

Appendix D

Energy Data

**Culver City General Plan and Zoning Code Update
Operational Energy Demand**

Electricity	kWh/yr	MWh/yr
Existing 2019		
Residential	55,852,227	55,852
Commercial	455,958,875	455,959
Industrial	29,963,572	29,964
Institutional	23.4	0.02
		-
		-
		-
		-
Project Total Building Energy	541,774,697	541,775
Project Total	541,774,697	541,775
Total (including water, see below)	624,230,047	624,230

Source: California Air Resources Board, CalEEMod, Version 2022.1.1.

Water	Mgal/yr	MWh/yr
Existing 2019		
Residential	664.9	8,658
Commercial	5,128	66,769
Industrial	437.6	5,699
Institutional	102.2	1,330
		-
		-
Project Total	6,332.5	82,455

Electricity Intensity Factors	kWh/Mgal
Electricity Factor - Supply	9,727
Electricity Factor - Treat	111
Electricity Factor - Distribute	1,272
Electricity Factor - Wastewater Treatment	1,911

Source: California Air Resources Board, CalEEMod, Version 2022.1.1.

Natural Gas	kBtu/yr	cubic foot (cf)
Existing 2019		
Residential	168,830,355	163,121,116
Commercial	575,127,448	555,678,694
Industrial	37,794,795	36,516,710
Institutional	69.8	67
		-
		-
Mobile Sources	27,629,812	26,695,470
Total	809,382,480	782,012,058

Source: California Air Resources Board, CalEEMod, Version 2022.1.1.

Conversion factor of 1,035 Btu per cubic foot based on United States Energy Information Administration data (see: USEIA, Natural Gas, Heat Content of Natural Gas Consumed, 1/31/2024, https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm. Accessed January 2024.)

Electricity	MWh/yr (System Sales)
Total SCE, 2019	84,654,000
Existing 2019 Annual	624,230
Existing 2019 Annual	624,230
Percent of SCE	0.7374%

Source: Southern California Edison, 2021 Annual Report.
<https://www.edison.com/investors/financial-reports-information/annual-reports>

Natural Gas (Total Deliveries)	million cubic foot (cf)
Total SoCalGas, 2019	879,285
Existing 2019 Annual	782.01
Existing 2019 Annual	782.01
Percent of SoCalGas	0.0889%

Source: California Gas and Electric Utilities, 2023 California Gas Report Supplement, p.30.
https://www.socalgas.com/sites/default/files/Joint_Biennial_California_Gas_Report_2023_Supplement.

Culver City General Plan and Zoning Code Update
Operational Energy Demand
Fuel Usage from VMT - Existing 2019

Daily VMT, Auto:	1,687,334 miles/day
Daily VMT, Light-Heavy Truck:	17,681 miles/day
Daily VMT, Medium-Heavy Truck:	24,994 miles/day
Daily VMT, Heavy-Heavy Truck:	112,520 miles/day
Annual VMT, Auto:	615,877,051 miles/year (daily x 365)
Annual VMT, Light-Heavy Truck:	6,453,722 miles/year (daily x 365)
Annual VMT, Medium-Heavy Truck:	9,122,894 miles/year (daily x 365)
Annual VMT, Heavy-Heavy Truck:	41,069,935 miles/year (daily x 365)

Fuel Type: ¹	Gasoline	Diesel	Electricity	Natural Gas	Plug-In Hybrid
Auto					
Percent:	97.4%	0.4%	1.0%	0.0%	1.2%
Miles per Gallon Fuel:	23.4	25.8	-	-	50.7
Annual VMT by Fuel Type (miles):	600,015,478	2,364,432	6,285,834	-	7,211,307
Annual Fuel Usage (gallons):	25,680,004	91,798	-	-	142,215
Light-Heavy Truck					
Percent:	69.4%	30.6%	0.0%	0.0%	0.0%
Miles per Gallon Fuel:	11.6	18.6	-	-	-
Annual VMT by Fuel Type (miles):	4,479,165	1,974,557	-	-	-
Annual Fuel Usage (gallons):	386,392	106,301	-	-	-
Medium-Heavy Truck					
Percent:	26.2%	73.1%	0.0%	0.8%	0.0%
Miles per Gallon Fuel:	4.9	8.6	-	8.0	-
Annual VMT by Fuel Type (miles):	2,387,592	6,666,030	-	69,272	-
Annual Fuel Usage (gallons):	488,486	770,826	-	8,617	-
Heavy-Heavy Truck					
Percent:	0.1%	95.8%	0.0%	4.1%	0.0%
Miles per Gallon Fuel:	3.6	5.7	-	5.3	-
Annual VMT by Fuel Type (miles):	30,480	39,362,024	-	1,677,431	-
Annual Fuel Usage (gallons):	8,513	6,889,837	-	316,065	-
Total Gallons	26,563,395	7,858,762		324,682	142,215
Total kBtu (Natural Gas)²				27,629,812	

