

# **Appendix E**

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## Energy Calculations

# 2159 Bay Street

## Draft EIR

### Appendix E

## Energy Calculations

- Appendix E: Energy Analysis
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## 2159 Bay Street

### Summary of Energy Use During Construction

<b>Electricity</b>	
Water Consumption	4,351 kWh
Temporary Power (lighting, tools)	18,446 kWh
<b>Total:</b>	<b>22,797 kWh</b>
<b>Gasoline</b>	
On Road	76,052 Gallons
Off Road	0 Gallons
<b>Total:</b>	<b>76,052 Gallons</b>
<b>Diesel</b>	
On Road	173,995 Gallons
Off Road	99,694 Gallons
<b>Total:</b>	<b>273,689 Gallons</b>
<b>Total Mobile</b>	<b>349,741</b>

### Summary of Energy Use During Operations

	Baseline (Buildout)	Buildout Without Project Features	Buildout With Project Features		Percent Reduction
<b>Electricity</b>					
Electricity (building)	480,211	3,755,834	3,540,576	kWh/year	-6%
Electricity (water)	70,125	667,943	534,354	kWh/year	-20%
EV Chargers <sup>a</sup>	0	192,029	192,029	kWh/year	0%
<b>Electricity Total</b>	<b>550,336</b>	<b>4,615,806</b>	<b>4,266,959</b>	<b>kWh/year</b>	<b>-8%</b>
<b>Natural Gas</b>	<b>508,715</b>	<b>3,252,133</b>	<b>3,252,133</b>	<b>cu ft/year</b>	<b>0%</b>
<b>Mobile</b>					
Gasoline	27,224	263,544	169,771	Gallons/year	-36%
Diesel	5,358	51,867	33,412	Gallons/year	-36%
<b>Mobile Total</b>	<b>32,582</b>	<b>315,410</b>	<b>203,183</b>	<b>Gallons/year</b>	<b>-36%</b>

<sup>a</sup> Assumes 10% of parking spaces would be equipped with EV chargers.

## Construction Electricity Usage

### Construction Electricity Usage

#### Caterpillar 40-C4.4 Generator<sup>a</sup>

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Peak Power Rating - Prime (kW)	36
Typical Load	70%
Average Output (kW)	25.2
Hours per Day	2
Average Daily Output (kWh)	50.4
Building Construction Phase Duration (days)	366
Total Construction (kWh)	18,446
Total Construction (MWh)	18.4

<sup>a</sup><https://www.albancat.com/content/uploads/2014/06/40-C4.4-Spec-Sheet.pdf>

Calculation of Diesel Usage During Construction (Offroad Equipment):

