

# CIP Supplement 2

During the CIP meeting CM Hiller asked whether the revenue stream from the biogas project would cover the additional \$1.2M cost. Additionally, she wanted to know what the payback period for the project would be including all operation and maintenance (O&M) expenses.

Per Braxton Copley:

The project, which was first approved in the 2016 CIP, has approximately \$13 million in sunken costs to date. The additional \$1.2 million is anticipated to allow the project to become operational due to cost overruns with Southern Star.

Following is the revised proforma for the Biogas project. The capital cost includes the additional \$1.2M we are seeking as part of the 2022-2031 CIB/CIP. Please note the revised proforma includes debt service. The debt service calculations are an estimate performed by the City's financial consultant Columbia Capital. Actual debt service may be higher or lower depending on market conditions at the time of bond issuance.

The payback period including capital investment, O&M and debt service is now at year 34. Please note that while the full payback is 4 years after the bonds will be fully defeased, this project is unique in that it is the only project at the utilities generating revenue.

In response to the additional questions you have received about the estimated useful life of the biogas assets and additional capital investments, I have included additional information below to address these concerns. The conservative O&M numbers include the periodic replacement of membranes, compressors, blowers, controls and HVAC to allow the equipment to continue to function for the full 40-50+ useful life of the capital assets

- Electrical Consumption - \$198,000 annually
- Compressor lube and filters - \$11,200 annually
- Sulfatreat and Carbon media replacement - \$189,000 annually
- 3rd party RNG line O&M - \$50,000 annually
- Membrane replacement (assume 5% per year) – Membrane life is a minimum of 10 years. - \$30,000 every 5 years
- Compressor rebuild every 5 years - \$15,500 every 5 years
- Boost blower rebuild every 5 years - \$10,000 every 5 years
- Miscellaneous electrical, controls, and HVAC O&M - \$60,000 annually

Estimated design life for the major components would be:

- Membrane skid – 50+ years with the membrane replacements assumed in the O&M costs above
- Compressor/Boost Blower – 50+ years with the rebuilds assumed in the O&M costs above
- H2S and Carbon adsorption vessels – 40 years
- Electrical panels, transformers, etc. – 40 years
- HVAC – 20 years
- Controls – 20 years

## Oakland WWTP, BIOGAS TO RNG O&M REVISED ESTIMATE BASED ON ADDITIONAL CAPITAL COST

	1	2	3	4	5	6	7
	2021	2022	2023	2024	2025	2026	2027
Annual O&M Estimate	\$599,691	\$1,174,295	\$1,417,724	\$1,703,706	\$1,701,345	\$1,735,372	\$1,770,079
Biogas Net Revenue Estimate	\$1,097,025	\$1,676,425	\$1,791,368	\$1,900,891	\$1,981,206	\$2,040,642	\$2,101,861
Cumulative Net Revenue	\$1,097,025	\$2,773,450	\$4,564,818	\$6,465,709	\$8,446,915	\$10,487,557	\$12,589,418
Principle and Interest Payment	\$0	\$820,315	\$819,405	\$822,904	\$820,834	\$823,074	\$819,586
Net Revenue minus Debt Service	\$497,334	-\$318,185	-\$445,761	-\$625,718	-\$540,973	-\$517,803	-\$487,804
Cumulative Excess Revenue	\$497,334	\$179,148	-\$266,613	-\$892,331	-\$1,433,304	-\$1,951,107	-\$2,438,911

Notes:  
 Payback of capital investment, debt service, and operational expenses at year 34  
 Revenue from years 1-5 from Bluesource - increased 3% per year after year 5.  
 This assumes High Plains Biodiesel HSW stops completely in 2021, which appears to be a conservative assumption.  
 Revenue estimates are based on roughly 350 SCFM of gas, so should be conservative after year 1.  
 There are lots of assumptions and market forces built into the revenue projections - fluctuations are likely.  
 No tipping fee revenue from hauled-in HSW is included in these revenue projections.  
 3rd Party RNG Line Operation and Maintenance at \$50,000 annually is included