	Los Angeles County Fuel Consumption ³	
	Gasoline	Diesel
Los Angeles County (2019):	3,559,000,000	433,962,264
Existing (2019) Total:	26,705,610	7,858,762
Percent of Los Angeles County:	0.750%	1.811%

Notes:

- California Air Resources Board, EMFAC2021 (LA County; Annual; 2016,2040', Aggregate Fleet).
- 1 gallon natural gas is 85.098 kBtu.
- California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2022. Available at: <https://www.energy.ca.gov/media/3874>. Accessed January 2024. Diesel is adjusted to account for retail (63.6%) and non-retail (36.4%) diesel sales.

Culver City General Plan and Zoning Code Update
Operational Energy Demand

Electricity	kWh/yr	MWh/yr
Project		
Residential	105,984,101	105,984
Commercial	551,021,655	551,022
Industrial	40,795,122	40,795
Institutional	23.4	0
		-
		-
		-
		-
Project Total Building Energy	697,800,901	697,801
Project Total	697,800,901	697,801
Total (including water, see below)	802,701,086	802,701

Source: California Air Resources Board, CalEEMod, Version 2022.1.1.

Water	Mgal/yr	MWh/yr
Project		
Residential	1,161.4	15,122.41
Commercial	6,196.8	80,689.06
Industrial	595.8	7,758.51
Institutional	102.2	1,330.19
		-
		-
Project Total	8,056.231	104,900.18

Electricity Intensity Factors	kWh/Mgal
Electricity Factor - Supply	9,727
Electricity Factor - Treat	111
Electricity Factor - Distribute	1,272
Electricity Factor - Wastewater Treatment	1,911

Source: California Air Resources Board, CalEEMod, Version 2022.1.1.

Natural Gas	kBtu/yr	cubic foot (cf)
Project		
Residential	486,800,684	470,338,825
Commercial	695,035,661	671,532,040
Industrial	51,457,259	49,717,158
Institutional	69.8	67
		-
		-
Mobile Sources	17,414,031	16,825,151
Total	1,250,707,705	1,208,413,241

Source: California Air Resources Board, CalEEMod, Version 2022.1.1.

Conversion factor of 1,035 Btu per cubic foot based on United States Energy Information Administration data (see: USEIA, Natural Gas, Heat Content of Natural Gas Consumed, 1/31/2024, https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm. Accessed January 2024.)

Electricity	MWh/yr (System Sales)
Total SCE, 2019	84,654,000
Project 2045 Annual	802,701
Existing 2019 Annual	624,230
Project Annual	802,701
Percent Project of SCE	0.948%
Net Project Annual	178,471
Percent Net Project of SCE	0.211%

Source: Southern California Edison, 2021 Annual Report.

<https://www.edison.com/investors/financial-reports-information/annual-reports>

Natural Gas (Total Deliveries)	million cubic foot (cf)
Total SoCalGas, 2019	879,285
Project 2045 Annual	1,208.41
Existing 2019 Annual	782.01
Project Annual	1,208.41
Percent Project of SoCalGas	0.137%
Net Project Annual	426.40
Percent Net Project of SoCalGas	0.048%

Source: California Gas and Electric Utilities, 2023 California Gas Report Supplement, p.30.

https://www.socalgas.com/sites/default/files/Joint_Biennial_California_Gas_Report_2023_Supplement.