Phase Name	Off Road Equipment Type	Units	Hours	HP	Load Factor	Avg. Daily Factor	Number of Days	Diesel Fuel Usage	
Demolition	Air Compressors	1	8	78	0.48	0.6	77	692	
Demolition	Concrete/Industrial Saws	1	8	81	0.73	0.6	77	1,093	
Demolition	Crushing/Proc. Equipment	1	8	85	0.78	0.6	77	1,225	
Demolition	Excavators	1	8	158	0.38	0.6	77	1,110	
Demolition	Generator Sets	1	8	84	0.74	0.6	77	1,149	
Demolition	Rubber Tired Dozers	1	8	247	0.4	0.6	77	1,826	
Demolition	Rubber Tired Loaders	1	8	203	0.36	0.6	77	1,351	
Demolition	Tractors/Loaders/Backhoes	2	8	97	0.37	0.6	77	1,326	
Demolition	Trenchers	1	8	78	0.5	0.6	77	721	
Grading	Bore/Drill Rigs	1	8	221	0.5	0.6	131	3,474	
Grading	Excavators	2	8	158	0.38	0.6	131	3,775	
Grading	Forklifts	1	8	89	0.2	0.6	131	560	
Grading	Generator Sets	0	8	84	0.74	0.6	131	0	
Grading	Graders	1	8	187	0.41	0.6	131	2,411	
Grading	Rubber Tired Loaders	1	8	203	0.36	0.6	131	2,298	
Grading	Tractors/Loaders/Backhoes	1	8	97	0.37	0.6	131	1,128	
Grading	Welders	2	8	46	0.45	0.6	131	1,302	
Mat Foundation (Concrete Pour)	Cranes	1	8	231	0.29	0.6	52	836	
Mat Foundation (Concrete Pour)	Forklifts	0	8	89	0.2	0.6	52	0	
Mat Foundation (Concrete Pour)	Generator Sets	1	8	84	0.74	0.6	52	776	
Mat Foundation (Concrete Pour)	Pumps	5	8	84	0.74	0.6	52	3,879	
Mat Foundation (Concrete Pour)	Tractors/Loaders/Backhoes	0	7	97	0.37	0.6	52	0	
Mat Foundation (Concrete Pour)	Trenchers	1	8	78	0.5	0.6	52	487	
Mat Foundation (Concrete Pour)	Welders	1	8	46	0.45	0.6	52	258	
Foundation	Cranes	1	8	231	0.29	0.6	181	2,910	
Foundation	Forklifts	2	8	89	0.2	0.6	181	1,546	
Foundation	Pumps	2	8	84	0.74	0.6	181	5,400	
Foundation	Welders	1	8	46	0.45	0.6	181	899	
Building Construction	Aerial Lifts	2	8	63	0.31	0.6	210	1,969	
Building Construction	Air Compressors	1	8	78	0.48	0.6	210	1,887	
Building Construction	Concrete/Industrial Saws	2	8	81	0.73	0.6	210	5,960	
Building Construction	Cranes	1	8	231	0.29	0.6	210	3,376	
Building Construction	Forklifts	2	8	89	0.2	0.6	210	1,794	
Building Construction	Generator Sets	1	8	84	0.74	0.6	210	3,133	
Building Construction	Pumps	2	8	84	0.74	0.6	210	6,266	
Building Construction	Welders	1	8	46	0.45	0.6	210	1,043	
Building Facade	Aerial Lifts	1	8	63	0.31	0.6	156	731	
Building Facade	Air Compressors	1	8	78	0.48	0.6	156	1,402	
Building Facade	Forklifts	2	8	89	0.2	0.6	156	1,333	
Building Facade	Tractors/Loaders/Backhoes	0	7	97	0.37	0.6	156	0	
Building Facade	Welders	0	8	46	0.45	0.6	156	0	
Architectural Coating	Air Compressors	1	6	78	0.48	0.6	156	1,051	
Interior Construction	Air Compressors	1	8	78	0.48	0.6	156	1,402	
Interior Construction	Cement and Mortar Mixers	1	8	9	0.56	0.6	156	189	
Interior Construction	Cranes	0	7	231	0.29	0.6	156	0	
Interior Construction	Generator Sets	1	8	84	0.74	0.6	156	2,327	
Interior Construction	Paving Equipment	1	8	132	0.36	0.6	156	1,779	
Interior Construction	Plate Compactors	1	8	8	0.43	0.6	156	129	
Interior Construction	Tractors/Loaders/Backhoes	1	8	97	0.37	0.6	156	1,344	
Paving	Cement and Mortar Mixers	1	8	9	0.56	0.6	77	93	
Paving	Concrete/Industrial Saws	1	8	81	0.73	0.6	77	1,093	
Paving	Generator Sets	1	8	84	0.74	0.6	77	1,149	
Paving	Pavers	1	8	130	0.42	0.6	77	1,009	
Paving	Paving Equipment	1	8	132	0.36	0.6	77	878	
Paving	Rollers	0	8	80	0.38	0.6	77	0	
Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	0.6	77	663	
Paving	Welders	1	8	46	0.45	0.6	77	383	
<b>Total Diesel Usage for Construction (Offroad Equipment):</b>								<b>99,693.9</b>	<b>gallons of diesel fuel</b>

gallons of diesel fuel per horsepower-hour=

0.05

Notes: Equipment assumptions are provide in the CalEEMod output files and fuel usage estimate of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E.

EMFAC2017 Emissions Inventory

Region Type: Air Basin

Region: South Coast

Calendar Year: 2023

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Region	Veh_Class	Fuel	Speed (miles/hr)	Population (vehicles)	VMT (miles/day)	Trips (trips/day)	Fuel_Gas (1000 gallons/day)	Fuel_DSL (1000 gallons/day)	Miles per Gallon
South Coast	LDA	GAS	Aggregate	6,459,701	246,807,538	30,522,038	7,786	0	31.7
South Coast	LDT1	GAS	Aggregate	737,358	27,059,295	3,407,419	996	0	27.2
South Coast	LDT2	GAS	Aggregate	2,219,229	82,875,046	10,414,098	3,244	0	25.5
<b>Construction Worker Trip (Composite LDA/LDT1/LDT2):</b>									<b>29.0</b>
South Coast	HHDT	DSL	Aggregate	99,862	12,043,323	1,008,087	0	1696.5	7.1

Notes: Consistent with CalEEMod, a construction worker trip is assumed to be a composite of 50% LDA , 25% for LDT1, and 25% for LDT2. Used EMFAC 2011 Categories for construction as EMFAC2011 has specific categories for vehicle class T7.

