

**Oro Loma Sanitary District
MEMORANDUM**

TO: Oro Loma Sanitary District Board of Directors

FROM: Jason Warner, General Manager

DATE: February 11, 2022

SUBJECT: CLIMATE ACTION PLAN PROGRESS REPORT – FEBRUARY 2022

In January 2019, the Board approved the District's first Climate Action Plan (see Attachment 1). The plan set climate action goals including:

1. 100% reduction of indirect emissions by 2040.
2. A 50% reduction of direct emissions by 2040 (Base Year = 2000).

Indirect emissions refer to the emissions from the production of utility power used by the District. Direct emissions refer to those produced on-site. The two primary direct emissions are fleet fuel use and natural gas used to meet power production and heating needs. Biogas is not considered an emission source as it is a renewable resource.

A summary of 2021 emissions vs. the year 2000 baseline for each of the five categories of District emission is shown below.

Summary Results-2021 Performance vs. 2000 Baseline			
GHG Emission Source	2000 Baseline-MT	2021-MT	% Baseline Reductio
Wastewater Treatment - Electricity	242	220	-8.9%
Wastewater Treatment - Purchased Gas	944	659	-30.2%
Wastewater Lift Stations - Electricity	59	32	-45.9%
Buildings - Electricity and Gas	26	7	-74.7%
Transportation-Fleet	88	56	-36.4%
MT = Metric Tons GHG Emissions.			

In Fall of 2021, the treatment plant electrical supply was transitioned to a 100% renewable utility portfolio. As of February 2022, electricity for the lift stations and buildings were transitioned as well. This is made possible through the use of East Bay Community Energy's 'Renewable 100' rate plan. The plan offers power sourced solely from wind and solar generation. https://youtu.be/OEOpcjX_Wrs. With the transition to the 'Renewable 100' plan, the District has achieved its first major climate action goal.

Analysis

By early 2022, the District transitioned all treatment plant, lift stations, and building utility accounts to East Bay Community Energy's 'Renewable 100' electricity supply option, which aggregates power from wind and solar power sources. The Renewable 100 is

approximately 10% more expensive than the standard PG&E portfolio. With the switch to Renewable 100, the District has achieved 100% reduction of indirect emissions.

The 100% goal was achieved despite a significant increase in plant electrical consumption associated with the start of the new, nutrient treatment process. Purchased power rose from 413,000 kWhrs in 2019 to 1,726,000 in 2021. In parallel with the Climate Action Plan, the Board has set a Strategic Goal to reduce the plant demand as much as possible before a planned cogeneration system replacement in 2030. Staff is working to develop several energy savings measures to minimize energy use and will make a recommendation in March 2022 for Board consideration.

Natural gas consumption in the treatment plant has doubled from 2019 levels. In 2021, the treatment plant used 124,000 therms, compared 49,000 therms in 2019. Assuming an average therm cost of \$0.75, the additional use also carries an economic cost of \$56k/year. The increase is the result of the new, nutrient treatment process. In the process, more of the available energy is consumed in the aerobic process. The secondary solids sent to the digesters simply have less energy available to convert to biogas. Based upon the results from the first 18 months of nutrient treatment, staff will focus on efforts to maximize gas production and/or increasing the amount of grease accepted.

Natural gas use in District buildings also doubled from 2019 levels (from 504 therms per year to 1,275). The highest uses occurred in March, April and September. The high natural gas use outside of winter indicates that the HVAC system may be supplying hot and cold air simultaneously. Staff will implement management controls so that daily system checks are made and that monthly usage will be monitored closely.

District fleet emissions are on a slow downward trend. To achieve the 50% reduction goal, staff anticipates the following steps.

1. Reduce the total number of vehicles. This will result in more miles driven on the future high efficiency/electric vehicles.
2. Eliminate the use of gas-powered vehicles for trips within the treatment plant.
3. Replace vehicles with the most miles driven to electric/high efficiency as the budget allows.

It is worthy of noting that the strategy is governed by Board direction to work within the existing budget to electrify the District's fleet. Given the direction, the District will purchase an electric vehicle every 2-3 years. The result will be a 35% conversion of the of the fleet to electric by 2040. In late 2022, the District purchased four electrical utility carts. These carts will help eliminate the use of gas-powered vehicles on the treatment plant.

Outreach

The Climate Action Plan includes recommendations to perform both internal and external outreach related to implementation progress. In March 2022, staff will review the contents of the Climate Action Plan and recent progress with staff during an all-hands meeting. In February 2022, a page was added to the District's website describing the Climate Action Goals as well as progress to date.

Recommended Actions

Based upon the February 2022 progress report, staff recommends the following actions:

1. Investigate options to minimize natural gas use in the plant, raise digester gas production, and/or seek additional sources of grease.
2. Improve building thermostat controls to limit off hours heating use and increase oversight of natural gas use during non-winter months.
3. The average District vehicle travels 4,000 miles per year. Focus fleet management on reducing the total number of vehicles, eliminating gas powered vehicle use within the treatment plant, and replacing the highest use vehicles with electric/ultra high efficiency.

