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DATE: October 19, 2017

TO: SJVUAPCD Governing Board



FROM: Seyed Sadredin, Executive Director/APCO
Project Coordinator: Todd DeYoung

RE: **ITEM NUMBER 9: APPROVE PILOT INCENTIVE PROGRAM TO REDUCE EMISSIONS FROM FEEDING OPERATIONS AT VALLEY DAIRIES**

RECOMMENDATIONS:

1. Approve new pilot Dairy Feed Mixing Electrification Program to provide incentive funding to achieve emissions reductions from feeding operations at Valley dairies and other confined animal feeding operations.
2. Allocate \$4,000,000 in existing motor vehicle surcharge revenues, included in the 2017-18 Incentives Spending Plan, to fund this new pilot program.
3. Authorize the Executive Director/APCO to make administrative changes to the program as necessary.

BACKGROUND:

The District and Valley agricultural stakeholders have long partnered to develop sound science and innovative strategies for reducing emissions from the agricultural operations. In fact, a number of major San Joaquin Valley clean air milestones, such as attainment of the PM10 and 1-hour ozone standards, can be largely attributed to major sacrifice and investment in costly air pollution control equipment and practices adopted by Valley agriculture.

Despite the significant reductions achieved in the Valley, more reductions are necessary from all sectors to meet ever-tightening federal and state air quality standards. Towards that end, in May of 2015, the District's Technology Advancement Program (TAP) funded a

project to demonstrate the potential to reduce diesel emissions associated with feeding operations at a Valley dairy. The project included converting several elements of the feeding operation from diesel power to electricity with the overall objective of demonstrating that diesel emissions could be significantly reduced at dairies and other animal feeding operations throughout the District in a cost effective manner. The demonstration project was successful at significantly reducing diesel emissions at the project location and proved that these results are replicable throughout the Valley.

Based on the results of the demonstration project and working closely with the agricultural industry and technology providers, the District has developed the framework for a new pilot incentive program targeted at expanding the installation of electric feed mixing equipment and further reducing diesel emissions from tractors and other mobile equipment and vehicles at Valley dairies and other confined animal feeding operations (CAFOs). The goal of this pilot program is to further demonstrate the effectiveness of this concept and work to get this program included as an eligible project category in state and federal incentive programs. The purpose of today's item is to approve the creation of the pilot Dairy Feed Mixing Electrification Program and allocate up to \$4,000,000 in District incentive funds for this purpose. Funding for this pilot program is included in the Incentives Spending Plan that accompanied the 2017-18 District Budget.

DISCUSSION:

Building on decades of progress, over the past year the District has been leading an extensive public process to develop an attainment strategy that addresses the 1997, 2006, and 2012 federal PM2.5 standards. Through the public engagement process, the District has identified a comprehensive list of potential new measures to further reduce directly emitted PM2.5 and NOx emissions from both stationary and mobile sources. However, these aggressive potential regulatory measures fall short of providing the necessary emission reductions to achieve attainment, and incentive-based emission reduction programs will continue to be a critical part of the District's upcoming attainment strategy. The District's successful partnership with Valley agricultural stakeholders has provided innovative opportunities for cost-effective emission reductions through programs such as the first-of-its kind tractor replacement and trade-up incentive programs. Continuation and expansion of these innovative efforts to reduce emissions from agricultural equipment will be an essential part of our pathway to attainment.

In March, 2015, your Board approved a project under the District's Technology Advancement Program project in which the District partnered with Valley agricultural industry stakeholders to design and implement an innovative project to reduce emissions from heavy duty equipment and vehicles associated with feed mixing and delivery at a Valley dairy. Through this project, the District provided funding to Philip Verwey Dairy in Hanford to replace diesel tractor-powered feed mixing and delivery equipment with an electric feed mixing station and delivery system. After two years of

operating this new mixing and delivery system, the Verwey Dairy discovered that their mixing time was reduced from 22 hours per day to less than 6 hours per day (increasing efficiency and reducing labor costs), the quality of the feed mixture was significantly improved and overall diesel fuel consumption was cut almost in half. A majority of the emission reductions were achieved through the elimination of large agricultural tractors that were used thousands of hours per year to pull power take off (PTO) driven feed mixers in favor of a new electric feed mixing system. Additional emission reductions have come from eliminating on-road trucks used to move the feed around the dairy and from the decrease in operating hours of the remaining agricultural tractors used to load the feed mixers. This project is achieving more than 21 tons of NOx reductions on an annual basis.