Calculation of Gasoline and Diesel Usage During Phase 1 Construction (Onroad Vehicles):

Phase Name	Daily Woker Trips	Daily Vendor Trips	Days	Total Worker Trips	Total Vendor Trips	Total Haul Trips	Trip Length (miles)			Total Length (miles)			Avg. Daily Factor (worker and vendor)	Gallons of Fuel	
							Worker	Vendor	Haul	Worker	Vendor	Haul		Gasoline	Diesel
Demolition	26	10	77	2002	770	1540	14.7	6.9	22.6	29429.4	5313	34804	0.6	608.3	5,351.9
Grading	26	10	131	3406	1310	32750	14.7	6.9	22.6	50068.2	9039	740150	0.6	1,034.8	105,028.1
Mat Foundation (Concrete Pour)	126	160	52	6552	8320	0	14.7	6.9	20	96314.4	57408	0	0.6	1,990.7	4,852.2
Foundation	250	240	181	45250	43440	0	14.7	6.9	20	665175	299736	0	0.6	13,748.3	25,334.1
Building Construction	400	80	210	84000	16800	0	14.7	6.9	20	1234800	115920	0	0.6	25,521.7	9,797.7
Building Facade	350	120	156	54600	18720	0	14.7	6.9	20	802620	129168	0	0.6	16,589.1	10,917.5
Architectural Coating	0	0	156	0	0	0	14.7	6.9	20	0	0	0	0.6	0.0	0.0
Interior Construction	300	120	156	46800	18720	0	14.7	6.9	20	687960	129168	0	0.6	14,219.3	10,917.5
Paving	100	40	77	7700	3080	0	14.7	6.9	20	113190	21252	0	0.6	2,339.5	1,796.2
<b>Total:</b>													<b>0.6</b>	<b>76,051.7</b>	<b>173,995.1</b>

Worker Miles per gallon= 29.03 gasoline  
 Vendor/Haul miles per gallon= 7.10 diesel

Notes: Consistent with CalEEMod worker vehicles are assumed to be gasoline and 50% LDA, 25%LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy Duty Trucks (T7).

**Water Usage for Control of Fugitive Dust during Construction:**

Phase	Days	Average Daily Acreage Disturbed	Gallons Per Year	Electricity (kWhr)
Demolition	77	0.5	116,270	1,131
Grading	131	0.5	197,810	1,924
Mat Foundation (Concrete Pour)	52	0.5	78,520	764
Foundation	181	0.1	54,662	532
Building Construction	210	0	0	0
Building Facade	156	0	0	0
Architectural Coating	156	0	0	0
Interior Construction	156	0	0	0
Paving	77	0	0	0
<b>Total:</b>			<b>447,262</b>	<b>4,351</b>

Water application rate= 3020 gal/acre/day  
 kWhr equivalent= 0.01 kWhr

Notes: 1) Gallons per year of water usage for dust control is calculated based on a minimum control efficiency of 66% (three times daily) with an application rate of 3,020 gal/acre/day (Air & Waste Management Association Air Pollution Engineering Manual (1992 Edition)) and average of 26 construction days per month.  
 2) CalEEMod Default: Each gallon of delivered potable water in Southern California is associated with 0.009727 kWhr of electricity).



