

# Appendix D

## **Energy Calculations**



**2311 N Hollywood Way SCEA  
Construction Energy Analysis**

**Annual Fuel Summary**

<b>Heavy-Duty Construction Equipment</b>	
141,063	Total Project Consumption
40,256	Annual Consumption
<b>Haul Trucks</b>	
20,189	Total Project Consumption
5,762	Annual Consumption
<b>Vendor Trucks</b>	
13,827	Total Project Consumption
3,946	Annual Consumption
<b>Workers</b>	
175,411	Total Project Consumption
50,059	Annual Consumption
34,016	Project Consumption of diesel for Haul Trucks and Vendors
9,708	Annual Consumption
175,079	Total Gallons Diesel
175,411	Total Gallons Gasoline

3.5 Estimated Project Construction Duration (years)

49,964 Annual Average Gallons Diesel  
50,059 Annual Average Gallons Gasoline

Los Angeles County			Percent of Annual Project Compared to Los Angeles County
Source	Fuel Type	Gallons	
Workers	Gasoline	3,559,000,000	0.0014%
Off-Road/Vendor/Haul Trucks	Diesel	584,745,763	0.009%

**Notes:**

1 Gasoline and diesel amounts from CEC, 2019. Available: <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting>

**Annual Electricity Summary**

Temporary Construction Trailer - Electricity	12,990 kWh/year
Water Conveyance for Dust Control	713 kWh/year
<b>Total</b>	<b>13,703 kWh/year</b>

**2311 N Hollywood Way SCEA  
Construction Energy Analysis**

**Off-Road Equipment**

<b>Equipment ≤ 100 hp</b>	
pounds diesel fuel/hp-hr (lb/hp-hr): <sup>1</sup>	0.408 lb/hp-hr
diesel density (lb/gal): <sup>1</sup>	7.11 lb/gal
diesel gallons/hp-hr:	0.0574 gal/hp-hr
Total <100	1,591,560 hp-hr
Total diesel gallons:	91,344 gal
<b>Equipment &gt; 100 hp</b>	
pounds diesel fuel/hp-hr (lb/hp-hr): <sup>1</sup>	0.367 lb/hp-hr
diesel density (lb/gal): <sup>1</sup>	7.11 lb/gal
diesel gallons/hp-hr:	0.0516 gal/hp-hr
Total >100	963,066 hp-hr
Total diesel gallons:	49,719 gal
<b>Total diesel gallons (off-road equipment):</b>	<b>141,063 gal</b>

[1. OFFROAD2017 Emission Factor Documentation](#)