Building on the success of this demonstration project and collaboration with agricultural stakeholders, the District has developed the framework for a new Dairy Feed Mixing Electrification Program targeted at Valley dairies and other CAFOs that operate within the jurisdiction of the District. The guidelines of this pilot program have been developed to ensure that the emission reductions that are achieved are real, surplus to any regulation, quantifiable, and permanent, thus meeting the criteria for SIP creditability. Additionally, given the unique and varied nature of feeding operations employed by dairies and CAFOs in the Valley, this program is being designed with the flexibility necessary to accommodate a wide variety of processes and circumstances present throughout the Valley.

District verification of all information submitted as well as physical inspection of the new and old equipment will help ensure that the integrity of this program is maintained throughout the process. The primary emission reductions from this program will be achieved through the elimination of existing diesel-powered agricultural tractors that mix and deliver feed, the elimination or reduction in usage of on-road trucks used to deliver feed, and reduction in usage of any remaining diesel-powered equipment used in the feeding process. Further emission reductions and cost-savings to Valley dairies will be achieved through increased efficiencies of the new systems that result in an overall reduction in feed mixing equipment usage.

The goal of this pilot program is to further demonstrate the effectiveness of this concept for achieving cost-effective emissions reductions and work to establish this program as an eligible project category in state and federal incentive programs such as the Carl Moyer Program, USDA-NRCS EQIP program, and Cap and Trade-funded programs to achieve SIP-creditable emissions reductions.

PROPOSED PILOT PROGRAM GUIDELINES:

The following is an outline of the key pilot program requirements and guidelines:

Program Funding and Cost Effectiveness Criteria:

- Pilot program funding for FY 2017-18: \$4,000,000
- Funding will be provided on a first-come-first-served basis, based on complete applications being submitted to the District.
 - Partially complete applications will be accepted but will not be placed in the queue for funding until all information is submitted and the application is deemed complete.
- Project-specific funding amounts will be based on the total emission reductions achieved by the proposed projects and cost-effectiveness.
 - Staff is proposing to utilize the Carl Moyer Program cost-effectiveness cap to ensure favorable project cost-effectiveness. The current Moyer cap is established at \$30,000 per ton of emissions reduced.
- Emission reductions will be calculated based on the established Carl Moyer calculation methodology for the elimination, reduction of usage or replacement of old, high-polluting agricultural tractors, on-road trucks and other diesel equipment, as applicable.
- In addition to the proposed cost-effectiveness cap, project funding shall not exceed 75% of the total project cost.
 - Costs for new, cleaner emission controlled diesel-equipment (if applicable) will be combined with the cost of new electric feed mixing and/or distribution equipment and together will be defined as the total eligible project cost.
- Funding levels are estimated to range between \$700,000 and \$1,000,000 per project, covering approximately 60% to 75% of the total eligible project costs. These funding estimates are based on an analysis conducted by District staff of feeding operations at several large Valley dairies.

Additional Program Requirements:

- In addition to standard applicant information, applications will be required to identify the following key pieces of information:
 - Each piece of equipment that is currently utilized in the feed mixing and distribution system that will be retired (destroyed)
 - Each piece of equipment that will have a reduction in hours upon implementation of the new feed mixing and delivery system
 - New electric feed mixing and distribution equipment and associated infrastructure that will be needed for the project
 - New diesel-powered equipment that will be purchased to support the new feed mixing and delivery system (if any)
 - The cost of new electric feed mixing and/or distribution equipment to be evaluated by the District.
- Because of the variability in feed mixing and distribution operations at different dairies and other CAFOs, this program is being designed with the flexibility to accommodate a wide variety of processes and circumstances present throughout the Valley, while still achieving cost-effective emission reductions.
 - In recognition of this variability and to ensure this program is responsive to the needs of the Valley agricultural stakeholders, District staff will meet with all potential applicants to assist with application data collection and to get a detailed understanding of each individual operation and proposed project.
- District staff will inspect all existing equipment and review the project with the applicant to ensure the information provided is correct.
- All diesel equipment replaced or retired as part of this program will be destroyed in strict adherence to established District requirements to ensure the integrity of the projects and resulting emission reductions. These requirements include physical inspections and photographic documentation of the destroyed equipment by District personnel.

Approval of this item by your board will authorize the Executive Director/APCO to launch this new pilot program and work closely with Valley dairies and other stakeholders to conduct outreach throughout the Valley.

FISCAL IMPACT:

The District has sufficient appropriations in the 2017-18 Adopted Budget to fund the proposed pilot Dairy Feed Mixing Electrification Program. Funding for this program is included in the Incentives Spending Plan that accompanied the 2017-18 District Budget. Ongoing appropriations for this program will be considered through the District's annual budget process.