South Coast
Air Quality Management District

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TO: **SCAQMD Technology Committee**
John Benoit, Chair
Joe Buscaino, Larry McCallon, Judith Mitchell, Dwight Robinson, Janice Rutherford

FROM: **Matt Miyasato, DEO, Science & Technology Advancement**

SPECIAL TECHNOLOGY COMMITTEE
21865 Copley Drive, Diamond Bar, CA 91765
August 19, 2016 ♦ 12:00 p.m. ♦ Conference Room – CC-8

TELECONFERENCE LOCATIONS

73710 Fred Waring Drive
Suite 222
Palm Desert, CA 92260

8575 Haven Ave., Suite 110
Rancho Cucamonga, CA 91730

Los Angeles City Hall
200 N. Spring Street
Room 410
Los Angeles, CA 90012

(The public may participate at any location listed above.)

Call-in for listening purposes only is available by dialing:
Toll Free: 866-244-8528
Listen Only Passcode: 5821432
In addition, a webcast is available for viewing and listening at:
http://www.aqmd.gov/home/library/webcasts

AGENDA

SEPTEMBER BOARD AGENDA ITEMS FOR ACTION/DISCUSSION

1. Transfer Funds and Execute Contract for Renewable Natural Gas Production and Vehicle Demonstration Project

Matt Miyasato
Deputy Executive Officer

In order to increase supply of renewable natural gas (RNG), KORE Infrastructure is proposing to construct a new full-scale modular biomethane production facility in Rialto, using a proprietary process developed and demonstrated over a six-year period at a local wastewater plant. The proposed facility will utilize a fully integrated system to process biosolids into RNG, utilizing biosolids from local wastewater agencies and converting

the energy into RNG that can be used locally as transportation fuel in the next generation natural gas engines that are certified to achieve 90 percent lower NOx emissions than the existing 2010 heavy-duty engine exhaust emissions standard. These actions are to transfer $1,500,000 from the BP ARCO Settlement Projects Fund (46) into the Clean Fuels Fund (31) and execute a contract with KORE Infrastructure in an amount not to exceed $2,500,000 from the Clean Fuels Fund (31) to cost-share construction of an RNG production facility and demonstrate the use of RNG with the next generation natural gas engine.

2. Recognize and Transfer Funds, Execute Agreements for SCAQMD to Act as Supplemental Environmental Project Implementer and for Installation of Air Filtration Systems, and Reimburse General Fund for Administrative Costs

Matt Miyasato

EPA Region 9 and Halliburton are executing a Supplemental Environmental Project (SEP) agreement to install air filtration systems at one or more schools in an Environmental Justice community in the South Coast region. Both parties have requested that SCAQMD act as the SEP implementer for this project. These actions are to recognize up to $180,600 from Halliburton, transfer the same amount as a temporary loan from the Clean Fuels Fund (31) into the Advanced Technology, Outreach and Education Fund (17), and execute an agreement with Halliburton for SCAQMD to act as the SEP implementer for installation of air filtration systems. These actions are to also execute a contract with IQAir North America for installation of air filtration systems in an amount not to exceed $171,600 and to authorize reimbursement to the General Fund for administrative costs up to $9,000 from the Advanced Technology, Outreach and Education Fund (17).

3. Execute and Amend Contracts for Hydrogen Station Upgrades, Site Changes, and Analysis and Evaluation of Hydrogen Fuel-Related Issues

Lisa Mirisola
Program Supervisor

In 2015, the Board approved contracts for hydrogen station upgrades in the South Coast Air Basin using CEC revenue of $6.69 million recognized in the Hydrogen Fueling Infrastructure Network Fund (63). This action is to reallocate $989,661 from a previous award to upgrade the Mebtahi Harbor City hydrogen station to augment an existing contract with H2 Frontier, Inc., for Burbank hydrogen station upgrades. Further, this action is to change sites for two out of eight hydrogen stations, for which funding was previously awarded to Air Products and Chemicals, Inc. Finally, these actions are to execute contracts to cost-share projects from the Clean Fuels Fund (31) with: 1) Equilon Enterprises LLC DBA Shell Oil Products in an amount not to exceed $300,000 to upgrade/replace equipment at the hydrogen station in Newport Beach; 2) Energy Independence Now in an amount not to exceed $25,000 for analysis of renewable hydrogen pathways,

economics and incentives; and 3) Bevilacqua Knight, Inc., in an amount not to exceed $25,000 for evaluation of liquid hydrogen behavior activities.

4. Other Business

Any member of the committee, or its staff, on his or her own initiative or in response to questions posed by the public, may ask a question for clarification; may make a brief announcement or report on his or her own activities, provide a reference to staff regarding factual information, request staff to report back at a subsequent meeting concerning any matter, or may take action to direct staff to place a matter of business on a future agenda. (Govt Code Section 54954.2)

5. Public Comment Period

Members of the public may address this body concerning any agenda item before or during consideration of that item (Govt. Code Section 54954.3). All agendas for regular meetings are posted at District Headquarters, 21865 Copley Drive, Diamond Bar, California, at least 72 hours in advance of a regular meeting. At the end of the regular meeting agenda, an opportunity is also provided for the public to speak on any subject within this body's authority. Speakers may be limited to three (3) minutes each.

