



BOARD OF DIRECTORS  
EAST BAY MUNICIPAL UTILITY DISTRICT

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375 - 11th Street, Oakland, CA 94607

Office of the Secretary: (510) 287-0440

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**Notice of Location Change**

**SUSTAINABILITY/ENERGY  
COMMITTEE MEETING  
Tuesday, October 26, 2021  
9:15 a.m.  
***\*\*Virtual\*\******

In accordance with Government Code section 54953(e), **this meeting will be conducted by webinar and teleconference only**. A physical location will not be provided for this meeting.

Dated: October 21, 2021

A handwritten signature in blue ink that reads "Rischa S. Cole".

Rischa S. Cole  
Secretary of the District

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

375 – 11<sup>th</sup> Street, Oakland, CA 94607

Office of the Secretary: (510) 287-0440

**AGENDA  
Sustainability/Energy Committee  
Tuesday, October 26, 2021  
9:15 a.m.  
\*\*Virtual\*\***

**Location**

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*Committee Members Marguerite Young {Chair}, Andy Katz, and Frank Mellon*

**\*\*\* Please see appendix for public participation instructions\*\*\***

**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. Resource Recovery Program Update | (White)  |
| 2. Renewable Energy Update          | (Briggs) |
| 3. 2020 Greenhouse Gas Inventory    | (Briggs) |

**ADJOURNMENT:**

**Disability Notice**

*If you require a disability-related modification or accommodation to participate in an EBMUD public meeting please call the Office of the Secretary (510) 287-0404. We will make reasonable arrangements to ensure accessibility. Some special equipment arrangements may require 48 hours advance notice.*

**Document Availability**

*Materials related to an item on this agenda that have been submitted to the EBMUD Board of Directors within 72 hours prior to this meeting are available for public inspection in EBMUD's Office of the Secretary at 375 11th Street, Oakland, California, during normal business hours, and can be viewed on our website at [www.ebmud.com](http://www.ebmud.com).*



## APPENDIX

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### Sustainability/Energy Committee Meeting Tuesday, October 26, 2021 9:15 a.m.

EBMUD public Board meetings will be conducted via Zoom.  
*Board committee meetings are recorded, and live-streamed on the District's website.*

*Please visit this page beforehand to familiarize yourself with Zoom.*  
<https://support.zoom.us/hc/en-us/articles/201362193-Joining-a-Meeting>

#### Online

<https://ebmud.zoom.us/j/91818373049?pwd=MTI1UHpFaU54SjJzZmV0QlhmUkJTQT09>

**Webinar ID:** 918 1837 3049

Passcode: 834363

#### By Phone

Telephone: 1 669 900 6833

**Webinar ID:** 918 1837 3049

Passcode: 834363

International numbers available: <https://ebmud.zoom.us/u/adlkfQ7DKa>

#### **Providing public comment**

The EBMUD 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.

If you wish to provide public comment please:

- Use the raise hand feature in Zoom to indicate you wish to make a public comment  
<https://support.zoom.us/hc/en-us/articles/205566129-Raising-your-hand-in-a-webinar>
  - If you participate by phone, press \*9 to raise your hand
- When prompted by the Secretary, please state your name, affiliation if applicable, and topic
- The Secretary will call each speaker in the order received
- Comments on **non-agenda items** will be heard at the beginning of the meeting
- Comments on **agenda items** will be heard when the item is up for consideration
- Each speaker is allotted 3 minutes to speak; the Committee Chair has the discretion to amend this time based on the number of speakers
- The Secretary will inform each speaker when the allotted time has concluded

#### **Submitting written comments or materials**

- Email written comments or other materials for the Board of Directors to [SecOffice@ebmud.com](mailto:SecOffice@ebmud.com).
- Please indicate the meeting date and agenda item number or off-agenda item in the subject of the email. Contact information is optional.
- **Please email by 4 p.m. the day prior to the scheduled Committee meeting;** written comments and other materials submitted to the Board of Directors will be filed in the record.