Culver City General Plan and Zoning Code Update
Operational Energy Demand
Fuel Usage from VMT - GPZU 2045

Daily VMT, Auto:	1,687,334 miles/day
Daily VMT, Light-Heavy Truck:	17,681 miles/day
Daily VMT, Medium-Heavy Truck:	24,994 miles/day
Daily VMT, Heavy-Heavy Truck:	112,520 miles/day
Annual VMT, Auto:	615,877,051 miles/year (daily x 365)
Annual VMT, Light-Heavy Truck:	6,453,722 miles/year (daily x 365)
Annual VMT, Medium-Heavy Truck:	9,122,894 miles/year (daily x 365)
Annual VMT, Heavy-Heavy Truck:	41,069,935 miles/year (daily x 365)

Fuel Type: ¹	Gasoline	Diesel	Electricity	Natural Gas	Plug-In Hybrid
Auto					
Percent:	88.9%	0.3%	7.5%	0.0%	3.3%
Miles per Gallon Fuel:	31.2	27.7	-	-	66.1
Annual VMT by Fuel Type (miles):	547,565,973	1,993,599	46,116,194	-	20,201,285
Annual Fuel Usage (gallons):	17,554,812	72,090	-	-	305,641
Light-Heavy Truck					
Percent:	28.4%	27.1%	44.6%	0.0%	0.0%
Miles per Gallon Fuel:	16.2	20.4	-	-	-
Annual VMT by Fuel Type (miles):	1,829,981	1,747,943	2,875,799	-	-
Annual Fuel Usage (gallons):	113,093	85,555	-	-	-
Medium-Heavy Truck					
Percent:	7.0%	43.8%	48.3%	0.9%	0.0%
Miles per Gallon Fuel:	6.0	10.0	-	8.3	-
Annual VMT by Fuel Type (miles):	637,776	3,996,369	4,409,989	78,759	-
Annual Fuel Usage (gallons):	106,588	401,538	-	9,475	-
Heavy-Heavy Truck					
Percent:	0.0%	81.2%	15.7%	3.1%	0.0%
Miles per Gallon Fuel:	5.3	7.5	-	6.6	-
Annual VMT by Fuel Type (miles):	3,839	33,342,483	6,431,473	1,292,140	-
Annual Fuel Usage (gallons):	727	4,432,549	-	195,160	-
Total Gallons	17,775,220	4,991,731		204,635	305,641
Total kBtu (Natural Gas)²				17,414,031	

	Los Angeles County Fuel Consumption ³	
	Gasoline	Diesel
Los Angeles County (2019):	3,559,000,000	433,962,264
GPZU (2045) Total:	18,080,861	4,991,731
Existing (2019) Total:	26,705,610	7,858,762
Project Total:	18,080,861	4,991,731
Percent Project of Los Angeles County:	0.508%	1.150%
Net Project Total:	(8,624,749)	(2,867,031)
Percent Net Project of Los Angeles County:	-0.242%	-0.661%

Notes:

- California Air Resources Board, EMFAC2021 (LA County; Annual; 2016,2040', Aggregate Fleet).
- 1 gallon natural gas is 85.098 kBtu.
- California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2022. Available at: <https://www.energy.ca.gov/media/3874>. Accessed January 2024. Diesel is adjusted to account for retail (63.6%) and non-retail (36.4%) diesel sales.

Source: EMFAC2021 (v1.0.2) Emissions Inventory

Region Type: County

Region: Los Angeles

Calendar Year: 2019, 2040

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Vehicle Category (Multiple Items) LDA, LDT1, LDT2, MCY, MDV, MH