Construction Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Demolition	Crawler Tractors	1	8	212	0.43	53	38,652
Demolition	Excavators	2	8	158	0.38	53	50,914
Demolition	Off-Highway Tractors	1	8	124	0.44	53	23,133
Demolition	Sweepers/Scrubbers	1	8	64	0.46	53	12,483
Site Preparation	Crawler Tractors	1	8	212	0.43	39	28,442
Site Preparation	Excavators	1	8	158	0.38	39	18,732
Site Preparation	Sweepers/Scrubbers	1	8	64	0.46	39	9,185
Grading/Excavation	Excavators	1	8	158	0.38	18	8,646
Grading/Excavation	Off-Highway Tractors	1	8	124	0.44	18	7,857
Grading/Excavation	Plate Compactors	1	8	8	0.43	18	495
Grading/Excavation	Rubber Tired Loaders	2	8	203	0.36	18	21,047
Grading/Excavation	Scrapers	1	8	367	0.48	18	25,367
Grading/Excavation	Sweepers/Scrubbers	1	8	64	0.46	18	4,239
Drainage/Utilities/Trenching	Concrete/Industrial Saws	1	8	81	0.73	53	25,071
Drainage/Utilities/Trenching	Forklifts	1	8	89	0.2	53	7,547
Drainage/Utilities/Trenching	Generator Sets	1	8	84	0.74	53	26,356
Drainage/Utilities/Trenching	Sweepers/Scrubbers	1	8	64	0.46	53	12,483
Drainage/Utilities/Trenching	Tractors/Loaders/Backhoes	1	8	97	0.37	53	15,217
Drainage/Utilities/Trenching	Trenchers	1	8	78	0.5	53	16,536
Foundations/Concrete Pour	Cement and Mortar Mixers	28	8	9	0.56	182	205,471
Foundations/Concrete Pour	Cranes	2	8	231	0.29	182	195,075
Foundations/Concrete Pour	Forklifts	1	8	89	0.2	182	25,917
Foundations/Concrete Pour	Generator Sets	1	8	84	0.74	182	90,505
Foundations/Concrete Pour	Skid Steer Loaders	1	8	65	0.37	159	30,592
Foundations/Concrete Pour	Sweepers/Scrubbers	1	8	64	0.46	182	42,865
Building Construction	Cement and Mortar Mixers	1	8	9	0.56	418	16,854
Building Construction	Cranes	2	7	231	0.29	418	392,025
Building Construction	Forklifts	1	8	89	0.2	418	59,523
Building Construction	Generator Sets	2	8	84	0.74	418	415,726
Building Construction	Skid Steer Loaders	1	8	65	0.37	418	80,423
Building Construction	Sweepers/Scrubbers	1	8	64	0.46	418	98,447
Paving	Sweepers/Scrubbers	1	8	64	0.46	77	18,135
Architectural Coatings and Finishes	Air Compressors	3	8	78	0.48	234	210,263
Architectural Coatings and Finishes	Sweepers/Scrubbers	1	8	64	0.46	234	55,112
Other 1: Landscaping	Rubber Tired Loaders	1	8	203	0.36	131	76,588
Other 1: Landscaping	Skid Steer Loaders	1	8	65	0.37	131	25,204
Other 1: Landscaping	Sweepers/Scrubbers	1	8	64	0.46	131	30,853
Other 2: Off-Sites	Rubber Tired Loaders	1	8	203	0.36	131	76,588
Other 2: Off-Sites	Skid Steer Loaders	1	8	65	0.37	131	25,204
Other 2: Off-Sites	Sweepers/Scrubbers	1	8	64	0.46	131	30,853
						<b>Total &gt;100</b>	963,066
						<b>Total &lt;100</b>	1,591,560

**2311 N Hollywood Way SCEA  
Construction Energy Analysis**

<b>Temporary Construction Trailer - Electricity</b>			
<b>Land Use</b>	<b>Square Feet</b>	<b>Energy Use per year (kWh)</b>	<b>Total Energy Use (kWh)</b>
General Office	1,000	12,990	45,518.384

Note: CalEEMod 2016.3.2 used to estimate energy use for temporary construction office



**2311 N Hollywood Way SCEA**  
**Operational Energy Demand**

Electricity	kWh/yr	MWh/yr
General Office Building	1,897,500	1,897.500
High Turnover Restaurant	354,814	354.814
Quality Restaurant	64,905	64.905
Apartments Mid-Rise	3,319,140	3,319.140
Parking	3,522,940	3,522.940
EV Charging (see worksheet)	231,264	231.264
<b>Total Building Energy</b>	<b>9,159,299</b>	<b>9,159.299</b>
<b>Total</b>	<b>9,390,563</b>	<b>9,390.563</b>
<b>Total (including water, see below)</b>	<b>11,190,301</b>	<b>11,190.301</b>

Source: California Air Resources Board, CalEEMod, Version 2016.3.2.

Water	Mgal/yr	MWh/yr
General Office Building	43.52	566.62
High Turnover Restaurant	2.65	34.48
Quality Restaurant	0.48	6.31
Apartments Mid-Rise	91.57	1,192.33
Parking	0.00	-
<b>Total</b>	<b>138.218</b>	<b>1,799.74</b>

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

Electricity from Water Demand	kWh/yr	MWh/yr
<b>Total</b>	<b>1,799,738.06</b>	<b>1,799.738</b>

Source: California Air Resources Board, CalEEMod, Version 2016.3.2.

Water Demand based on Project Water supply Assessment

Sewage Facilities Charge, Sewage Generation Factor for Residential and Commercial Categories, 2012.

Natural Gas	kBtu/yr	cubic foot (cf)
General Office Building	1,565,060	1,512,135
High Turnover Restaurant	1,888,710	1,824,841
Quality Restaurant	345,495	333,812
Apartments Mid-Rise	9,278,900	8,965,121
Parking	0	-
Mobile Sources	14,763	14,264
<b>Total</b>	<b>13,092,928</b>	<b>12,650,172</b>
		12,635,908

Source: California Air Resources Board, CalEEMod, Version 2016.3.2.