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**To observe the Sustainability/Energy Committee Meeting,**  
please visit: <https://www.ebmud.com/about-us/board-directors/board-meetings/>

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## EAST BAY MUNICIPAL UTILITY DISTRICT

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DATE: October 21, 2021

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager *CCC*

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

SUBJECT: Resource Recovery Program Update

### SUMMARY

The District's Resource Recovery Program (R2 Program) accepts and treats trucked-in waste streams at the Main Wastewater Treatment Plant (MWWTP) to offset operational and maintenance costs. July 2021 was the 20<sup>th</sup> anniversary of the R2 Program. Over the past two fiscal years, the R2 Program experienced a modest decline in deliveries; however, total revenue increased due to rate increases that reflect the increased cost of treatment. The R2 Program is engaged in multiple initiatives to increase revenue, including coordination with a hydrogen fuel station developer that will operate on property leased from the District, negotiating a contract for surplus energy sales, identifying new projects with various food waste sources, and continuing a workplace electric vehicle (EV) charging pilot at the MWWTP. An update on these activities will be presented at the October 26, 2021 Sustainability/Energy Committee meeting.

### DISCUSSION

The R2 Program earned \$12.9 million in gross revenue, which was slightly higher than previous years despite reduced deliveries over the last two fiscal years. The most significant opportunity for R2 Program growth is still food waste generated within the Bay Area. While the pandemic reduced deliveries or delayed some food waste projects, other opportunities have emerged that have diversified solid food waste sources. Staff continues to seek opportunities for surplus energy sales, including supporting a group that was awarded California Energy Commission (CEC) grant funding to deliver renewable hydrogen to drayage trucks operating at the Port of Oakland (Port). The workplace EV charging pilot at the MWWTP is in progress and will be completed in February 2022.

#### Hydrogen Fuel Station Development

Staff has been evaluating biogas utilization alternatives to maximize energy value in response to the downward trend in renewable electricity prices. In April 2021, CEC awarded grant funds to a project team led by the Center for Transportation and the Environment (CTE), a non-profit organization that develops and leads renewable fuel transportation projects. CTE organized a

team that includes Hyundai and FirstElement Fuel to develop a zero-emission drayage truck project with hydrogen fuel cell trucks. In May 2021, the District executed a lease agreement with FirstElement Fuel who will design and build a hydrogen fueling station on the District's West End Property adjacent to the MWWTP. Site planning and permitting activities are underway, and construction is expected to begin in 2022. The fueling station is expected to be operational in the second quarter of 2023. This project is a significant step in advancing the use of zero-emission trucks in the West Oakland neighborhood, which is heavily impacted by drayage truck diesel emissions. It also presents a future opportunity for the District to use its biogas to produce hydrogen fuel.

### Surplus Energy Sales

The District's Power Purchase Agreement (PPA) with the Port expires in November 2022. In the coming months, staff will discuss possible PPA renewal with the Port while also contacting other potential buyers to ensure the District receives the best value for its surplus renewable electricity and associated Renewable Energy Credits. In early 2022, staff will begin PPA negotiations with a purchaser selected based on these discussions.

### Food Waste Partnerships

While deliveries of solid food waste represent less than one percent of the R2 program, food waste continues to be an area of interest because it is generated locally. The District's longest-running food waste partnership with the Central Contra Costa Solid Waste Authority (CCCSWA) was established in 2011. Food waste deliveries were suspended from March to December 2020 due to the pandemic. During the suspension, CCCSWA's solid waste hauler, Republic Services (Republic), installed new equipment at the Republic transfer station in Martinez to improve contamination removal. As expected, the new equipment has made a significant difference in the quality of food waste received at the MWWTP, dramatically decreasing the District's operating and maintenance resources and increasing the capacity for other food waste partnerships. In exchange for the improved contamination removal, the District is discounting Republic's tipping fee. While CCCSWA food waste deliveries are still much less than before the pandemic, Republic is exploring other sources of food wastes.

The District executed an agreement with the South Bayside Waste Management Authority (SBWMA) to accept urban organics (organic fraction of municipal solid waste) from San Mateo County in February 2020, but this pilot project was delayed over a year due to the pandemic. The first deliveries were received from SBWMA in August 2021 and additional deliveries are expected over the next year.

There is increased interest from other private sector food waste project developers to deliver clean liquid food wastes to the District that are preprocessed and arrive in a liquid state that does not require special handling. They may be received through an unmanned station like other high-strength liquid organic wastes, and directly fed to the digester system. Unlike accepting solid food waste for preprocessing at the MWWTP, which requires large volumes and a long-term

commitment to be cost-effective, these deliveries can be accepted without any contractual commitment. Two such developers, Divert, Inc. and Grind-to-Energy, have increased their deliveries this year. Additional sources of food waste are expected to emerge as Senate Bill 1383, which mandates the diversion of solid organic wastes, becomes enforceable in 2022.