Row Labels	Sum of Population	Sum of Total VMT	Sum of CVMT	Sum of EVMT	Sum of Energy Consumption	Sum of Fuel Consumption	% VMT	MPG
2019	6861226.526	250500126.8	246591169.9	3908956.9		1395517.654		2019
Diesel	30954.73381	961702.6082	961702.6082	0		37.33765276	0.4%	25.76
Electricity	76126.16443	2556682.759	0	2556682.759	987090.5597	0	1.0%	-
Gasoline	6689952.927	244048634.6	244048634.6	0		10445.01366	97.4%	23.37
Plug-in Hybrid	64192.70127	2933106.845	1580832.704	1352274.141	408427.0948	57.84407924	1.2%	50.71
2045	7215546.624	262529328.2	237777263.3	24752064.85		9128161.997		2045
Diesel	29242.32237	849809.6344	849809.6344	0		30.7295824	0.3%	27.65
Electricity	544339.8784	19657906.28	0	19657906.28	7589574.28	0	7.5%	-
Gasoline	6416403.181	233410429.6	233410429.6	0		7483.073051	88.9%	31.19
Plug-in Hybrid	225561.2426	8611182.649	3517024.083	5094158.565	1538587.717	130.2854406	3.3%	66.09
Grand Total	14076773.15	513029454.9	484368433.2	28661021.75		10523679.65		18184.28346

Vehicle Category (Multiple Items) LHDT1, LHDT2

Row Labels	Sum of Population	Sum of Total VMT	Sum of CVMT	Sum of EVMT	Sum of Energy Consumption	Sum of Fuel Consumption	% VMT	MPG
2019	210019.0973	7425123.906	7425123.906	0		566.8513222		2019
Diesel	61427.79071	2271763.491	2271763.491	0		122.3008085	30.6%	18.58
Gasoline	148591.3066	5153360.415	5153360.415	0		444.5505137	69.4%	11.59
2045	329463.2114	12355351.37	6849768.954	5505582.416		380.3018796		2045
Diesel	99024.98812	3346355.575	3346355.575	0		163.7909886	27.1%	20.43
Electricity	129160.8996	5505582.416	0	5505582.416	3088482.163	0	44.6%	-
Gasoline	101277.3238	3503413.379	3503413.379	0		216.510891	28.4%	16.18
Grand Total	539482.3087	19780475.28	14274892.86	5505582.416		3088482.163		947.1532018

Vehicle Category MHDT

Row Labels	Sum of Population	Sum of Total VMT	Sum of CVMT	Sum of EVMT	Sum of Energy Consumption	Sum of Fuel Consumption	% VMT	MPG
2019	78517.59136	3338430.84	3338430.84	0		463.9859189		2019
Diesel	60448.89084	2439366.252	2439366.252	0		282.0759012	73.1%	8.65
Gasoline	17565.63755	873715.2539	873715.2539	0		178.7566872	26.2%	4.89
Natural Gas	503.062967	25349.33424	25349.33424	0		3.153330508	0.8%	8.04
2045	110252.126	4781239.596	2469997.494	2311242.103		271.2704005		2045
Diesel	51507.45479	2094466.967	2094466.967	0		210.4429632	43.8%	9.95
Electricity	50709.17341	2311242.103	0	2311242.103	2424250.114	0	48.3%	-
Gasoline	7003.904891	334253.6522	334253.6522	0		55.86186705	7.0%	5.98
Natural Gas	1031.592886	41276.87477	41276.87477	0		4.965570341	0.9%	8.31
Grand Total	188769.7173	8119670.436	5808428.334	2311242.103		2424250.114		735.2563195

Vehicle Category HHDT

Row Labels	Sum of Population	Sum of Total VMT	Sum of CVMT	Sum of EVMT	Sum of Energy Consumption	Sum of Fuel Consumption	% VMT	MPG
2019	51050.84777	6525460.334	6525460.334	0		1146.273641		2019
Diesel	47293.3164	6254096.206	6254096.206	0		1094.702508	95.8%	5.71
Gasoline	121.7781942	4842.887009	4842.887009	0		1.352624474	0.1%	3.58
Natural Gas	3635.75318	266521.2414	266521.2414	0		50.21850911	4.1%	5.31
2045	97826.29861	12224524.5	10310187.29	1914337.207		1377.660694		2045
Diesel	71223.05149	9924437.324	9924437.324	0		1319.354425	81.2%	7.52
Electricity	20357.95647	1914337.207	0	1914337.207	3426663.309	0	15.7%	-
Gasoline	9.808744743	1142.594283	1142.594283	0		0.216495253	0.0%	5.28
Natural Gas	6235.481903	384607.3711	384607.3711	0		58.08977355	3.1%	6.62
Grand Total	148877.1464	18749984.83	16835647.62	1914337.207		3426663.309		2523.934335