



**BOARD OF DIRECTORS
EAST BAY MUNICIPAL UTILITY DISTRICT**

375 – 11th Street, Oakland, CA 94607

Office of the Secretary: (510) 287-0440

**AGENDA
Sustainability/Energy Committee
Tuesday, February 26, 2019
8:00 a.m.
Training Resource Center**

(Committee Members: Directors Linney {Chair}, Katz and Mellon)

ROLL CALL:

PUBLIC COMMENT: The Board of Directors is limited by State law to providing a brief response, asking questions for clarification, or referring a matter to staff when responding to items that are not listed on the agenda.

DETERMINATION AND DISCUSSION:

1. Fleet Electrification Update (Ambrose)
2. Draft Climate Action Policy (Chan)
3. Wastewater Biogas Upgrade Evaluation (White)
4. Integrated Pest Management Program Update (Chan)

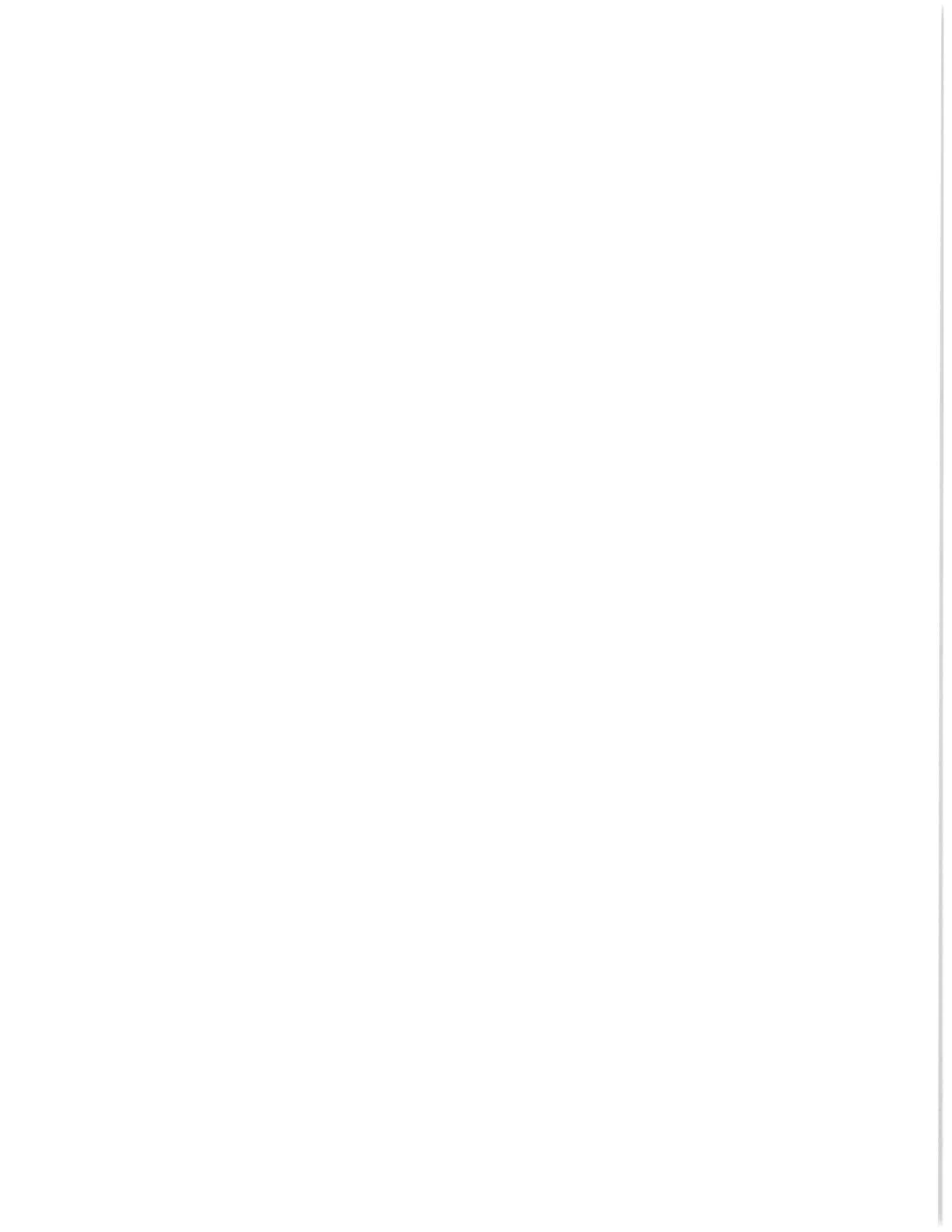
ADJOURNMENT:

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EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: February 21, 2019

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager *ARC*

FROM: Michael R. Ambrose, Manager of Maintenance and Construction *MRA*

SUBJECT: Fleet Electrification Update

INTRODUCTION

The District operates a fleet of over 1,100 light-duty, medium-duty and heavy-duty vehicles. Though hybrid vehicles are the District's standard for sedans, operation of the fleet contributes to a significant part of the District's direct greenhouse gas (GHG) emissions. While there has been progress with the development of hybrid and electric light-duty vehicles, progress with medium- and heavy-duty vehicles has been slow. Staff continues to evaluate strategies to reduce emissions in light-duty fleet and construction equipment. This item will be discussed at the February 26, 2019 Sustainability/Energy Committee meeting.

DISCUSSION

The District maintains a fleet of vehicles and equipment including 409 light-duty vehicles (e.g., sedans, pickups, and SUVs) and 730 medium- and heavy-duty vehicles (e.g., utility trucks, backhoes, loaders, and excavators). In 2017, operation of the District's fleet generated 5,887 metric tons (MT) of GHG emissions, which was about 28 percent of the District's overall GHG inventory.

While alternatively fueled vehicles (e.g., natural gas or electricity) provide fuel savings and GHG emissions reductions in day-to-day operations, the District must also consider the availability of alternative fuels after an emergency. When evaluating a vehicle replacement, the District considers the reliability of fuel during an emergency, such as an earthquake, to ensure that vehicles and equipment are available after an emergency.

Light-Duty Vehicles

Hybrid vehicles are the standard sedan for the District. There are 69 Toyota Priuses and 6 Chevrolet Volts currently in the fleet. In 2019, four fully-electric Nissan Leafs will be added to the vehicle pool. New pickups and SUVs are more fuel efficient, and in the last year, replacements of these vehicles have improved fuel efficiency in this class by 23 percent.

Medium- and Heavy-Duty Vehicles

Progress with the development of hybrid medium- and heavy-duty vehicles has been slow. Most new hybrid power supply systems for these classes of vehicles have been for the transportation, mining, and heavy construction industries. In the construction industry, hydraulic and electrical regenerative energy systems have been installed in hybrid construction equipment to allow manufacturers to use smaller, more efficient engines to achieve fuel savings and reduce GHG emissions.

The type of equipment presently available is not offered in the size and capacity used by the District with the exception of the John Deere 644K loader. John Deere offers a 644K loader in a diesel-electric hybrid system that provides a 25 percent reduction in fuel consumption and costs 10 to 15 percent more than the diesel-powered version. The District currently has two 644K conventional drive loaders in the fleet and will evaluate upgrading these loaders to a hybrid system when they are up for replacement.

NEXT STEPS

Staff will continue to investigate technologies to make the fleet more fuel efficient and reduce GHG emissions, and will evaluate hybrid and electric powered vehicles for future fleet purchases. In addition, the District will continue to expand the use of renewable diesel in the medium- and heavy-duty fleet. Renewable diesel use has grown from 54,944 gallons in 2016 to 127,726 gallons in 2017, and in 2017, use of renewable diesel offset 1,304 MT of GHG emissions.

ARC:MRA:rk

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: February 21, 2019
MEMO TO: Board of Directors
THROUGH: Alexander R. Coate, General Manager *ARC*
FROM: Clifford C. Chan, Director of Operations and Maintenance *CCC*
SUBJECT: Draft Climate Action Policy

INTRODUCTION

The District has proactively considered the impacts of climate change and has taken actions to understand, mitigate, and adapt to those impacts. The District's Strategic Plan includes a strategy to maintain a climate change plan to inform planning efforts for water supply, water quality, and infrastructure projects. The District is also involved in climate change activities at the local, state, and federal levels. At the October 18, 2018 Sustainability/Energy Committee meeting, a proposed Climate Action policy was discussed. This item will be presented at the February 26, 2019 Sustainability/Energy Committee meeting.