EMFAC2017 Emissions Inventory

Region Type: Air Basin

Region: South Coast

Calendar Year: 2025

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Region	CalYr	Season	Veh_Class	Fuel	MdYr	Speed (miles/hr)	Population (vehicles)	VMT (miles/day)	Trips (trips/day)	Fuel_Gas (1000 gallons/day)	Fuel_DSL (1000 gallons/day)			
South Coast	2025	Annual	HHDT	DSL	Aggregated	Aggregated	104,110	12,515,660	1,062,535	0.00	1,707.97			
South Coast	2025	Annual	HHDT	GAS	Aggregated	Aggregated	73	8,703	1,459	1.95	0.00			
South Coast	2025	Annual	LDA	DSL	Aggregated	Aggregated	66,922	2,593,390	318,756	0.00	49.38			
South Coast	2025	Annual	LDA	GAS	Aggregated	Aggregated	6,623,933	247,134,863	31,282,323	7,386.88	0.00			
South Coast	2025	Annual	LDT1	DSL	Aggregated	Aggregated	307	7,182	1,077	0.00	0.30			
South Coast	2025	Annual	LDT1	GAS	Aggregated	Aggregated	778,182	27,926,963	3,602,143	977.96	0.00			
South Coast	2025	Annual	LDT2	DSL	Aggregated	Aggregated	17,588	702,823	85,874	0.00	18.22			
South Coast	2025	Annual	LDT2	GAS	Aggregated	Aggregated	2,295,149	83,832,765	10,772,144	3,069.91	0.00			
South Coast	2025	Annual	LHDT1	DSL	Aggregated	Aggregated	133,461	5,159,848	1,678,776	0.00	228.71			
South Coast	2025	Annual	LHDT1	GAS	Aggregated	Aggregated	168,882	5,923,526	2,516,094	543.18	0.00			
South Coast	2025	Annual	LHDT2	DSL	Aggregated	Aggregated	53,523	2,005,570	673,257	0.00	98.54			
South Coast	2025	Annual	LHDT2	GAS	Aggregated	Aggregated	29,352	993,571	437,303	104.80	0.00			
South Coast	2025	Annual	MCY	GAS	Aggregated	Aggregated	314,501	2,073,558	629,002	57.47	0.00			
South Coast	2025	Annual	MDV	DSL	Aggregated	Aggregated	40,102	1,517,288	194,655	0.00	51.21			
South Coast	2025	Annual	MDV	GAS	Aggregated	Aggregated	1,560,708	53,567,630	7,229,536	2,429.85	0.00			
South Coast	2025	Annual	MH	DSL	Aggregated	Aggregated	13,231	123,031	1,323	0.00	11.24			
South Coast	2025	Annual	MH	GAS	Aggregated	Aggregated	33,043	315,800	3,306	58.66	0.00			
South Coast	2025	Annual	MHDT	DSL	Aggregated	Aggregated	129,231	8,213,878	1,308,567	0.00	712.54			
South Coast	2025	Annual	MHDT	GAS	Aggregated	Aggregated	25,223	1,297,263	504,661	245.23	0.00			
South Coast	2025	Annual	OBUS	DSL	Aggregated	Aggregated	4,537	338,774	44,085	0.00	37.70			
South Coast	2025	Annual	OBUS	GAS	Aggregated	Aggregated	5,822	228,042	116,485	43.27	0.00			
South Coast	2025	Annual	SBUS	DSL	Aggregated	Aggregated	6,467	204,500	74,625	0.00	25.94			
South Coast	2025	Annual	SBUS	GAS	Aggregated	Aggregated	3,013	116,477	12,051	12.42	0.00			
South Coast	2025	Annual	UBUS	DSL	Aggregated	Aggregated	6	776	25	0.00	0.14			
South Coast	2025	Annual	UBUS	GAS	Aggregated	Aggregated	969	90,836	3,877	16.68	0.00			
												<b>MPG</b>	Gallons Per Mile	
							Totals	456,892,715.68			14,948.24	2,941.88	<b>25.5</b>	0.04
							Total (GAS)	423,509,995.51	0.93				<b>28.3</b>	0.04
							Total (DSL)	33,382,720.17	0.07				<b>11.3</b>	0.09