## Oakland WWTP, BIOGAS TO RNG O&M REVISED ESTIMATE BASED ON ADDITIONAL CA

	8	9	10	11	12	13	14
	2028	2029	2030	2031	2032	2033	2034
Annual O&M Estimate	\$1,805,481	\$1,884,280	\$1,878,422	\$1,915,991	\$1,954,311	\$1,993,397	\$2,089,592
Biogas Net Revenue Estimate	\$2,164,917	\$2,229,865	\$2,296,761	\$2,365,664	\$2,436,634	\$2,509,733	\$2,585,025
Cumulative Net Revenue	\$14,754,336	\$16,984,201	\$19,280,961	\$21,646,625	\$24,083,259	\$26,592,991	\$29,178,016
Principle and Interest Payment	\$820,169	\$819,999	\$823,349	\$820,589	\$822,259	\$823,509	\$818,819
Net Revenue minus Debt Service	-\$460,732	-\$474,413	-\$405,010	-\$370,916	-\$339,936	-\$307,173	-\$323,386
Cumulative Excess Revenue	-\$2,899,643	-\$3,374,056	-\$3,779,067	-\$4,149,982	-\$4,489,918	-\$4,797,091	-\$5,120,477

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	15	16	17	18	19	20	21
	2035	2036	2037	2038	2039	2040	2041
Annual O&M Estimate	\$2,073,930	\$2,115,409	\$2,157,717	\$2,200,871	\$2,326,947	\$2,289,787	\$2,335,582
Biogas Net Revenue Estimate	\$2,662,575	\$2,742,453	\$2,824,726	\$2,909,468	\$2,996,752	\$3,086,654	\$3,179,254
Cumulative Net Revenue	\$31,840,591	\$34,583,043	\$37,407,769	\$40,317,237	\$43,313,989	\$46,400,644	\$49,579,898
Principle and Interest Payment	\$823,776	\$822,911	\$821,301	\$823,596	\$819,980	\$820,835	\$821,026
Net Revenue minus Debt Service	-\$235,131	-\$195,867	-\$154,292	-\$114,999	-\$150,175	-\$23,967	\$22,646
Cumulative Excess Revenue	-\$5,355,608	-\$5,551,476	-\$5,705,767	-\$5,820,767	-\$5,970,941	-\$5,994,908	-\$5,972,262

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	22	23	24	25	26	27	28	29	30
	2042	2043	2044	2045	2046	2047	2048	2049	2050
Annual O&M Estimate	\$2,382,294	\$2,429,940	\$2,610,524	\$2,528,109	\$2,578,672	\$2,630,245	\$2,682,850	\$2,970,892	\$2,791,237
Biogas Net Revenue Estimate	\$3,274,632	\$3,372,871	\$3,474,057	\$3,578,279	\$3,685,627	\$3,796,196	\$3,910,082	\$4,027,384	\$4,148,206
Cumulative Net Revenue	\$52,854,530	\$56,227,400	\$59,701,457	\$63,279,736	\$66,965,362	\$70,761,558	\$74,671,640	\$78,699,024	\$82,847,229
Principle and Interest Payment	\$820,235	\$823,123	\$820,459	\$822,381	\$818,751	\$819,707	\$819,046	\$822,803	\$820,833
Net Revenue minus Debt Service	\$72,103	\$119,808	\$43,074	\$227,788	\$288,204	\$346,244	\$408,186	\$233,688	\$536,136
Cumulative Excess Revenue	-\$5,900,159	-\$5,780,351	-\$5,737,277	-\$5,509,489	-\$5,221,285	-\$4,875,041	-\$4,466,855	-\$4,233,167	-\$3,697,031

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**Oakland WWTP, BIOGAS TO RNG O&M REVISED ESTIMATE BASED ON ADDITIONAL CA**

	31	32	33	34
	2051	2052	2053	2054
Annual O&M Estimate	\$2,847,062	\$2,904,003	\$2,962,083	\$3,480,879
Biogas Net Revenue Estimate	\$4,272,652	\$4,400,831	\$4,532,856	\$4,668,842
Cumulative Net Revenue	\$87,119,881	\$91,520,712	\$96,053,568	\$100,722,410
Principle and Interest Payment	\$823,280	\$823,281		
Net Revenue minus Debt Service	\$602,310	\$673,547	\$1,570,773	\$1,187,963
Cumulative Excess Revenue	-\$3,094,721	-\$2,421,174	-\$850,401	\$337,562

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