Next Meeting: September 16, 2016 at SCAQMD Headquarters in CC-8

Document Availability

All documents (1) constituting non-exempt public records; (ii) relating to an item on the agenda for a regular meeting; and (iii) having been distributed to at least a majority of the Technology Committee after the agenda is posted, are available prior to the meeting for public review at the South Coast Air Quality Management District Public Information Center, 21865 Copley Drive, Diamond Bar, CA 91765.

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The agenda and documents in the agenda packet will be made available, upon request, in appropriate alternative formats to assist persons with a disability. Disability-related accommodations will also be made available to allow participation in the Technology Committee meeting. Any accommodations must be requested as soon as practicable. Requests will be accommodated to the extent feasible. Please contact Pat Krayser at 909-396-3248 from 7:00 a.m. to 5:30 p.m., Tuesday through Friday, or send the request to pkrayser@aqmd.gov.

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DRAFT
Technology Committee Agenda #1

BOARD MEETING DATE: September 2, 2016 AGENDA NO.

PROPOSAL: Transfer Funds and Execute Contract for Renewable Natural Gas Production and Vehicle Demonstration Project

SYNOPSIS: In order to increase supply of renewable natural gas (RNG), KORE Infrastructure is proposing to construct a new full-scale modular biomethane production facility in Rialto, using a proprietary process developed and demonstrated over a six-year period at a local wastewater plant. The proposed facility will utilize a fully integrated system to process biosolids into RNG, utilizing biosolids from local wastewater agencies and converting the energy into RNG that can be used locally as transportation fuel in the next generation natural gas engines that are certified to achieve 90 percent lower NOx emissions than the existing 2010 heavy-duty engine exhaust emissions standard. These actions are to transfer $1,500,000 from the BP ARCO Settlement Projects Fund (46) into the Clean Fuels Fund (31) and execute a contract with KORE Infrastructure in an amount not to exceed $2,500,000 from the Clean Fuels Fund (31) to cost-share construction of an RNG production facility and demonstrate the use of RNG with the next generation natural gas engine.

COMMITTEE: Technology, July 22, 2016, and Special Technology, August 19, 2016; Recommended for Approval

RECOMMENDED ACTIONS:

1. Transfer $1,500,000 from the BP ARCO Settlement Projects Fund (46) to the Clean Fuels Fund (31); and
2. Authorize the Chairman to execute a contract with KORE Infrastructure to cost-share construction of an RNG production facility in Rialto and demonstration of the use of RNG with the next generation natural gas engine in an amount not to exceed $2,500,000 from the Clean Fuels Fund (31).

Wayne Nastri
Acting Executive Officer

MMM:FM:NB

Background
Renewable natural gas (RNG), also known as biomethane, biogas, digester gas or landfill gas, refers to natural gas from unconventional sources where biological processes are used to produce methane from organic matter. Natural gas derived in this fashion is considered "renewable" because the feedstock is part of a continuous organic cycle, namely the decomposition of biological waste products. The feedstock used in these processes may be solid and liquid organic materials derived from green waste, food waste and organic liquid waste products, including wastewater treatment plants. Any remaining by-products of these processes are recovered resources used as biochar (i.e., soil enhancer) and reclaimed water.

One such RNG system is KORE Infrastructure's proprietary process that utilizes biosolids from local wastewater agencies and converts the energy into RNG. Since 2009, KORE has demonstrated and refined this process as part of a pilot program at a Sanitation Districts of Los Angeles County plant with a fully integrated system to process biosolids into energy products. Kore's patented thermal process consists of five stages: (1) material handling, (2) drying, (3) pyrolysis, (4) pyrolysis gas conversion to RNG, and (5) compression. Pyrolysis and gas conversion produce an RNG equivalent that can be turned into a variety of energy products.

Currently, the SCAQMD, in collaboration with the CEC, Cummins Westport Inc. (CWI) and other partners, is cosponsoring the development of the next generation, on-road heavy-duty natural gas engine platforms. CWI's 8.9L ISL G is already certified at a 0.02 grams per brake horsepower hour (g/bhp-hr) NOx emissions level, which is 90% less NOx when compared to the current on-road heavy-duty engine standard of 0.2 NOx g/bhp-hr. Work is also underway on development and certification of 6.1L, 8.8L and 11.9L natural gas engines, expected to be certified at a 0.02 g/bhp-hr NOx emissions level by 2019. KORE is interested in demonstrating RNG produced at its facility for their fleet as well as other local fleets that use next generation natural gas-powered engines, including Rialto Unified School District.

Proposal
KORE has proposed to develop a full-scale modular facility that can utilize biosolids from local wastewater agencies and convert the energy into RNG that can be used locally as stationary and transportation fuel. This RNG will be capable of fueling advanced natural gas engines that achieve 0.02 g NOx/bhp-hr, helping to demonstrate near-zero on-road heavy-duty engine technology in this region, in addition to the significant GHG and lifecycle emission benefits. KORE's analysis indicates an annual potential supply of approximately 400,000 gallon gasoline equivalents (GGE) of RNG, capable of providing sufficient fuel for their fleet as well as other local fleets. The RNG production and dispensing facility is anticipated to be fully operational in 2018. KORE will initially convert up to two diesel trucks from their fleet to operate on the RNG

produced at the new facility and work with local fleets to provide RNG for fleet vehicles equipped with low-NOx technology engines.

These actions are to transfer $1,500,000 from the BP ARCO Settlement Projects Fund (46) to the Clean Fuels Fund (31) and execute a $2,500,000 contract with KORE to cost-share construction of an RNG production facility in Rialto and demonstration of the use of RNG with the next generation natural gas engine.