Baseline Year

Calendar Year: 2019

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Region	CalYr	Season	Veh_Class	Fuel	MdYr	Speed (miles/hr)	Population (vehicles)	VMT (miles/day)	Trips (trips/day)	Fuel_Gas (1000 gallons/day)	Fuel_DSL (1000 gallons/day)			
South Coast	2019	Annual	HHDT	DSL	Aggregated	Aggregated	92,086	11,035,510	918,238	0.00	1,756.36			
South Coast	2019	Annual	HHDT	GAS	Aggregated	Aggregated	101	7,659	2,026	2.00	0.00			
South Coast	2019	Annual	LDA	DSL	Aggregated	Aggregated	45,875	1,896,329	216,399	0.00	42.12			
South Coast	2019	Annual	LDA	GAS	Aggregated	Aggregated	6,081,048	244,446,391	28,695,373	8,546.80	0.00			
South Coast	2019	Annual	LDT1	DSL	Aggregated	Aggregated	482	11,462	1,689	0.00	0.52			
South Coast	2019	Annual	LDT1	GAS	Aggregated	Aggregated	651,943	24,807,246	2,983,370	1,008.68	0.00			
South Coast	2019	Annual	LDT2	DSL	Aggregated	Aggregated	9,665	445,810	48,035	0.00	13.63			
South Coast	2019	Annual	LDT2	GAS	Aggregated	Aggregated	2,073,197	80,872,282	9,694,322	3,631.58	0.00			
South Coast	2019	Annual	LHDT1	DSL	Aggregated	Aggregated	97,013	4,044,995	1,220,296	0.00	195.55			
South Coast	2019	Annual	LHDT1	GAS	Aggregated	Aggregated	175,207	6,463,196	2,610,330	629.75	0.00			
South Coast	2019	Annual	LHDT2	DSL	Aggregated	Aggregated	37,900	1,552,333	476,734	0.00	83.01			
South Coast	2019	Annual	LHDT2	GAS	Aggregated	Aggregated	28,635	1,024,337	426,614	114.60	0.00			
South Coast	2019	Annual	MCY	GAS	Aggregated	Aggregated	259,354	1,869,286	518,708	51.29	0.00			
South Coast	2019	Annual	MDV	DSL	Aggregated	Aggregated	23,710	1,023,301	117,204	0.00	40.71			
South Coast	2019	Annual	MDV	GAS	Aggregated	Aggregated	1,497,221	54,845,361	6,911,949	2,999.26	0.00			
South Coast	2019	Annual	MH	DSL	Aggregated	Aggregated	11,071	110,800	1,107	0.00	10.76			
South Coast	2019	Annual	MH	GAS	Aggregated	Aggregated	35,590	335,289	3,560	67.31	0.00			
South Coast	2019	Annual	MHDT	DSL	Aggregated	Aggregated	114,051	7,128,971	1,136,926	0.00	714.72			
South Coast	2019	Annual	MHDT	GAS	Aggregated	Aggregated	24,591	1,348,347	492,013	274.04	0.00			
South Coast	2019	Annual	OBUS	DSL	Aggregated	Aggregated	4,004	293,205	39,273	0.00	37.06			
South Coast	2019	Annual	OBUS	GAS	Aggregated	Aggregated	5,873	259,979	117,514	53.24	0.00			
South Coast	2019	Annual	SBUS	DSL	Aggregated	Aggregated	6,233	197,082	71,923	0.00	26.67			
South Coast	2019	Annual	SBUS	GAS	Aggregated	Aggregated	2,128	88,942	8,510	9.98	0.00			
South Coast	2019	Annual	UBUS	DSL	Aggregated	Aggregated	18	1,877	73	0.00	0.30			
South Coast	2019	Annual	UBUS	GAS	Aggregated	Aggregated	931	87,702	3,725	18.65	0.00			
												<b>MPG</b>	Gallons Per Mile	
							Totals	444,197,691.29			17,407.18	2,921.42	<b>21.9</b>	0.05
							Total (GAS)	416,456,015.85	0.94				<b>23.9</b>	0.04
							Total (DSL)	27,741,675.44	0.06				<b>9.5</b>	0.11

**2159 Bay Street - Existing Operations Buildout Year  
Los Angeles-South Coast County, Annual**

**Land Use Details**

<i>Land Uses</i>	<i>Size</i>	<i>Metric</i>	<i>Lot Acreage</i>	<i>Floor Surface Area</i>	<i>Population</i>
General Office Building	23.11	1000sqft	0.53	23,106.00	0
General Light Industry	16.22	1000sqft	0.37	16,222.00	0

**Trip Summary Information**

<i>Land Uses</i>	<i>Average Daily Trip Rate</i>			<i>Annual VMT</i>
	<i>Weekday</i>	<i>Saturday</i>	<i>Sunday</i>	
General Light Industry	0.0	0.0	0.0	0
General Office Building	0.0	0.0	0.0	0
User Defined Commercial	300	300	300	832,104
<b>Total</b>	<b>300</b>	<b>300</b>	<b>300</b>	<b>832,104</b>

**Gasoline and Diesel Usage**

	<i>Buildout Year</i>		<i>Existing (Baseline) Year</i>	
	<i>Gasoline</i>	<i>Diesel</i>	<i>Gasoline</i>	<i>Diesel</i>
<i>Miles/Gallon</i>	28.3	11.3	23.9	9.5
<i>% Fleet Mix</i>	92.7%	7.3%	93.8%	6.2%
<b>Total (Gallons):</b>	<b>27,224</b>	<b>5,358</b>	<b>32,608</b>	<b>5,473</b>

**Energy by Land Use - Natural Gas**

<i>Land Uses</i>	<i>kBTU/yr</i>	<i>cu ft/year</i>
General Light Industry	293,618	279,636
General Office Building	240,533	229,079
<b>Total</b>	<b>534,151</b>	<b>508,715</b>

**Energy by Land Use - Electricity**

<i>Land Uses</i>	<i>kWH/yr</i>
General Light Industry	180,064
General Office Building	300,147
<b>Total</b>	<b>480,211</b>

**Water Detail**

<i>Land Uses</i>	<i>Indoor Use</i>		<i>Electricity</i>
	<i>(Mgal)</i>	<i>Outdoor Use (Mgal)</i>	<i>Use (kWh/yr)</i>
General Light Industry	3.751		
General Office Building	4.107	2.517	70,125
<b>Total</b>	<b>7.86</b>	<b>2.52</b>	<b>70,125</b>

Notes: Indoor water results in 0.0111 kWhr of electricity usage per gallon from delivery, treatment, and distribution of water within Southern California (CalEEMod). Outdoor water results in 0.009727 kWhr of electricity usage per gallon from delivery and distribution of water within Southern California (CalEEMod).