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, February 28, 2018,

[https://www.eia.gov/dnav/ng/ng\\_cons\\_heat\\_a\\_EPG0\\_VGTH\\_btucf\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm). Accessed March 2020.)

Electricity	MWh/yr
Burbank Water and Power (2026)	1,105,523
Project Annual	11,190
Existing Annual	1,545
<b>Net Project Annual</b>	<b>9,645</b>
<b>Percent Net Project of BWP</b>	<b>0.8725%</b>

Source: Burbank Water and Power,

2019 Integrated Resource Plan, p. 184. 2019.

[https://burbankwaterandpower.com/images/administrative/downloads/CityCouncilApproved\\_2019\\_Integrated\\_Resource\\_Plan\\_DIGITAL.pdf](https://burbankwaterandpower.com/images/administrative/downloads/CityCouncilApproved_2019_Integrated_Resource_Plan_DIGITAL.pdf)

Natural Gas	million cubic foot (cf)
SoCalGas 2026	845,705
Project Annual	12.650
Existing Annual	0.169
<b>Net Project Annual</b>	<b>12.481052</b>
<b>Percent Net Project of SoCalGas</b>	<b>0.0015%</b>

Source: California Gas and Electric Utilities, 2020 California Gas

Report, p. 145,2020.

**2311 N Hollywood Way SCEA  
Operational Energy Analysis**

**Estimated Electricity demand from Electric Vehicle Supply Equipment (EVSE)**

Land Use Type	Number of Non-Residential Parking Spaces	Number of Residential Parking Spaces	Percent of Non-Residential Spaces with EV Chargers	Percent of Residential Spaces with EV Chargers	Total Number of EV Charging Spaces	Average Charge (kWh/day) <sup>a</sup>	Days/Year	Electricity Demand (kWh/yr)	Electricity Demand (MWh/yr)
<b>Total</b>	487	1132	6%	10%	144	4.4	365	231,264	231.26

Notes:

- a. Estimated based on reference sources listed below.
- b. Project would install EV charging spaces for 10 percent of its parking capacity for immediate use
- c. Project would install pre-wiring for EV charging spaces for 30 percent of its parking capacity for future use (so 20% in addition to the immediate use).

Sources:

US Department of Energy. Alternative Fuels Data Center, 2016. Hybrid and Plug-In Electric Vehicle Emissions Data Sources and Assumptions.  
Available at: [https://www.afdc.energy.gov/vehicles/electric\\_emissions\\_sources.html](https://www.afdc.energy.gov/vehicles/electric_emissions_sources.html).

US Department of Energy. Smith, Margaret, 2016. Level 1 Electric Vehicle Charging Stations at the Workplace.  
Available at: [https://www.afdc.energy.gov/uploads/publication/WPCC\\_L1ChargingAtTheWorkplace\\_0716.pdf](https://www.afdc.energy.gov/uploads/publication/WPCC_L1ChargingAtTheWorkplace_0716.pdf).

UCLA Luskin Center for Innovation. Williams, Brett and JR deShazo, 2013. Pricing Workplace Charging: Financial Viability and Fueling Costs.  
Available at: <http://luskin.ucla.edu/sites/default/files/Luskin-WPC-TRB-13-11-15d.pdf>.

**2311 N Hollywood Way SCEA  
Operational Energy Analysis  
Fuel Usage from VMT**

Annual VMT (Traffic Study)<sup>4</sup>: 19,765,959 miles/year

Fuel Type: <sup>1</sup>	Gasoline	Diesel	Electricity	Plug-in Hybrid	Natural Gas
Percent:	88.2%	5.2%	4.1%	2.2%	0.3%
Miles per Gallon Fuel:	25.0	8.8	0.0	27.4	4.2
Annual VMT by Fuel Type (miles):	17,436,007	1,022,479	817,112	428,242	62,119
Annual Fuel Usage (gallons):	696,103	116,714	0	15,646	14,763