Sole Source Justification
Section VIII.B.2 of the Procurement Policy and Procedure identifies four major provisions under which a sole source award may be justified. This request for sole source award is made under provision B.2.d.: Other circumstances exist which in the determination of the Executive Officer require such waiver in the best interest of the SCAQMD. Specifically, these circumstances are B.2.d.(1): Project involving cost-sharing by multiple sponsors, with more than $24.5 million from private funds to develop the production facility and the fueling infrastructure.

Benefits to SCAQMD
The South Coast Air Basin is classified as an "extreme" nonattainment area for ozone under the federal Clean Air Act. A wide-scale deployment of low-NOx technologies, especially Class 6, 7 and 8 vehicles including transit buses, refuse trucks and drayage trucks, is a critical step toward achieving the air quality standards with considerable public health benefits for our region. When combined with RNG and its near-zero carbon footprint, these technologies are expected to provide a near-term, cost-effective option for addressing criteria pollutant and greenhouse gas benefits. Ensuring greater supply of locally produced RNG will address local, state and federal environmental regulations and goals.

Locally, this project will result in lower NOx and diesel PM emissions and demonstrate viable near-zero emission on-road transportation technology. Statewide, the project addresses the AB 32 Scoping Plan which calls for the reduction of GHG emissions resulting from decomposition of organic wastes in landfills as well as legislation adopted last year (AB 1826) requiring businesses to recycle organic waste depending upon the amount of waste produced. Nationally, RNG production and the use of RNG for transportation fuels would help displace petroleum-based fuels used in the transportation sector. In addition, the potential injection of RNG into existing pipeline infrastructure would also displace fossil-based natural gas and the transmission-related impacts from out-of-state produced natural gas and its transportation and pipeline distribution. This proposed project is included in the *Technology Advancement Office Clean Fuels Program 2016 Plan Update* under the category of "Infrastructure and Deployment", specifically as "Demonstrate Natural Gas Manufacturing and Distribution Technologies including Renewables."

Resource Impacts
SCAQMD's total cost-share for the project with KORE Infrastructure will not exceed $2,500,000 using funds from the Clean Fuels Fund (31) and the BP ARCO Settlement Projects Fund (46). Project development costs for both Phases I and II are as follows:

Project Development Costs

Funding Sources	Funding Amount	Percent
KORE & Partners	$23,002,661	90%
SCAQMD (*requested*)	$2,500,000	10%
Total	**$25,502,661**	**100%**

Sufficient funds are available from the BP ARCO Settlement Projects Fund, combined with funding from the Clean Fuels Fund, which was established as a special revenue fund resulting from the state-mandated Cleans Fuels Program. The Clean Fuels Program, under Health and Safety Code Sections 40448.5 and 40512 and Vehicle Code Section 9250.11, establishes mechanisms to collect revenues from mobile sources to support projects to increase the utilization of clean fuels, including the development of the necessary advanced enabling technologies. Funds collected from motor vehicles are restricted, by statute, to be used for projects and program activities related to mobile sources that support the objectives of the Clean Fuels Program.

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Agenda Item #1

Matt Miyasato

Transfer Funds and Execute Contract for Renewable Natural Gas Production and Vehicle Demonstration Project

Background

- Renewable natural gas
  - Production of methane from organic matter – liquid or solid waste
  - Low or negative greenhouse gas impacts
  - Key AQMP strategy when combined with 0.02 g/bhp-hr NOx near-zero emissions natural gas engines
- KORE Infrastructure
  - Proprietary pyrolysis technology using biosolids
  - Six-year pilot program at Sanitation Districts of Los Angeles County
- Near-zero emissions natural gas engines
  - Cummins Westport 8.9L ISL G
    - CARB-certified
    - Potential uses in transit buses & refuse trucks
  - 6L-12L engines - development and certification underway – all expected by 2019





Proposal

KORE developing a production facility in Rialto

- Phase 1 – Biosolids Receiving, Handling, Drying and Pyrolysis
  - Equipment developed
  - Expected to be functional by Q2 2018
- Phase 2 – Gas clean-up, methanation, compression, offtake, and demonstration vehicle
  - Equipment from Johnson Matthey & GE
  - Existing fleet diesel truck conversion to certified near-zero natural gas engine
  - Expected to be completed by Q3 2018











Project Partners

Project Partners	Funding Amount (Million)	Percent
KORE Infrastructure	$23.0	90%
SCAQMD (requested)	$2.5	10%
Total	$25.5	100%

Recommended Actions

Execute contract with KORE Infrastructure to cost-share construction of an RNG production facility in Rialto and to demonstrate the use of RNG with the next generation natural gas engine in an amount not to exceed $1,000,0000 from the Clean Fuels Fund (31) and 1,500,000 from BP ARCO Settlement Projects Fund (46)

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DRAFT
Technology Committee Agenda #2

BOARD MEETING DATE: September 2, 2016 AGENDA NO. x

PROPOSAL: Recognize and Transfer Funds, Execute Agreements for SCAQMD to Act as Supplemental Environmental Project Implementer and for Installation of Air Filtration Systems, and Reimburse General Fund for Administrative Costs

SYNOPSIS: EPA Region 9 and Halliburton are executing a Supplemental Environmental Project (SEP) agreement to install air filtration systems at one or more schools in an Environmental Justice community in the South Coast region. Both parties have requested that SCAQMD act as the SEP Implementer for this project. These actions are to recognize up to $180,600 from Halliburton, transfer the same amount as a temporary loan from the Clean Fuels Fund (31) into the Advanced Technology, Outreach and Education Fund (17), and execute an agreement with Halliburton for SCAQMD to act as the SEP Implementer for installation of air filtration systems. These actions are to also execute a contract with IQAir North America for installation of air filtration systems in an amount not to exceed $171,600 and to authorize reimbursement to the General Fund for administrative costs up to $9,000 from the Advanced Technology, Outreach and Education Fund (17).