DISCUSSION

Climate change poses significant threats to the planet, the state, and the District. Climate change will result in rising sea levels, reduced snowpack, increased climate variability, and impacts to the ecosystem. The District has taken steps to understand, mitigate, and adapt to the potential impacts of climate change, and continues to lead the industry in its actions to address the effects of climate change.

For over a decade, the District has been engaged in climate change activities including establishing and meeting aggressive greenhouse gas (GHG) reduction goals, considering the impacts of climate change on our water supply in the Water Supply Management Program, making infrastructure improvements, participating in Environmental Protection Agency's Climate Ready Water Utilities working group and supporting their development of a climate risk assessment tool for the industry, participating in research, and obtaining green building certification for many of its facilities.

In the past year, the District has participated in several new climate change activities including joining the Bay Area Climate Action Network (BayCAN), joining The Climate Registry (TCR), signing on to "We Are Still In," and participating in Project Hyperion.

- BayCAN is part of the Alliance of Regional Collaboratives for Climate Adaptation network and is focused on addressing the challenges posed by climate adaptation.

BayCAN's focus includes climate vulnerabilities associated with coastal inundation from sea level rise and storms, wastewater and storm water management impacts, public health effects, ecosystem vulnerability, changing vulnerability associated with wildfires, and climate justice issues.

- TCR is a non-profit organization governed by states and Canadian provinces and territories. TCR designs and operates voluntary and compliance-based GHG reporting programs globally and assists organizations in measuring, reporting, and verifying the carbon in their operations in order to manage and reduce it. The District is on the advisory group reviewing draft GHG Water/Energy Nexis protocols.
- "We Are Still In" was established to create a network of individuals and organizations to share climate actions across the United States and show the world that the groups stand by the Paris Climate Agreement. "We Are Still In" has approximately 2,754 signatories including 33 counties and 248 cities. Within the District's service area, Alameda and Contra Costa Counties and the cities of Alameda and Berkeley are signatories.
- Project Hyperion is a national climate/water project with the University of California and the Lawrence Berkeley Laboratory. The project includes water agencies and scientists working on 21st century models and metrics to address climate change.

In response to comments from the Board at the October 18, 2018 Sustainability/Energy Committee meeting, the District prepared a draft Climate Action Policy (attached). Staff surveyed utilities in the Bay Area and other large utilities in the United States, and none of the utilities have a separate climate action policy. The policy will affirm and focus the District's commitment to:

- Plan for climate change by applying the best available science to understand climate risks and implement adaptation and mitigation strategies to improve resilience
- Integrate climate science into the District's planning, design, and operations
- Complete an annual GHG emissions inventory and reduce GHG emissions
- Support legislation and regulations to address the impact of climate change
- Collaborate with utilities, agencies, researchers, regulators, and the community
- Educate the community and employees on the impacts of climate change
- Take a leadership role with respect to climate change

NEXT STEPS

Staff will incorporate feedback from the Sustainability/Energy Committee on the draft Climate Action policy, and then bring the draft policy to the Finance/Administration Committee on March 26, 2019 for consideration.

ARC:CCC:rk

Attachment



CLIMATE ACTION

IT IS THE POLICY OF THE EAST BAY MUNICIPAL UTILITY DISTRICT TO:

Consider the impacts of climate change and take appropriate action to understand, mitigate and adapt to those impacts.

Overview

The District recognizes that climate change will result in rising sea levels, reduced snowpack, increased climate variability, and impacts to ecosystems on District watersheds. Furthermore, the District recognizes that these changes will impact water and wastewater operations and infrastructure, and our community.

The District further recognizes that climate change will have significant impacts worldwide and may have disproportionate impacts to marginalized populations. The potential impacts of climate change are well-documented by the United Nations Intergovernmental Panel on Climate Change, in California's Climate Change Assessment, and the United States' National Climate Assessment reports.