**2159 Bay Street - Buildout Operations Without Project Features  
Los Angeles-South Coast County, Annual**

**Land Use Details**

<i>Land Uses</i>	<i>Size</i>	<i>Metric</i>	<i>Lot Acreage</i>	<i>Floor Surface Area</i>	<i>Population</i>
General Office Building	217.19	1000sqft	4.99	217,189.00	0
Enclosed Parking with Elevator	711.00	Space	6.40	284,400.00	0
Quality Restaurant	5.00	1000sqft	0.11	5,000.00	0

**Trip Summary Information**

<i>Land Uses</i>	<i>Average Daily Trip Rate</i>			<i>Annual VMT</i>
	<i>Weekday</i>	<i>Saturday</i>	<i>Sunday</i>	
Enclosed Parking with Elevator	0	0	0	0
General Office Building	0	0	0	0
Quality Restaurant	0	0	0	0
User Defined Commercial	2,910	2,910	2,910	8,050,224
User Defined Industrial	137	137	137	4,987
<b>Total</b>	<b>3,047</b>	<b>3,047</b>	<b>3,047</b>	<b>8,055,211</b>

**Gasoline and Diesel Usage**

	<i>Gasoline</i>	<i>Diesel</i>
<i>Miles/Gallon</i>	28.3	11.3
<i>% Fleet Mix</i>	92.7%	7.3%
<b>Total (Gallons):</b>	<b>263,544</b>	<b>51,867</b>

Note: Fleet mix is 92.3% gasoline @ 30.6 miles/gallon and 7.7% diesel @ 12.1 miles/gallon.

**Energy by Land Use - Natural Gas**

<i>Land Uses</i>	<i>kBTU/yr</i>	<i>cu ft/year</i>
Enclosed Parking with Elevator	0.0	0
General Office Building	2,260,940	2,153,276
Quality Restaurant	1,153,800	1,098,857
<b>Total</b>	<b>3,414,740</b>	<b>3,252,133</b>

**Energy by Land Use - Electricity**

<i>Land Uses</i>	<i>kWH/yr</i>
Enclosed Parking with Elevator	713,844
General Office Building	2,821,290
Quality Restaurant	220,700
<b>Total</b>	<b>3,755,834</b>

**Water Detail (Unmitigated)**

<i>Land Uses</i>	<i>Indoor Use (Mgal)</i>	<i>Outdoor Use (Mgal)</i>	<i>Electricity Use (kWh/yr)</i>
General Office Building	38.602	23.659	659,041
Quality Restaurant	0.759	0.048	8,903
<b>Total</b>	<b>39.36</b>	<b>23.71</b>	<b>667,943</b>

Notes: Indoor water results in 0.0111 kWhr of electricity usage per gallon from delivery, treatment, and distribution of water within Southern California (CalEEMod). Outdoor water results in 0.009727 kWhr of electricity usage per gallon from delivery and distribution of water within Southern California (CalEEMod).

**2159 Bay Street - Buildout Operations**  
**Los Angeles-South Coast County, Annual**

**Land Use Details**

<i>Land Uses</i>	<i>Size</i>	<i>Metric</i>	<i>Lot Acreage</i>	<i>Floor Surface Area</i>	<i>Population</i>
Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	217.19	1000sqft	4.99	217,189.00	0
Enclosed Parking with Elevator	711.00	Space	6.40	284,400.00	0
Quality Restaurant	5.00	1000sqft	0.11	5,000.00	0

**Trip Summary Information**

<i>Land Uses</i>	<i>Average Daily Trip Rate</i>			<i>Mitigated</i>
	<i>Weekday</i>	<i>Saturday</i>	<i>Sunday</i>	
Enclosed Parking with Elevator	0.0	0.0	0.0	0
General Office Building	0.0	0.0	0.0	0
Quality Restaurant	0.0	0.0	0.0	0
User Defined Commercial	2,110	2,110	2,110	5,184,063
User Defined Industrial	137	137	137	4,987
<b>Total</b>	<b>2,247</b>	<b>2,247</b>	<b>2,247</b>	<b>5,189,050</b>

**Mitigated Gasoline and Diesel Usage**

	<i>Gasoline</i>	<i>Diesel</i>
<i>Miles/Gallon</i>	28.3	11.3
<i>% Fleet Mix</i>	92.7%	7.3%
<b>Total (Gallons):</b>	<b>169,771</b>	<b>33,412</b>

Note: Fleet mix is 92.3% gasoline @ 30.6 miles/gallon and 7.7% diesel @ 12.1 miles/gallon.