COMMITTEE: Special Technology, August 19, 2016; Recommended for Approval

RECOMMENDED ACTIONS:

1. Recognize, upon receipt, up to $180,600 from Halliburton into the Advanced Technology, Outreach and Education Fund (17);
2. Transfer up to $180,600 as a temporary loan from the Clean Fuels Fund (31) into the Advanced Technology, Outreach and Education Fund (17);
3. Authorize the Executive Officer to execute an agreement with Halliburton for SCAQMD to act as the SEP Implementer for installation of air filtration systems;
4. Authorize the Chairman to execute a contract with IQAir North America for installation of air filtration systems at one or more schools in an amount not to exceed $171,600 from the Advanced Technology, Outreach and Education Fund (17); and

5. Authorize reimbursement to the General Fund from the Advanced Technology, Outreach and Education Fund (17) for administrative costs up to $9,000 necessary to implement the air filtration project.

Wayne Nastri
Acting Executive Officer

MMM:FM:NB:PSK

Background

EPA Region 9 and Halliburton are executing a Supplemental Environmental Project (SEP) agreement to install air filtration systems at one or more schools in an Environmental Justice community in the South Coast region. Both parties have requested that SCAQMD act as the SEP Implementer for this project, which must be completed no later than two years from the execution date of the SEP agreement.

IQAir North America was previously selected through two separate competitive bid processes in 2011 and 2013 for the TraPac and AB 1318 air filtration projects, respectively. They were also the only qualified manufacturer of high performance filters and stand-alone units to meet the performance standards in SCAQMD's 2009 air filtration pilot study as well as through a national testing opportunity conducted by University of California Riverside/CE-CERT at Sunnyslope Elementary School in 2010. To date, through its contractor IQAir, SCAQMD has installed air filtration systems at 68 schools and community centers. Performance standards from SCAQMD's air filtration pilot study include an overall removal efficiency of at least 85 percent for ultrafine PM and black carbon, low pressure drop for panel filters, no ozone generation, and a noise level below 45 decibels for stand-alone units.

Proposal

EPA Region 9 staff have requested that selected schools receiving air filtration systems be in Environmental Justice communities close to major freeways or other sources of diesel PM, that these schools not be ones that have previously received any source of federal funding for air filtration mitigation, and that the project be completed within two years of the execution of the SEP agreement. Staff will also utilize an existing MOA with Los Angeles Unified School District, providing access to any schools in this district.

The proposed schedule for installation of air filtration systems in one or more schools in Environmental Justice communities is as follows:

Date	Event
September 2016	Board Approval
September 2016	Anticipated Contract Award
September-October 2016	Selection of School(s), Site Assessments
October-December 2016	Installation
January 2017	Final Report

These actions are to recognize up to $180,600 from Halliburton and transfer up to $180,600 as a temporary loan from the Clean Fuels Fund (31) into the Advanced Technology, Outreach and Education Fund (17) as well as to execute an agreement with Halliburton for SCAQMD to act as the SEP Implementer for the installation of air filtration systems. These actions are to also execute a contract with IQAir for installation of air filtration systems and reimburse the General Fund for administrative costs.

Sole Source Justification
Section VIII. B. 2 of the Procurement Policy and Procedure identifies four major provisions under which a sole source award may be justified. This request for a sole source award is made under provision B.2.c(1): The desired services are available from only the sole-source based upon the unique experience and capabilities of the proposed contractor or contractor team. IQAir is the only manufacturer of high performance panel filters and stand-alone units identified by SCAQMD and CARB Research Division staff that meet the performance standards in SCAQMD's 2009 air filtration pilot study. Staff has also consulted with CARB Research Division staff to confirm that no new manufacturers of air filtration technologies that meet or exceed the performance standards in the pilot study have been identified since the last RFP process in 2013.

Benefits to SCAQMD
This project will reduce children's exposure to criteria and toxic pollutants and ultrafine PM. Health studies have determined that fine and ultrafine PM, including diesel PM, present the greatest air pollution health risk to sensitive receptors in Environmental Justice communities in Southern California.

Resource Impacts
The cost for the sole source contract with IQAir to install air filtration systems will not exceed $171,600 from the SEP revenue recognized in the Advanced Technology, Outreach and Education Fund (17). Additionally, staff costs will be reimbursed up to $9,000 from the SEP funds in Fund 17.

Sufficient funds are available from the Clean Fuels Fund (31), established as a special revenue fund resulting from the state-mandated Clean Fuels Program. The Clean Fuels Program, under Health and Safety Code Sections 40448.5 and 40512 and Vehicle Code

Section 9250.11, establishes mechanisms to collect revenues from mobile sources to support projects to increase the utilization of clean fuels, including the development of the necessary advanced enabling technologies. Funds collected from motor vehicles are restricted, by statute, to be used for projects and program activities related to mobile sources that support the objectives of the Clean Fuels Program.