Attachments

1. Oro Loma Sanitary District – Climate Action Plan
2. Wastewater Treatment Plant – Electrical Purchases - 20 Year Trend Data
3. Wastewater Treatment Plant – Natural Gas Purchases - 20 Year Trend Data
4. District Buildings – 2010-2021 Trend Data
5. Transportation Fleet – 20 Year Trend Data

Wastewater Treatment Plant
OLSD Climate Action Plan 2019 - 2040 Planning Horizon
Baseline and Monitoring GHG Emission Information

PG&E Emission Factor (lbs. CO2/MWh)	Calendar Year	Annual Net Energy Purchased PG&E (kwh)	Annual Net Energy Purchased PG&E (MWh)	Metric Tons CO2	% Reduction from Baseline
620	2000	858,996	858.996	241.5734	Baseline
435	2014	427,612	427.612	84.3734	65.07%
405	2015	75,743	75.743	13.9144	94.24%
294	2016	15,263	15.263	2.0354	99.16%
287	2017	245,000	245.000	31.9247	86.78%
281	2018	440,893	440.893	56.1051	76.78%
274	2019	413,973	413.973	51.4163	78.72%
287	2020	994,127	994.127	129.4166	46.43%
281	2021	1,725,857	1725.857	219.9771	8.94%
	2022				
	2040				

Wastewater Treatment Plant - Natural Gas Use
 OLSD Climate Action Plan 2019 - 2040 Planning Horizon
 Baseline and Monitoring GHG Emission Information

Natural Gas Purchasing	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
January	14,686	8,811	22,096	14,756	16,982	10,231	11,577	8,626	5,674	5,433	4,825	4,217	4,295	6,608	4,775	5,257	13,536
Feb	21,961	21,652	18,096	19,642	19,132	9,222	6,538	5,121	3,704	4,259	4,536	4,813	2,477	4,521	3,101	3,421	5,236
March	17,617	5,395	9,312	13,228	23,195	8,937	7,546	5,851	4,155	5,149	5,645	6,142	5,864	4,713	1,036	3,919	14,650
April	16,797	2,374	10,680	18,986	20,237	12,621	9,268	6,737	4,206	6,251	7,274	8,296	4,656	5,507	4,709	5,031	13,839
May	17,089	12,913	18,724	24,534	17,937	12,680	11,256	8,268	5,279	8,808	10,572	12,336	5,320	4,964	5,549	8,561	12,592
June	18,493	15,661	17,365	19,069	16,712	16,273	9,692	5,829	1,965	4,865	6,314	7,764	7,325	4,977	4,182	8,944	13,349
July	17,715	13,166	18,366	23,565	17,970	14,984	8,794	5,988	3,182	5,725	6,996	8,267	5,263	4,990	3,900	4,903	9,471
August	18,941	17,119	18,448	19,776	16,045	13,301	5,883	5,180	4,476	4,885	5,089	5,293	4,022	4,231	6,088	8,485	6,415
Sept	16,886	18,486	16,761	15,035	16,759	14,313	6,346	5,511	4,676	4,655	4,645	4,634	4,129	3,972	4,006	10,962	14,970
October	16,538	20,123	16,134	12,145	15,565	12,003	9,946	6,971	3,995	4,033	4,052	4,071	6,249	4,662	3,629	6,757	11,812
November	9,181	18,230	13,794	9,357	12,292	7,404	5,207	4,137	4,250	4,065	3,972	3,879	5,023	3,501	3,902	6,948	5,013
December	1,499	18,592	20,103	16,126	13,665	12,271	8,080	3,889	3,738	4,079	4,249	4,419	5,777	3,512	4,190	12,525	3,449
Annual Total (therms)	187,403	172,522	199,876	206,219	206,491	144,240	100,133	72,105	49,300	62,203	68,167	74,131	60,400	56,158	49,067	85,713	124,332
Emissions (MT CO ₂)	994	915	1060	1093	1095	765	531	382	261	330	361	393	320	298	260	454	659

Buildings - Admin and Engineering
 OLSD Climate Action Plan 2019 - 2040 Planning Horizon
 Baseline and Monitoring GHG Emission Information

PG&E Emission Factor (lbs. CO2/MWh)	Calendar Year	Annual Net Energy Purchased PG&E (kwh)	Annual Net Energy Purchased PG&E (MWh)	Metric Tons CO2	% Baseline Reduction
620	2000	94,020	94.020	26.4410	Baseline
435	2014	78,129	78.129	15.4159	41.70%
405	2015	66,324	66.324	12.1841	53.92%
294	2016	62,353	62.353	8.3152	68.55%
287	2017	69,237	69.237	9.0219	65.88%
281	2018	46,221	46.221	5.8818	77.76%
274	2019	53,888	53.888	6.6930	74.69%
274	2020	37,644	37.644	4.6754	82.32%
274	2021	53,863	53.863	6.6899	74.70%
	2040				

Transportation-Fleet
 OLSD Climate Action Plan - 2022 Progress Report
 Baseline and Monitoring GHG Emission Information

Gasoline Emission Factor (lbs. CO2/Gallon)	Calendar Year	Annual VMT-Fleet	Annual Gallons of Gasoline- Fleet	Metric Tons CO2	% Baseline Reduction
19.60	2000	150,000	10,000	89	Baseline
19.60	2014	147,000	9,800	87	2.00%
19.60	2015	145,000	9,667	86	3.33%
19.60	2016	140,000	9,333	83	6.67%
19.60	2017	135,000	9,000	80	10.00%
19.60	2018	130,000	8,667	77	13.33%
19.60	2019	125,000	8,333	74	16.67%
19.60	2020	85,136	5,676	50	43.24%
19.60	2021	94,418	6,295	56	37.06%
	2022		0	0	
	2023		0	0	
	2024		0	0	
	2025		0	0	
	2026		0	0	
	2027		0	0	
	2028		0	0	
	2029		0	0	
	2030		0	0	
	2031		0	0	
	2032		0	0	
	2033		0	0	
	2034		0	0	
	2035		0	0	
	2036		0	0	
	2037		0	0	
	2038		0	0	
	2039		0	0	
	2040		0	0	