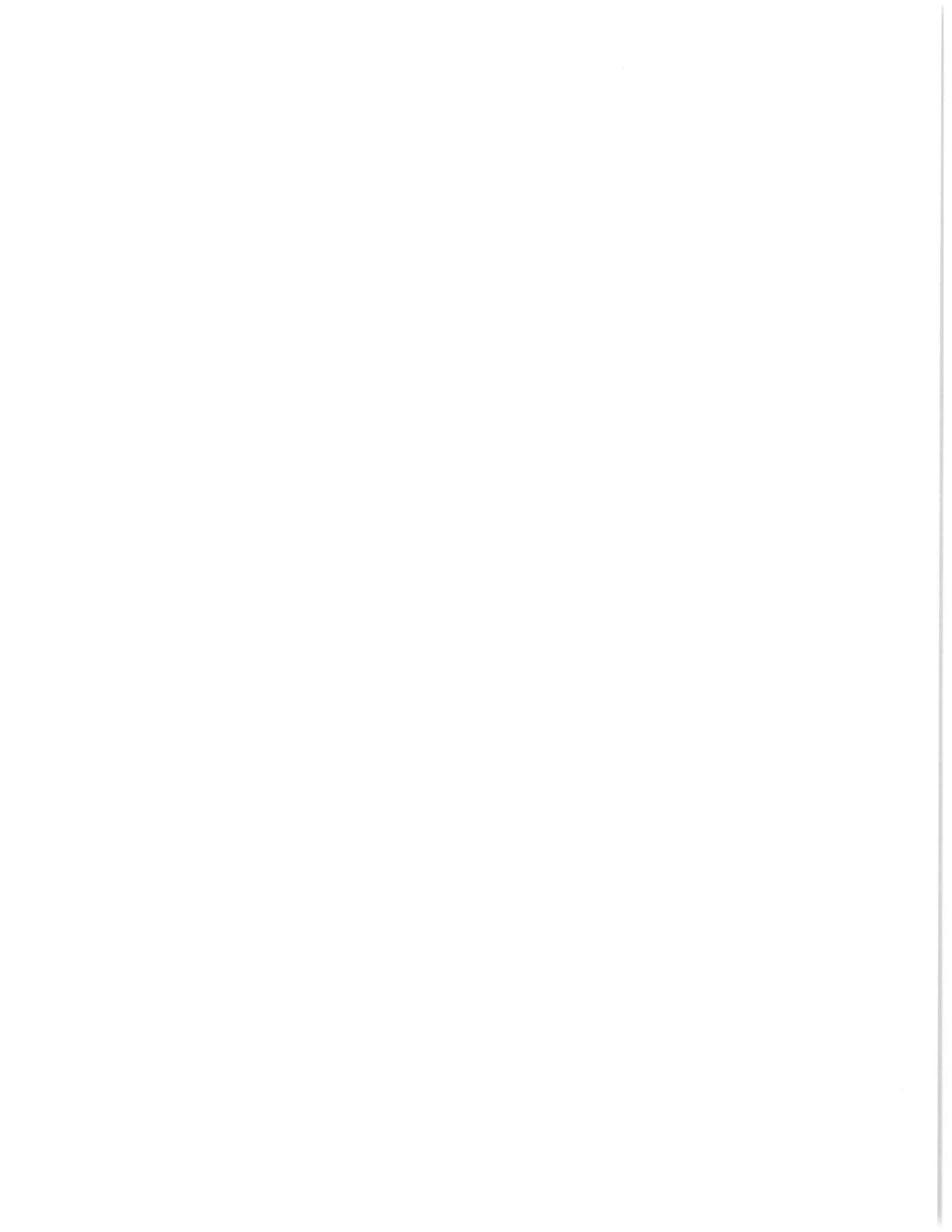
Objective

The District will consider climate change impacts in its policies, procedures, projects, and work practices. In doing so, the District will:

- Monitor climate science and identify the potential impacts to the District;
 - Plan for climate change by applying the best available science to understand climate risks and implement adaptation and mitigation strategies to improve resilience;
 - Integrate climate science into planning, design, construction, watershed land management, and operations and maintenance;
 - Complete an annual greenhouse gas (GHG) emissions inventory;
 - Reduce GHG emissions consistent with the District's Energy Policy;
 - Support federal, state, and regional action to respond to the impacts of climate change;
 - Support appropriate legislation and regulations to fund and mitigate climate change impacts and promote collaborative adaptation measures;
 - Collaborate with public agencies, researchers, regulators, and the community to develop sustainable solutions;
 - Educate the community and its employees on the impacts of climate change; and
 - Take a leadership role in the industry and the community with respect to addressing climate change.
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References