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Agenda Item #2

Matt Miyasato

Recognize and Transfer Funds, Execute Agreements for SCAQMD to Act as SEP Implementer and for Installation of Air Filtration Systems, and Reimburse General Fund for Administrative Costs

Background

- EPA Region 9 and Halliburton are executing SEP to install air filtration systems at one or more schools in an EJ community
- Requested SCAQMD be SEP implementer
- Project needs to be completed within two years

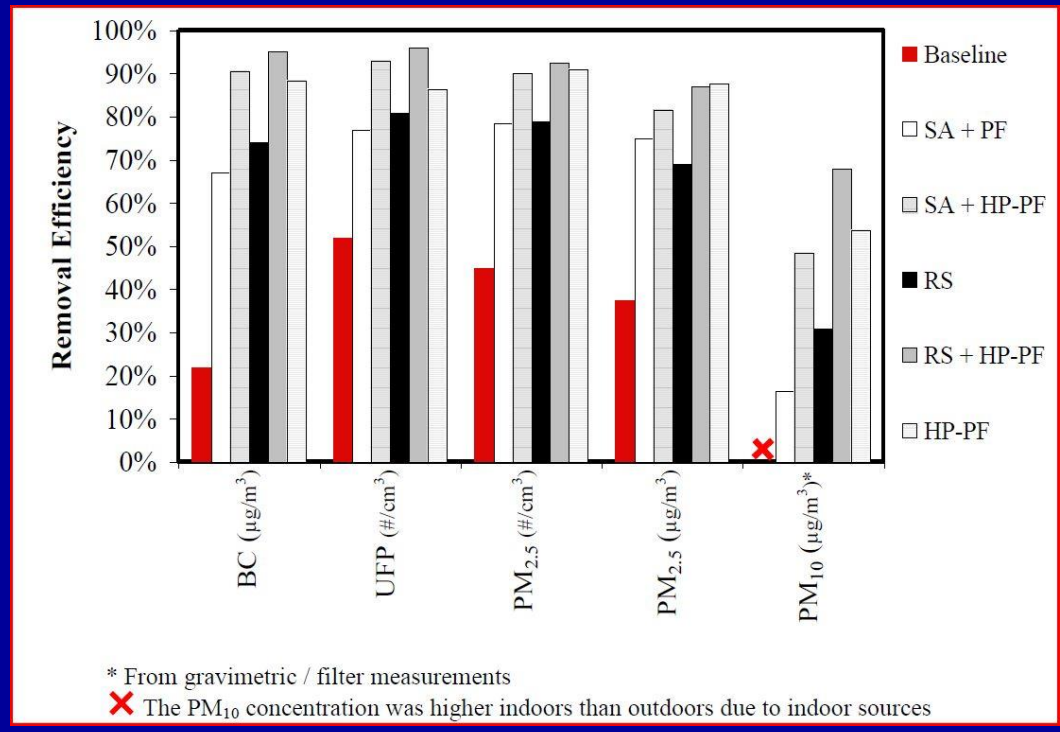






Proposal

- SCAQMD selected IQAir as air filtration contractor
  - Two competitive bid processes (TraPac, AB1318)
  - National testing opportunity
- SCAQMD, CARB staff have not identified another technology meeting performance standard of pilot study



Air Filtration Technologies

- High performance panel filters + stand alone units
- 85% overall removal efficiency ultrafine PM, black carbon
- Noise level below 45 dB(A) for stand alone units—no interference with classroom learning







Proposed Schedule

Date	Task
Sept 2016	Board approval
Sept 2016	Contract execution
Sept – Oct 2016	School selection, site assessments
Oct – Dec 2016	Installation
Jan 2017	Final report

Recommended Actions

- Recognize, upon receipt, $180,600 from Halliburton into Fund 17
- Transfer up to $180,600 from Clean Fuels Fund (31) into Fund 17
- Authorize Executive Officer to execute agreement with Halliburton for SCAQMD to act as SEP Implementer to install air filtration systems

Recommended Actions

- Authorize Chairman to execute contract with IQAir for installation of air filtration systems in an amount not to exceed $171,600
- Authorize reimbursement to General Fund from Fund 17 for administrative costs up to $9,000 to implement air filtration project

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DRAFT
Technology Committee Agenda #3

BOARD MEETING DATE: September 2, 2016 AGENDA NO.

PROPOSAL: Execute and Amend Contracts for Hydrogen Station Upgrades, Site Changes, and Analysis and Evaluation of Hydrogen Fuel-Related Issues

SYNOPSIS: In 2015, the Board approved contracts for hydrogen station upgrades in the South Coast Air Basin using CEC revenue of $6.69 million recognized in the Hydrogen Fueling Infrastructure Network Fund (63). This action is to reallocate $989,661 from a previous award to upgrade the Mebtahi Harbor City hydrogen station to augment an existing contract with H2 Frontier, Inc., for Burbank hydrogen station upgrades. Further, this action is to change sites for two out of eight hydrogen stations, for which funding was previously awarded to Air Products and Chemicals, Inc. Finally, these actions are to execute contracts to cost-share projects from the Clean Fuels Fund (31) with: 1) Equilon Enterprises LLC DBA Shell Oil Products in an amount not to exceed $300,000 to upgrade/replace equipment at the hydrogen station in Newport Beach; 2) Energy Independence Now in an amount not to exceed $25,000 for analysis of renewable hydrogen pathways, economics and incentives; and 3) Bevilacqua Knight, Inc., in an amount not to exceed $25,000 for evaluation of liquid hydrogen behavior activities.

