 1990 and 2015, inclusive.

SB 1 (Gaines) California Global Warming Solutions Act of 2006: market-based compliance mechanisms: exemption. Would exempt distributors of fuels, including gasoline, diesel and natural gas, and any other entities that were not covered on January 1, 2013, from the cap-and-trade regulation adopted by the Air Resources Board (ARB).

SB 5 (Vidak) California Global Warming Solutions Act of 2006: market-based compliance mechanisms: exemption. Would exempt distributors of fuels, including gasoline, diesel and natural gas, and any other entities that were not covered on January 1, 2013, from the cap-and-trade regulation adopted by the Air Resources Board (ARB).

SB 180 (Jackson) Electricity: emissions of greenhouse gases.
Would, on July 1, 2017, replace the greenhouse gases emission performance standards for baseload generation with greenhouse gases emission performance standards for nonpeaking generation and peaking generation. The bill would require the Public Utilities Commission, by June 30, 2017, in consultation with the State Energy Resources Conservation and Development Commission and the State Air Resources Board, to establish a greenhouse gases emission performance standard for all nonpeaking generation of load-serving entities, and a separate standard for peaking generation.

SB 207 (Wieckowski) California Global Warming Solutions Act of 2006: Greenhouse Gas Reduction Fund. Would require that the report that a state agency creates prior to the expenditure of moneys from the Greenhouse Gas Reduction Fund, that includes a description of the expenditure proposed to be made and a description of how the proposed expenditure will contribute to achieving and maintaining greenhouse gas emissions reductions, be posted on the Internet Web sites of the state agency and the State Air Resources Board prior to the expenditure of those moneys.

SB 246 (Wieckowski) Climate Action Team.
Would create the Climate Action Team, under the direction of the Secretary for Environmental Protection. Would require the team to be responsible for coordinating the state's climate policy to achieve the state's climate change goals, and would require the team, no later than January 1, 2019, and every 5 years thereafter, to update the Climate Adaptation Strategy and the Safeguarding California Plan.

SB 471 (Pavley) Water, energy, and reduction of greenhouse gas emissions: planning.
Would require the State Air Resources Board to develop an inventory of greenhouse gas emissions from the water system in the state, using best available data. The bill would provide that water recycling, wastewater treatment, water end-use efficiency, water technology improvements, best management practices, and other projects that reduce water system greenhouse gas emissions are eligible for funding from the Greenhouse Gas Reduction Fund.

ATTACHMENT 6

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

LEGISLATIVE REPORT
FROM HOME RULE ADVISORY GROUP
MEETING OF APRIL 15, 2015

HRAG members present:
Dr. Joseph Lyou, Chairman
Elaine Chang, SCAQMD
Elizabeth Adams, EPA (participated by phone)
Curt Coleman, Southern California Air Quality Alliance
Jaclyn Ferlita, Air Quality Consultants
Chris Gallenstein, CARB (participated by phone)
Bill LaMarr, California Small Business Alliance
Rongsheng Luo, SCAG (participated by phone)
Art Montez, AMA International
Diane Moss, Renewables 100 Policy Institute (participated by phone-SCAG)
Bill Quinn, CCEEB (participated by phone)
Terry Roberts, American Lung Association of California
David Rothbart, Los Angeles County Sanitation Districts
Larry Rubio, Riverside Transit Agency (participated by phone)
Larry Smith, Riverside Cement
TyRon Turner, We Care About You
Lee Wallace, So Cal Gas and SDG&E
Mike Wang, WSPA

Others: Mark Abramowitz (Board Consultant to Dr. Lyou); Earl Elrod (Board Consultant to Mayor Yates); Daniel McGivney (SoCalGas/SDG&E); Kris Flaig (City of Los Angeles); Sue Gornick (WSPA); Rita Loof (Radtech); and Susan Stark (Tesoro).