Policy 7.05 – Sustainability and Resilience
Policy 7.07 – Energy
Policy 9.04 – Watershed Management and Use
Policy 9.06 – Bay-Delta Protection



EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: February 21, 2019

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager *ARC*

FROM: Eileen M. White, Director of Wastewater *EMW*

SUBJECT: Wastewater Biogas Upgrade Evaluation

SUMMARY

For over 30 years, the District's Main Wastewater Treatment Plant (MWWTP) has produced biogas and used it to generate electricity and heat, saving the District money on energy costs and generating revenue. Over the past few years, the value of renewable electricity has decreased due to the growth in wind and solar generation in California. Because of the successful Resource Recovery (R2) Program, the MWWTP continues to produce excess biogas, which must be flared. To utilize all of this resource and obtain the maximum value, staff has been evaluating alternatives for biogas utilization, including upgrading it to renewable natural gas (RNG) for transportation fuel. While this alternative provides many benefits, it entails a significant capital cost and there is risk associated with the long-term sustainability of the revenue streams.

In order to reduce this risk, staff applied for, and the District is proposed to be awarded, a \$3 million grant from the California Energy Commission (CEC) to develop an RNG project. In light of this, staff is reevaluating this option, the overall benefits, and the remaining risks and uncertainty. Staff has determined that the financial risks can be mitigated and that the upside potential is significant both financially and environmentally. The one remaining concern is that by not exclusively using all biogas as onsite fuel, it may put the MWWTP under new regulatory requirements that would necessitate significant consultant and staff resources. If the MWWTP is no longer under the existing exemption, staff will evaluate the resource requirements and determine whether the RNG project can still be recommended. An update on this evaluation and the proposed grant award will be presented to the Sustainability/Energy Committee on February 26, 2019.

DISCUSSION

The MWWTP currently produces approximately 130 percent of the electricity required to operate the facility. Surplus renewable energy is sold to the Port of Oakland under a Power Purchase Agreement (PPA), which results in annual revenue of up to \$1 million. Even with the expanded electricity generation capacity, the MWWTP continues to flare approximately ten percent of the biogas produced. Staff periodically reevaluates energy markets, pricing, and

technologies to utilize this excess biogas or to derive a higher value for biogas currently used for electricity generation. While the PPA with the Port of Oakland currently provides a favorable price for renewable electricity, staff anticipates the price will be lower when it expires in October 2022 as renewable electricity prices decline generally. Upgraded biogas, or RNG used as a vehicle fuel derives a much higher value for its associated environmental attributes. Once injected into the natural gas pipeline, this alternative also provides flexibility to toggle between electricity and fuel production and provides the means to sell RNG nationally. This project would reduce flaring, provide a cleaner burning transportation fuel, reduce greenhouse gas emissions, and allow the District to continue to grow its program to divert high-strength waste (including food waste) for energy production.

Financial Considerations

To date, staff has not recommended implementing an RNG project due to the capital costs and the long-term uncertainty in the environmental attribute markets for renewable transportation fuels. Approximately two-thirds of the value comes from the environmental attributes, which are contingent upon state and federal policies that continue to evolve and impact their financial value. To reduce financial risk, staff submitted an RNG project proposal to the CEC under the Alternative and Renewable Fuel and Vehicle Technology Program in November 2018. On January 18, 2019, the District was notified that it was selected for a “proposed” award of \$3 million. The total capital cost for the proposed project size is estimated to be \$16.4 million. In addition to the CEC grant, this project is also eligible for California Public Utility Commission incentive funding for 50 percent of the interconnection costs, estimated at \$1.7 million. Taking into account the grant and incentive funding, the estimated remaining project cost to the District is \$11.7 million.

Staff is currently evaluating the financial risks and developing mitigation strategies. One strategy would be to sell biogas under a fixed-price contract at a lower value with lower risk. Another strategy would be to increase the project size to benefit from economies of scale by increasing the near-term revenues to recover capital costs more quickly. This option is attractive because the capital costs for a system of twice the capacity is only 10 percent higher and majority of the operating costs are fixed.