COMMITTEE: Special Technology, August 19, 2016; Recommended for Approval

RECOMMENDED ACTIONS:

1. Authorize the Chairman to amend a contract with H2 Frontier, Inc., for hydrogen equipment upgrades at the Burbank station adding up to $989,661 (for a total contract amount not to exceed $1,920,461) from the Hydrogen Fueling Infrastructure Network Fund (63) using CEC revenue;
2. Authorize the Chairman to amend a contract with Air Products and Chemicals, Inc. to change sites for two out of eight hydrogen stations;
3. Authorize the Chairman to execute a contract with Equilon Enterprises LLC DBA Shell Oil Products in an amount not to exceed $300,000 from the Clean Fuels Fund

(31) to cost-share the upgrade/replacement of equipment at a hydrogen station in Newport Beach; and

4. Authorize the Executive Officer to execute contracts with the following from the Clean Fuels Fund (31):
   a. Energy Independence Now to provide analysis of renewable hydrogen pathways, economics and incentives in an amount not to exceed $25,000; and
   b. Bevilacqua Knight, Inc., to provide an evaluation of liquid hydrogen behavior activities in an amount not to exceed $25,000.

Wayne Nastri
Acting Executive Officer

MMM:FM:NB:LHM

Background

In June 2013, the Board recognized $6.69 million in revenue from CEC to upgrade and refurbish existing, publicly accessible hydrogen fueling stations. The SCAQMD subsequently released an RFP to solicit proposals to upgrade existing stations. In 2014 and 2015, the Board approved multiple contracts for hydrogen fueling station upgrades in our region using the CEC revenue. One award was to Mebtahi Station Services Inc. in the amount of $989,661 for hydrogen equipment upgrades at the Harbor City station. Since the hydrogen equipment planned for upgrade at the Mebtahi station will not be able to operate for the length of time required under the CEC revenue grant, the station operator now plans to partner with a new equipment provider. Staff proposes to redirect this funding to H2 Frontier, Inc., which was previously awarded only a portion of the funding requested in its original proposal to upgrade the Burbank hydrogen station. Staff also proposes, and CEC concurs, that the Burbank station upgrade should meet current automaker expectations for a retail hydrogen station.

In October 2014, the SCAQMD executed a contract with Air Products and Chemicals, Inc., (APCI) to provide cofunding for eight new hydrogen stations in the South Coast Air Basin, including Diamond Bar. These stations were significantly cost-shared by CEC (through PON-09-608). Of these, two stations had site specific issues that APCI was unable to resolve resulting in both site owners refusing to process. Consequently, APCI proposed alternate sites in Rancho Palos Verdes and Santa Clarita. APCI proposed the North Irvine site relocation to Santa Clarita to enhance intrastate transportation and meet CEC cofunding priorities. CEC has approved these station sites and is in the process of amending their contract with APCI. APCI, in turn, plans to subcontract with FirstElement Fuel Inc. to build and operate these stations. Coverage of Orange County will not be negatively impacted by these site changes because there are several other stations either in development or proposed in Orange County (e.g., new

stations in development include ones in Anaheim and Orange plus an upgraded station proposed for Newport Beach).

Finally, a hydrogen station originally sited in Folsom (Northern California), which was awarded cofunding by CEC (through PON-12-606) and the Bay Area AQMD, has also encountered site specific issues. Accordingly, the CEC has approved changing this station site to Southern California and is in the process of amending their contract with Linde, LLC, the original proposer. Linde plans to relocate the new equipment to the Shell station in Newport Beach. Equilon Enterprises LLC DBA Shell Oil Products (Shell) has requested cofunding to assist with the upgrade/replacement of the equipment at the Newport Beach hydrogen station.

Proposal

Burbank Hydrogen Station

The proposal submitted by H2 Frontier, Inc., to upgrade the Burbank hydrogen station was the highest scored proposal received under RFP #P2014-09, and H2 Frontier is eager and able to complete a full upgrade within CEC's time requirements. The scope of the expanded project will include an upgrade of the compressor for faster back-to-back fills, installation of a new dual-pressure dispenser with credit card access, increased hydrogen storage capacity, the addition of a canopy over the dispenser, and signage at the station and off the nearby freeway. The fully upgraded station will meet SB 1505 requirements for supplying hydrogen from 33% renewable sources by using biogas. It will also strengthen the evolving hydrogen station network and improve consumer options in the eastern portion of the San Fernando Valley.

Hydrogen Station Site Changes

Upon execution of a modified contract between CEC and APCI, the SCAQMD contract with APCI will be amended to change the sites for two out of eight hydrogen stations, as follows:

Original Station Site	Proposed New Station Site
1200 Beryl Street Redondo Beach, CA 90277	28103 Hawthorne Blvd. Rancho Palos Verdes, CA 90275
5410 Walnut Avenue Irvine, CA 92604	24551 Lyons Avenue Santa Clarita, CA 91321

Cofunding Newport Beach Hydrogen Station

The existing hydrogen equipment at the Shell station in Newport Beach is nearing the end of its useful life. The new equipment provided by Linde, LLC, will be delivered and installed to extend the life of the hydrogen station and enhance refueling ability. The upgraded station will meet SB 1505 requirements for supplying hydrogen from 33% renewable sources by using biogas. It will also ensure this link in the hydrogen station network remains active.