AQMD Staff: Philip Crabbe, Amir Dejbakhsh, Phil Fine, Bill Wong, and Marilyn Traynor

LEGISLATIVE UPDATE

Philip Crabbe reported on the following items that were discussed at the Legislative Committee meeting on April 10, 2015:

Federal

Congress will most likely act before May 31 to approve a short-term extension of the MAP-21 transportation reauthorization bill. The exact length of the extension is still undecided. U.S. EPA recently announced its awards for the 2014 Diesel Emission Reduction Act (DERA) Program, which included $753,476 for SCAQMD's project to replace 11 on-road drayage trucks, replace nine school buses with CNG, and replace one school bus with a battery-electric vehicle. In the last week of March, the U.S. Senate passed its budget resolution which sets the overall spending caps for appropriations bills, but does not create new spending authority. This will allow for reconciliation instructions which only require 51 votes in the Senate—in theory, the Republicans could

use this for spending attacks on other controversial issues. A budget resolution binds Congress but is not a law. The House and Senate bills are now being conferenced. In late March, the Senate passed a slimmed down version of the Energy Efficiency Improvement Act, S. 535 (Portman-Shaheen) that has failed to pass the Senate the past four years, for reasons unrelated to the actual bill. The bill that passed covers buildings and grid-enabled water heaters. The larger bill, S.720, also includes industrial efficiency. At the end of April, the Senate Energy Committee is scheduled to hold a hearing on S.720 as well as S.703 (covering housing energy efficiency and weatherization) and S.858 (covering energy efficiency in federal buildings). Last month the U.S. House Energy and Water Appropriations Committee held a hearing on the U.S. Department of Energy (DoE) budget. At SCAQMD's request, Congresswoman Lucille Roybal-Allard, who is on that committee, raised questions to the Assistant Secretary overseeing the zero emissions goods movement grant program to ensure that the DoE is pressing to continue that program.

State

The state legislature recently returned from their legislative spring break. Committee hearings are in full swing with over 2,000 bills introduced this year. There are four main issues that the state legislature is currently focused on: the drought, climate change, renewable energy, and the state budget. Governor Jerry Brown recently signed two bills that fast-tracked about $1 billion for local drought relief and infrastructure projects. The Governor also issued an executive order that initiated the first ever mandatory water reduction effort throughout the state. The state's revenues are up and will continue to grow over the next few months. Normally, this means more resources for the state budget; however, for this year, this is causing significant problems to the budget due to the Proposition 98 minimum funding guarantee. New revenues have boosted the guarantee to an almost dollar for dollar level this year. When the Prop. 98 requirements are combined with the rainy day fund requirements of Prop. 2 that were recently passed, along with local government mandates that are required to be paid back under last year's budget, there are not enough revenues to cover all the costs.

Energy and climate change are big topics this year in Sacramento. SB 350 (authored by Senate Pro Tem Kevin de León) was passed recently by an 8-3 vote in the Senate Energy Committee. SB 350 would by 2030 increase the renewable energy portfolio to 50%, reduce petroleum use by 50%, and double energy efficiency in existing buildings. The bill is largely supported by environmentalists and energy companies, but also has support from other stakeholders including those from the labor and health sectors, as well as Warren Buffet's Berkshire Hathaway, Inc. Opposition includes the oil companies, chambers of commerce, and manufacturers. SB 350 will now move on to its second policy committee, the Senate Environmental Quality Committee, in the coming weeks.

The state has been holding cap and trade auctions of greenhouse gas emission credits. The Governor's budget estimated that about $1 billion in revenue would be generated from these auctions that would need to be spent on programs that reduce carbon. However there is an expectation that there may actually be about $2 billion in revenue being generated and that the Governor may revise his estimates in his May Revise Budget. Consequently, legislators are jockeying to possibly influence how these potentially increased revenues are spent.

The Governor's budget proposed to spend $200 million for zero and near-zero emission vehicles. The legislature is looking to significantly increase this funding to $350 million, given the potential doubling of cap and trade revenue.

The following bills were discussed:

Bill	Recommended Position
H.R. 1308 (Lowenthal) Economy in Motion: The National Multimodal and Sustainable Freight Infrastructure Act	Support
SB 513 (Beall) Carl Moyer Memorial Air Quality Standards Attainment Program	Support
SB 350 (De León and Leno) Clean Energy and Pollution Reduction Act of 2015	Actively Monitor

Discussion

Mr. Montez asked if there are any current bills that may provide energy efficiency funding to schools. Dr. Lyou suggested that there are some bills related to Proposition 39 (The California Clean Energy Jobs Act) and other bills that may be a source of funding for energy efficiency in schools.