**Energy by Land Use - Natural Gas (Mitigated)**

<i>Land Uses</i>	<i>kBTU/yr</i>	<i>cu ft/year</i>
Enclosed Parking with Elevator	0	0
General Office Building	2,260,940	2,153,276
Quality Restaurant	1,153,800	1,098,857
<b>Total</b>	<b>3,414,740</b>	<b>3,252,133</b>

**Energy by Land Use - Electricity (Mitigated)**

<i>Land Uses</i>	<i>kWH/yr</i>
Enclosed Parking with Elevator	713,133
General Office Building	2,616,580
Quality Restaurant	210,863
<b>Total</b>	<b>3,540,576</b>

**Water Detail (Unmitigated)**

<i>Land Uses</i>	<i>Indoor Use (Mgal)</i>	<i>Outdoor Use (Mgal)</i>	<i>Electricity Use (kWh/yr)</i>
General Office Building	30.882	18.927	527,232
Quality Restaurant	0.607	0.039	7,122
<b>Total</b>	<b>31.49</b>	<b>18.97</b>	<b>534,354</b>

Notes: Indoor water results in 0.0111 kWhr of electricity usage per gallon from delivery, treatment, and distribution of water within Southern California (CalEEMod). Outdoor water results in 0.009727 kWhr of electricity usage per gallon from delivery and distribution of water within Southern California (CalEEMod). The City of Los Angeles Green Building Code (Chapter IX, Article 9, of the LAMC) requires newly constructed non-residential and high-rise residential buildings to reduce indoor water use by at least 20 percent by: (1) using water saving fixtures or flow restrictions; and/or (2) demonstrating a 20 percent reduction in baseline water use.

## Peak Electricity Demand Calculations

### Electrical Load Factor Equation

$$f_{Load} = \frac{\text{Average load}}{\text{Maximum load in given time period}}$$

Load Factor (%)<sup>1</sup> **52%**

### Project Electricity Demand (Operational)

	Baseline (Existing)	Project	Net Increase
<b>Annual Demand</b>			
Building (MWh)	480	3,541	3,060
Water (MWh)	70	534	464
EV Chargers (MWh)	-	192	192
Total (MWh)	550	4,267	3,717

### Average Daily Demand

Building (kWh)	1,316	9,700	8,385
Water (kWh)	192	1,464	1,272
EV Chargers (kWh)		526	526
Total (kWh)	1,508	11,690	10,183

### Average Load

Building (kW)	55	404	349
Water (kW)	8	61	53
EV Chargers (kW)		22	22
Total (kW)	63	487	424

### Peak Load Calculation

Peak Load (kW)	113	<b>838</b>	725
Systemwide Peak Load (MW)		5,854	
Percent of Peak		0.014%	

<sup>1</sup>2017 Report: System Efficiency of California's Electric Grid. California Public Utilities Commission 2017. Page 11, Figure 6. Visual estimate.

**EMFAC Emission inventories for County**

EMFAC2017 Emissions Inventory

Region Type: County

Region: Los Angeles

Calendar Year: **2023** (Construction Start Year)