Analysis & Evaluation of Hydrogen Fuel-Related Issues
Energy Independence Now (EIN) proposes to perform an analysis of renewable hydrogen pathways, economics and incentives. EIN will develop a white paper and presentation to engage the broader stakeholder community to support renewable hydrogen education and outreach. This project will be cost-shared by automakers, fuel providers, CEC and other stakeholders.

Finally, U.S. DOE, under its Hydrogen Fueling Infrastructure Research and Station Technology (H2First) project, is funding activities at Sandia National Lab to evaluate liquid hydrogen behavior, and cofunding from stakeholders has been requested. Bevilacqua Knight, Inc., (BKi) will administer the stakeholder funds. The evaluation results will be used to inform and update the liquid hydrogen code development process with oversight by the Fire Protection Research Foundation of the National Fire Protection Association. This will ultimately enable development of larger capacity liquid hydrogen stations with reduced carbon footprints in denser urban areas within our region.

Sole Source Justification
Section VIII.B.2 of the Procurement Policy and Procedures identifies four major provisions under which a sole source award may be justified.

This request for sole source award with EIN is made under B.2.d(1): Projects including cost sharing by multiple sponsors. Project partners include automakers, fuel providers and other stakeholders.

The request for sole source award with BKi is made under B.2.d(1): Projects including cost sharing by multiple sponsors. Project partners include US DOE, Sandia National lab, automakers and fuel providers.

Benefits to SCAQMD
SCAQMD supports hydrogen and fuel cell technologies and recognizes that light-, medium- and heavy-duty vehicles must achieve zero or near-zero emissions if the region hopes to meet state and federal air quality attainment standards. These projects will help ensure that sufficient hydrogen infrastructure is available to support the automaker roll out of fuel cell vehicles over the next few years and are included in the *Technology Advancement Office Clean Fuels Program 2016 Plan Update* under "Develop and Demonstrate Distributed Hydrogen Production and Fueling Stations." SCAQMD's Clean Fuels Program has been proactive in funding the development and demonstration of low emission, hydrogen fuel technologies. Hydrogen vehicles and refueling stations are necessary to comply with CARB's ZEV regulation to reduce criteria pollutant emissions, and development of an extensive hydrogen fueling network in Southern California will accelerate the deployment of these cleaner vehicles.

Resource Impacts
The $6.69 million grant CEC previously awarded to SCAQMD was recognized into the Hydrogen Fueling Infrastructure Network Fund (63). The contract amendment with H2 Frontier, Inc., will not exceed $989,661 for a total contract amount of $1,920,461, all of which is CEC pass-through funding. Total project costs to fully upgrade the Burbank hydrogen station are estimated at $2,115,461, broken down as follows:

Project Partners	Proposed Funding
H2 Frontier, Inc.	$195,000
SCAQMD (current contract)	$930,800
SCAQMD *(requested)*	$989,661
Total Project Costs	**$2,115,461**

The contract with Shell will not exceed $300,000 from the Clean Fuels Fund (31). Total project costs to upgrade the Shell station in Newport Beach with new equipment provided by Linde, LLC, are estimated at $2,300,000. Proposed funding is broken down as follows:

Project Partners	Proposed Funding
Shell	$300,000
Linde	$320,000
CEC	$1,380,000
SCAQMD (*requested*)	$300,000
Total Project Costs	**$2,300,000**

The contract with EIN will not exceed $25,000 from the Clean Fuels Fund (31). Total project costs for the renewable hydrogen analysis are estimated at $200,000. Proposed funding is broken down as follows:

Project Partners	Proposed Funding
Automakers: Honda, Toyota	$50,000
Fuel Providers: Southern California Gas, Linde, Air Liquide, Hydrogenics	$65,000
Other stakeholders (requested)	$60,000
SCAQMD (*requested*)	$25,000
Total Project Costs	**$200,000**

The contract with BKi will not exceed $25,000 from the Clean Fuels Fund (31). Total project costs for this year's support of liquid hydrogen analysis are estimated at $350,000. Proposed funding is broken down as follows:

Project Partners	Proposed Funding
U.S. DOE	$175,000
Stakeholders including 7 Automakers, Linde, Shell	$150,000
SCAQMD (*requested*)	$25,000
Total	**$350,000**

Sufficient funds are available from the Clean Fuels Fund (31) for these projects and services. The Clean Fuels Fund was established as a special revenue fund resulting from the state-mandated Clean Fuels Program. The Clean Fuels Program, under Health and Safety Code Sections 40448.5 and 40512 and Vehicle Code Section 9250.11, establishes mechanisms to collect revenues from mobile sources to support projects to increase the utilization of clean fuels, including the development of the necessary advanced enabling technologies. Funds collected from motor vehicles are restricted, by statute, to be used for projects and program activities related to mobile sources that support the objectives of the Clean Fuels Program.