#### Workplace EV Charging Pilot

In February 2021, staff initiated a workplace EV charging pilot program for District employees at the MWWTP. The pilot is split into two phases to trial two different payment systems. The first phase was completed in July 2021 and used a monthly flat fee subscription model. The second phase began August 2021 and uses a pay-as-you-go model that charges users based on actual usage. Seven employees have participated in the EV pilot. Participation and interest seem strong among employees. The pilot will conclude in February 2022, and staff will prepare recommendations for next steps.

#### **FISCAL IMPACT**

The R2 Program has generated gross revenues similar to past years, which helps stabilize wastewater rates. In Fiscal Year 2021, the R2 Program generated \$12.3 million in tipping and other associated fees and \$600,000 in surplus energy sales. The combined gross revenue of \$12.9 million is equivalent to approximately nine percent of wastewater-related gross revenues. The gross revenue does not account for the costs to operate the program and treat the waste delivered.

#### **NEXT STEPS**

Staff will continue these efforts to effectively utilize existing infrastructure to treat a variety of organic wastes and produce and utilize renewable energy at the MWWTP. Staff will continue to pursue wastes that can be managed cost-effectively, including clean liquid food waste. Staff will also explore options for surplus renewable energy sales and negotiate a new PPA before the Port PPA expires in November 2022. When the workplace EV charging pilot concludes in February 2022, staff will evaluate the results and develop recommendations.

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## EAST BAY MUNICIPAL UTILITY DISTRICT

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DATE: October 21, 2021

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager 

FROM: David A. Briggs, Director of Operations and Maintenance 

SUBJECT: Renewable Energy Update

### SUMMARY

This memo provides an update on the District's renewable energy efforts, including the development of a five megawatt (MW) photovoltaic (PV) project on District-owned watershed property within the City of Orinda and a 30 kilowatt (kW) in-conduit hydroelectric generation project at Piedmont Reservoir in Piedmont. These projects reduce operational costs, diversify energy sources, and increases the District's use of renewable, emissions-free energy sources in support of District Policy 7.07 – Energy. This information will be presented at the October 26, 2021 Sustainability/Energy Committee meeting.

### DISCUSSION

Since 2003, the District has successfully developed eleven PV projects under various contractual arrangements providing nearly two MW of PV capacity and offsetting approximately two percent of the District's annual energy consumption. The District's renewable projects are cost-effective and ensure the District's indirect emissions are reduced at rates that support Policy 7.07, which is to be carbon neutral for the water system by 2030.

#### Five MW Duffel PV Project

In February 2020, the Board adopted the Final Mitigated Negative Declaration (MND) for the five MW Duffel PV Project on District watershed land within the City of Orinda. In June 2020, following a request for proposals that included 18 companies, the District executed a 25-year Power Purchase Agreement (PPA) with Solar Star Bear Creek, LLC (a subsidiary of SunPower) to develop, own, and operate the project and sell the generation to the District under a special PG&E energy tariff<sup>1</sup>. The expected net present value of the project will exceed \$10 million over the lifetime of the agreement and will supply annually approximately eight percent of the District's total electric load. The District can opt to own the facilities after 6, 10, 15, 20, and 25 years.

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<sup>1</sup> The District is taking advantage of the Renewal Energy Self-Credit Bill Transfer (RES-BCT) program. This program is only available to government agencies, and has a program cap of 105 MW within PG&E's service area.

In August 2020, the District executed agreements with PG&E for interconnecting the project to the electrical grid. Throughout the winter and summer of 2021, the PV project design was developed in accordance with the environmental constraints in the MND and the City of Orinda's design review standards. On September 14, 2021, the project was approved by Orinda's Planning Commission.

### 30 kW In-Conduit Hydroelectric Generation Project

In 2019, InPipe Energy approached the District with a potential \$450,000 grant from the California Energy Commission to pilot an in-conduit hydroelectricity system in a water distribution system. The District's Piedmont Regulator, located at Piedmont Reservoir, was identified as a favorable site to pilot a 30 kW system to document performance, verify payback potential, and evaluate the scalability of the technology. The project will utilize PG&E's Net Energy Metering tariff to credit all generation to the adjacent Estates Pumping Plant, also located at Piedmont Reservoir. Staff negotiated a two-year, zero-cost PPA with InPipe Energy with a District option to extend for a third year. At the end of the agreement term, the District can purchase the system or have it removed at no cost.