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Fuel_Gasoline (1000 gallons/day)	Fuel_DSL (1000 gallons/day)
Los Angeles	2023	HHDT	Aggregatec	Aggregatec	DSL	0.00	1696.53
Los Angeles	2023	HHDT	Aggregatec	Aggregatec	GAS	1.89	0.00
Los Angeles	2023	LDA	Aggregatec	Aggregatec	DSL	0.00	48.32
Los Angeles	2023	LDA	Aggregatec	Aggregatec	GAS	7786.05	0.00
Los Angeles	2023	LDT1	Aggregatec	Aggregatec	DSL	0.00	0.36
Los Angeles	2023	LDT1	Aggregatec	Aggregatec	GAS	995.76	0.00
Los Angeles	2023	LDT2	Aggregatec	Aggregatec	DSL	0.00	17.31
Los Angeles	2023	LDT2	Aggregatec	Aggregatec	GAS	3244.21	0.00
Los Angeles	2023	LHDT1	Aggregatec	Aggregatec	DSL	0.00	221.79
Los Angeles	2023	LHDT1	Aggregatec	Aggregatec	GAS	568.77	0.00
Los Angeles	2023	LHDT2	Aggregatec	Aggregatec	DSL	0.00	95.15
Los Angeles	2023	LHDT2	Aggregatec	Aggregatec	GAS	108.29	0.00
Los Angeles	2023	MCY	Aggregatec	Aggregatec	GAS	55.80	0.00
Los Angeles	2023	MDV	Aggregatec	Aggregatec	DSL	0.00	49.25
Los Angeles	2023	MDV	Aggregatec	Aggregatec	GAS	2607.45	0.00
Los Angeles	2023	MH	Aggregatec	Aggregatec	DSL	0.00	11.19
Los Angeles	2023	MH	Aggregatec	Aggregatec	GAS	61.57	0.00
Los Angeles	2023	MHDT	Aggregatec	Aggregatec	DSL	0.00	705.12
Los Angeles	2023	MHDT	Aggregatec	Aggregatec	GAS	254.98	0.00
Los Angeles	2023	OBUS	Aggregatec	Aggregatec	DSL	0.00	37.17
Los Angeles	2023	OBUS	Aggregatec	Aggregatec	GAS	46.21	0.00
Los Angeles	2023	SBUS	Aggregatec	Aggregatec	DSL	0.00	26.30
Los Angeles	2023	SBUS	Aggregatec	Aggregatec	GAS	11.68	0.00
Los Angeles	2023	UBUS	Aggregatec	Aggregatec	DSL	0.00	0.24
Los Angeles	2023	UBUS	Aggregatec	Aggregatec	GAS	17.62	0.00
						5,752,498,849	1,061,687,376
Fuel Usage for Project Construction						76,052	273,689
Percentage of County for Construction						0.0013%	0.026%

**EMFAC Emission inventories for County**

EMFAC2017 Emissions Inventory

Region Type: County

Region: Los Angeles

Calendar Year: **2025** (Operational Start Year)

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Fuel_Gasoline (1000 gallons/day)	Fuel_DSL (1000 gallons/day)
Los Angeles	2025	HHDT	Aggregatec	Aggregatec	DSL	0.00	1707.97
Los Angeles	2025	HHDT	Aggregatec	Aggregatec	GAS	1.95	0.00
Los Angeles	2025	LDA	Aggregatec	Aggregatec	DSL	0.00	49.38
Los Angeles	2025	LDA	Aggregatec	Aggregatec	GAS	7386.88	0.00
Los Angeles	2025	LDT1	Aggregatec	Aggregatec	DSL	0.00	0.30
Los Angeles	2025	LDT1	Aggregatec	Aggregatec	GAS	977.96	0.00
Los Angeles	2025	LDT2	Aggregatec	Aggregatec	DSL	0.00	18.22
Los Angeles	2025	LDT2	Aggregatec	Aggregatec	GAS	3069.91	0.00
Los Angeles	2025	LHDT1	Aggregatec	Aggregatec	DSL	0.00	228.71
Los Angeles	2025	LHDT1	Aggregatec	Aggregatec	GAS	543.18	0.00
Los Angeles	2025	LHDT2	Aggregatec	Aggregatec	DSL	0.00	98.54
Los Angeles	2025	LHDT2	Aggregatec	Aggregatec	GAS	104.80	0.00
Los Angeles	2025	MCY	Aggregatec	Aggregatec	GAS	57.47	0.00
Los Angeles	2025	MDV	Aggregatec	Aggregatec	DSL	0.00	51.21
Los Angeles	2025	MDV	Aggregatec	Aggregatec	GAS	2429.85	0.00
Los Angeles	2025	MH	Aggregatec	Aggregatec	DSL	0.00	11.24
Los Angeles	2025	MH	Aggregatec	Aggregatec	GAS	58.66	0.00
Los Angeles	2025	MHDT	Aggregatec	Aggregatec	DSL	0.00	712.54
Los Angeles	2025	MHDT	Aggregatec	Aggregatec	GAS	245.23	0.00
Los Angeles	2025	OBUS	Aggregatec	Aggregatec	DSL	0.00	37.70
Los Angeles	2025	OBUS	Aggregatec	Aggregatec	GAS	43.27	0.00
Los Angeles	2025	SBUS	Aggregatec	Aggregatec	DSL	0.00	25.94
Los Angeles	2025	SBUS	Aggregatec	Aggregatec	GAS	12.42	0.00
Los Angeles	2025	UBUS	Aggregatec	Aggregatec	DSL	0.00	0.14
Los Angeles	2025	UBUS	Aggregatec	Aggregatec	GAS	16.68	0.00
						5,456,109,145	1,073,785,458
Net Fuel Usage for Project Operation						169,771	33,412
Percentage of County for Operation						0.0031%	0.0031%