Regulatory Considerations

Although the District currently operates a large and complex biogas system including 11 digesters, a low-pressure gas holder, a gas conditioning system, compressors, a turbine, boiler, and three engines, the MWWTP falls under an exclusion due to the fact that all of the gas is used onsite. It appears that by adding the interconnection to PG&E’s gas main and sending RNG offsite the MWWTP may no longer qualify for this exclusion, even though the project does not result in a significant increase in biogas handling, pressure or onsite storage. Staff is currently working with the California Association of Sanitation Agencies and other stakeholders to make this determination. If successful in maintaining the current exclusion, the RNG project will be

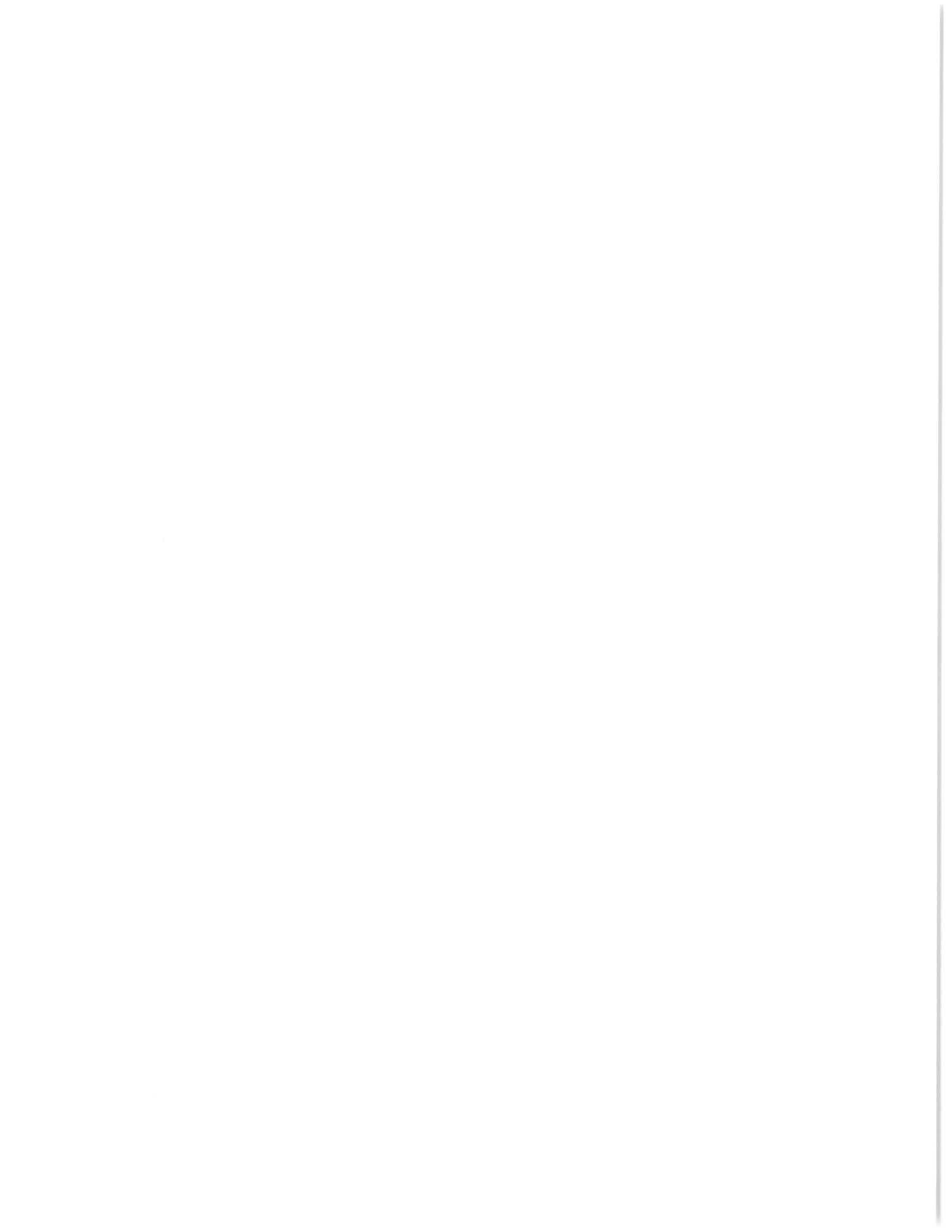
recommended for implementation. If unsuccessful, staff will further evaluate the resource requirements and determine whether the project can still be recommended.