### **NEXT STEPS**

SunPower will complete the design of the Duffel PV Project by April 1, 2022, acquire the appropriate construction permits and begin construction in spring 2022. District staff will continue to complete the regulatory permitting and contract for the environmental mitigation measures in support of the project's construction, commissioning, and operation. The District will execute the PPA for the Piedmont in-conduit project with construction and commissioning in 2022.


CCC:DAB:sd


## EAST BAY MUNICIPAL UTILITY DISTRICT

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DATE: October 21, 2021

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager 

FROM: David A. Briggs, Director of Operations and Maintenance 

SUBJECT: 2020 Greenhouse Gas Inventory

### SUMMARY

The District has been tracking and reporting its greenhouse gas (GHG) emissions since 2005. The 2020 GHG inventory is based on the Water Energy Nexus (WEN) 1.0 protocol developed by The Climate Registry. The 2019 inventory also used this protocol. District Policy 7.07 – Energy was updated on September 22, 2020 and includes GHG reduction goals for the District. The District's goal for 2020 was 36,727 metric tons of carbon dioxide equivalent (MT CO<sub>2</sub><sup>e</sup>) and the actual GHG emissions totaled 27,249 MT CO<sub>2</sub><sup>e</sup>. This item will be presented at the October 26, 2021 Sustainability/Energy Committee meeting.

### DISCUSSION

The District's GHG inventory is comprised of direct and indirect emissions and includes water and wastewater operations. Direct emissions result from the combustion of fuel, the treatment and discharge of wastewater, and refrigerant usage. Indirect emissions result from the use of electricity. The 2020 inventory totals are reported below with the baseline (2000) and the 2019 inventory totals.

Year	Water Emissions (MT)	Wastewater Emissions (MT)	Total Emissions (MT)	District Goal (MT)
2000	35,879	17,078	52,957	--
2019	13,928	16,123	30,051	39,442
<b>2020</b>	13,370	13,879	<b>27,249</b>	<b>36,727</b>

The District's GHG emissions can be further grouped into five sectors representing major areas of operation. The table below summarizes the 2020 GHG emissions for each of these sectors.

<b>Sector / System</b>	<b>Total GHG Emissions (MT)</b>		<b>Percent of Total</b>	<b>Change from 2019</b>
Buildings	1,614		6%	-22%
Fleet	4,089		15%	-5%
Raw Water	297		1%	-62%
Treatment & Distribution	7,370		27%	+9%
<b>Water System Subtotal</b>	<b>13,370</b>		<b>49%</b>	<b>-4%</b>
<b>Wastewater System</b>	<b>13,879</b>		<b>51%</b>	<b>-14%</b>
<b>District Total</b>	<b>27,249</b>		<b>100%</b>	<b>-9%</b>

The 2020 GHG emissions were nine percent below 2019. This reduction continues a trend observed over the last five years where emissions dropped 5 to 15 percent each year. The following were noted when compiling the data for the 2020 inventory:

- Electricity-related emissions: Emissions from electricity increased for two reasons: (1) electricity use in water treatment and distribution increased slightly due to higher demand and related pumping and (2) emission factors from East Bay Clean Energy and Marin Clean Energy were higher than in previous years.
- Wastewater emissions: Nitrous oxide emissions resulting from wastewater discharge fell due to a decrease in nitrogen in the effluent, partially attributed to a pilot project done in 2020 to reduce ammonia by adjusting secondary treatment processes in a portion of the Main Wastewater Treatment Plant.
- COVID-19 pandemic: No significant changes to emissions were observed during the pandemic because most District operations were not interrupted. Fuel and electricity use did not significantly change compared to pre-pandemic conditions.

## NEXT STEPS

The District will continue to collaborate with others to study emerging greenhouse gas issues such as reservoir emissions and wastewater process emissions. Ongoing efforts to select appropriate zero or near-zero emission vehicles will continue.

The 2021 inventory will be conducted under an updated WEN protocol. WEN 2.0 was published in September 2021 and contains significant revisions to wastewater emission estimates that are expected to significantly shift the District's baseline and inventory higher when the new protocol is applied to the 2021 inventory.

CCC:DAB:sd