	Los Angeles County Fuel Consumption <sup>3</sup>	
	Gasoline	Diesel
Los Angeles County:	3,559,000,000	584,745,763
Project Annual:	711,749	116,714
Existing Annual:	148,069	21,383
Net Annual:	563,680	95,331
Percent Net Project of Los Angeles County:	0.0158%	0.0163%

Notes:

- California Air Resources Board, EMFAC2017 (South Coast Air Basin; Annual; 2026', Aggregate Fleet).
- Assumes electric vehicles would replace traditional gasoline-fueled vehicles.
- California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2018. Available at: [https://ww2.energy.ca.gov/almanac/transportation\\_data/gasoline/pira\\_retail\\_survey.html](https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/pira_retail_survey.html). Accessed March 2020. Diesel is adjusted to account for retail (48%) and non-retail (52%) diesel sales.
- Gibson Transportation Consultants, Transportation Assessment for the 2311 N Hollywood SCEA Project, May 2021.

**2311 N Hollywood Way SCEA**  
**Existing Energy Demand**

<b>Electricity</b>	<b>kWh/yr</b>	<b>MWh/yr</b>
Electronic Superstore	1,380,530	1,380.530
<b>Total Building Energy</b>	<b>1,380,530</b>	<b>1,380.530</b>
<b>Total</b>	<b>1,380,530</b>	<b>1,380.530</b>
<b>Total (including water, see below)</b>	<b>1,544,853</b>	<b>1,544.853</b>

Source: California Air Resources Board, CalEEMod, Version 2016.3.2.

<b>Water</b>	<b>Mgal/yr</b>	<b>MWh/yr</b>
Electronic Superstore	12.62	164.32
<b>Total</b>	<b>12.620</b>	<b>164.32</b>

  

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

  

<b>Electricity from Water Demand</b>	<b>kWh/yr</b>	<b>MWh/yr</b>
<b>Total</b>	<b>164,322.55</b>	<b>164.323</b>

Source: California Air Resources Board, CalEEMod, Version 2016.3.2.

Water Demand based on Project Water supply Assessment

Sewage Facilities Charge, Sewage Generation Factor for Residential and Commercial Categories, 2012.

<b>Natural Gas</b>	<b>kBtu/yr</b>	<b>Million cubic foot (cf)</b>
Electronic Superstore	172,170	0.166
Mobile Sources	2,869	0.0028
<b>Total</b>	<b>175,039</b>	<b>0.169</b>

Source: California Air Resources Board, CalEEMod, Version 2016.3.2.

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, February 28, 2018,

[https://www.eia.gov/dnav/ng/ng\\_cons\\_heat\\_a\\_EPG0\\_VGTH\\_btucf\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm). Accessed March 2020.)

**2311 N Hollywood Way SCEA**

**Existing Energy Analysis**

**Fuel Usage from VMT**

10,052 Daily VMT - Project

Annual VMT (Traffic Study)<sup>4</sup>:

3,669,123 miles/year

Fuel Type: <sup>1</sup>	Gasoline	Diesel	Electricity	Plug-in Hybrid	Natural Gas
Percent:	91.9%	4.7%	1.7%	1.4%	0.3%
Miles per Gallon Fuel:	23.1	8.0	0.0	27.4	4.0
Annual VMT by Fuel Type (miles):	3,372,412	172,126	63,125	50,100	11,360
Annual Fuel Usage (gallons): Emergency Generator	146,243	21,383	0	1,827	2,869

	Los Angeles County Fuel Consumption <sup>3</sup>	
	Gasoline	Diesel
Los Angeles County:	3,559,000,000	584,745,763
Existing Annual:	148,069	21,383
Percent Net Project of Los Angeles County:	0.0042%	0.0037%

Notes:

1. California Air Resources Board, EMFAC2017 (LA County; Annual; 2021', Aggregate Fleet).
2. Assumes electric vehicles would replace traditional gasoline-fueled vehicles.
3. California Energy Commission, California Retail Fuel Outlet Annual Reporting (CEC-A15) Results, 2018. Available at: [https://ww2.energy.ca.gov/almanac/transportation\\_data/gasoline/piira\\_retail\\_survey.html](https://ww2.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). Accessed March 2020. Diesel is adjusted to account for retail (48%) and non-retail (52%) diesel sales.
4. Gibson Transportation Consultants, Transportation Assessment for the 2311 N Hollywood SCEA Project, May 2021.