NEXT STEPS

Staff will incorporate input from the Sustainability/Energy Committee into its evaluation of the benefits, risks, and proposed mitigation strategies. Staff intends to reach resolution on the regulatory requirements quickly and use this information to complete the analysis and make a recommendation on proceeding with the grant acceptance and development of an RNG project.

If the District moves forward, CEC staff would present the proposed awards to CEC commissioners for their approval at a regular business meeting expected in March or April. Following full CEC approval, staff would seek Board authorization to execute a grant agreement and begin work to complete a project within three years.

ARC:EMW



EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: February 21, 2019

MEMO TO: Board of Directors

THROUGH: Alexander R. Coate, General Manager *ARC*

FROM: Clifford C. Chan, Director of Operations and Maintenance *CCC*

SUBJECT: Integrated Pest Management Program Update

INTRODUCTION

The District established an Integrated Pest Management (IPM) program in the mid-1990s to guide pest management practices across its many facilities and open spaces. At the January 9, 2018 Sustainability/Energy Committee meeting, staff presented an overview of the program and planned enhancement actions. This memo summarizes the efforts completed since January 2018 to implement the recommendations from an expert third-party review. This item will be discussed at the February 26, 2019 Sustainability/Energy Committee meeting.

DISCUSSION

IPM is a comprehensive, systems-based pest management process that involves determining appropriate control methods based on the pest and site-specific conditions. IPM focuses on managing pests with minimum impact to human health, the environment, and non-target organisms by requiring a variety of non-pesticide control methods be considered in addition to pesticide controls. The District has written IPM guidelines to address a broad range of pest control issues and strategies used on District watershed lands, rights-of-way, and operating and administrative facilities, which cover a wide area including the District's service area, rights-of-way, and 58,000 acres of watershed lands in the East Bay and Sierra foothills.

In 2017, the District contracted with Blankinship and Associates (Blankinship) to perform a third-party review of the IPM program. Blankinship found that the District had a solid foundation in IPM principles, understood key concepts, and was implementing the existing program well. Several program enhancements were recommended. Throughout 2018, significant progress was made to implement the recommendations, which are summarized below.

Training

In 2018, the District held its first annual IPM training for all staff that implement IPM (approximately 90 staff). Extensive three-day trainings were held in Oakland, Orinda, and Valley Springs. Speakers included regulators, fire authorities, biologists, compliance specialists, research institutions, and other regional IPM program managers. Response to the training was overwhelmingly positive, and the second annual event is scheduled for March 2019.

Records Management

Staff finalized decision documents for almost 400 different sites across the service area, along the aqueducts, and for the East Bay and Upcountry watersheds. These documents describe management goals, identify pests and monitoring practices, identify specific sensitivities (e.g., endangered species or proximity to public trails), and evaluate cultural, physical, biological, and chemical controls considered. The data (e.g., strategies implemented, pesticides applied, effectiveness) is available electronically to support regulatory reporting and data analysis which will inform long-term decision making for the IPM program.

Communication with Experts and the Public

Internal communication has improved with the formation of a monthly IPM workgroup. An IPM supervisory group meets annually to ensure that staff coordinates program activities. External communication has also greatly improved. The District updated its IPM message, developed a brochure for field staff to share with the public, updated the District's website, and hosted a series of public meetings in Stockton, Oakland, Walnut Creek, and Valley Springs.

Standardization for Decision and Activities

Staff plans to develop standard operating procedures (SOP) for specific activities to ensure consistency across the District. The SOP will identify, for example, how and when decision documents are required; how to complete field activity sheets; and evaluation criteria to determine success/failure of a new IPM method. In addition, the District hired an IPM consultant in November 2018 to support the standardization effort.

NEXT STEPS

The District will continue to improve its IPM activities and complete the following tasks in 2019:

- Continue incorporating recommendations from the Blankinship report and reviewing the IPM plan
- Analyze data and evaluate updates to the IPM guidelines
- Conduct annual IPM training for staff managing pests in March 2019
- Recommend purchase of one tractor mower and trailer to support weed abatement and landscaping work (scheduled for Board consideration at the February 26, 2019 Board meeting)

ARC:CCC:rk