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Agenda Item #3

Lisa Mirisola

Execute and Amend Contracts for Hydrogen Station Upgrades, Site Changes and Related Work

Background
Burbank Hydrogen Station

- SCAQMD administering $6.69M CEC grant for hydrogen station upgrades
- Previous upgrade cofunding of $989,661 awarded for Harbor City station - insufficient for “retail” needs (contract not initiated)
- Previous upgrade cofunding of $930,800 awarded for Burbank station – needs have expanded
- GoBiz, CEC & CARB all agree to reallocate funds





Proposal
Burbank Hydrogen Station



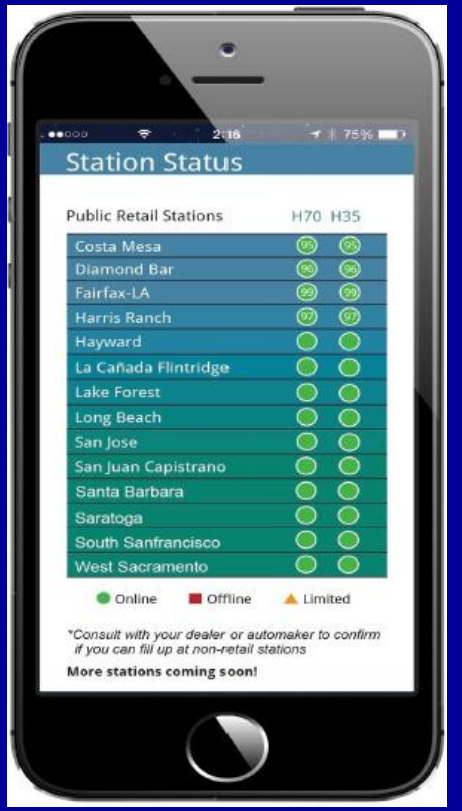
- Automakers cite need to improve reliability, increase capacity at the Burbank hydrogen station and upgrade to “retail” level
- Staff recommends re-directing up to $989,661 using CEC funds from Harbor City to upgrade compressors, cooling system, dispenser, storage and add canopy and signs
- Amend H2 Frontier, Inc. contract adding $989,661 (not to exceed $1,920,461 total) for Burbank upgrade/expansion

Amend H2 Frontier Contract

Project Partners	Proposed Funding
SCAQMD (current contract)	$930,800
H2 Frontier, Inc.	$195,000
SCAQMD *(requested)*	$989,661
Total Project Costs	**$2,115,461**

Background
Site Changes

- Currently, there are 20 public retail hydrogen stations operating in California - 10 in our region
- Two out of eight hydrogen station locations need to be changed from previous SCAQMD awards to Air Products & Chemicals, Inc.
- Site issue for CEC award to Linde, LLC for new H2 station in Foster City. Linde proposes to relocate new hydrogen equipment planned for Foster City, CA to the Shell Newport Beach station



Proposal
Site Changes

Amend Air Products & Chemicals, Inc. Contract for Site Relocations

Original Station Site	Proposed New Station Site
1200 Beryl Street Redondo Beach, CA 90277	28103 Hawthorne Blvd. Rancho Palos Verdes, CA 90275
5410 Walnut Avenue Irvine, CA 92604	24551 Lyons Avenue Santa Clarita, CA 91321

- Site specific issues include lack of site control and permitting
- Site relocation from Irvine to Santa Clarita will not reduce coverage in Orange County, and will enhance intrastate network

Shell Newport Beach Station



- Existing Shell Station has aging equipment, including reformer
- CEC is modifying Linde cofunding for site relocation to Shell Newport Beach
- Use renewable hydrogen (biogas)
- Staff proposes up to $300,000 in cost-share from Clean Fuels Fund (31)



Cost-Share
Shell Newport Beach

Project Partners	**Proposed Funding**
CEC	$1,380,000
Shell	$300,000
Linde	$320,000
SCAQMD (*requested*)	$300,000
Total Project Costs	**$2,300,000**

Proposal
Renewable Hydrogen Analysis

- SB 1505 requires hydrogen to be 33% renewable
- Energy Independence Now (EIN) will
  - conduct an analysis of renewable hydrogen pathways, economics, and incentives
  - provide public education and outreach
- Staff proposes to execute a contract with EIN not to exceed $25,000 from Clean Fuels Fund (31)

Renewable Hydrogen Analysis Funding

Project Partners	Proposed Funding
Automakers: Honda, Toyota	$50,000
Fuel Providers: Southern California Gas, Linde, Air Liquide, Hydrogenics	$65,000
Other stakeholders (requested)	$60,000
SCAQMD (*requested*)	$25,000
Total Project Costs	**$200,000**

Proposal
Evaluate Liquid Hydrogen Behavior

- US DOE is funding Sandia National Lab to evaluate liquid hydrogen behavior to inform and update hydrogen code development
- Bevilacqua Knight, Inc (BKi) administering stakeholder matching funds
- Staff proposes to execute a sole-source contract not to exceed $25,000 from Clean Fuels Fund (31) with BKi

Evaluate Liquid Hydrogen Funding

Project Partners	Proposed Funding
U.S. DOE	$175,000
Stakeholders including 7 Automakers, Linde, Shell	$150,000
SCAQMD (*requested*)	$25,000
Total	**$350,000**

Recommended Actions

- Amend contract with H2 Frontier, Inc., for hydrogen equipment upgrades at the Burbank station adding up to $989,661 for a total contract amount not to exceed $1,920,461 using CEC revenue
- Amend contract with Air Products and Chemicals, Inc., to change two sites out of eight hydrogen stations, for which funding was previously awarded
- Execute a contract with Equilon Enterprises LLC, DBA Shell Oil Products USA to cost-share the upgrade/ replacement of equipment at a hydrogen station in Newport Beach in an amount not to exceed $300,000 from the Clean Fuels Fund (31)

Recommended Actions

- Execute the following contracts from the Clean Fuels Fund (31):
  - A contract with Energy Independence Now to provide analysis of renewable hydrogen pathways, economics and incentives in an amount not to exceed $25,000
  - A contract with Bevilacqua Knight, Inc., to provide an evaluation of liquid hydrogen behavior activities in an amount not to exceed $25,000