

Appendix G

Energy Calculations

Radford Studio Center

Draft EIR

Appendix G

Energy Analysis Spreadsheets

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Please refer to Appendix D – Air Quality and Greenhouse Gas for Dewatering, EV charging, Solar Generation, Basecamp, Lighting, and Signage energy calculations

Radford Studio Center

Summary of Energy Use During Construction

Electricity	
Water Consumption	65,214 kWh
Temporary Power (lighting, tools)	35,129 kWh
Dewatering	29,798 kWh
Construction Equipment (Electric Powered)	16,056 kWh
Total:	146,197 kWh
Gasoline	
On Road	423,187 Gallons
Off Road	0 Gallons
Total:	423,187 Gallons
Diesel	
On Road	1,320,253 Gallons
Off Road	426,751 Gallons
Total:	1,747,004 Gallons
Total Mobile	2,170,191

Summary of Energy Use During Operations

	Baseline (Buildout)	Project (Buildout)	Project (Buildout - Baseline)	Land Use Exchange	Land Use Exchange (Buildout - Baseline)	Units
Electricity						
Electricity (building) - Including Signage	20,137,621	49,441,401	29,303,780	49,854,584	29,716,963	kWh/year
Electricity (water)	1,181,868	2,114,503	932,635	2,221,493	1,039,626	kWh/year
EV Charging	38,767	1,725,959	1,687,192	1,725,959	1,687,192	kWh/year
Lighting	1,061,566	1,123,555	61,989	1,123,555	61,989	kWh/year
Basecamp	938,746	1,424,782	486,036	1,424,782	486,036	kWh/year
Solar Panel (Credit)	(676,000)	(2,028,000)	(1,352,000)	(2,028,000)	(1,352,000)	kWh/year
Electricity Total	22,682,568	53,802,199	31,119,631	54,322,373	31,639,805	kWh/year
Natural Gas	19,386,722	11,739,686	(7,647,036)	11,739,686	(7,647,036)	cu ft/year
Emergency Generators						
Diesel	3,219	6,440	3,221	6,440	3,221	Gallons/year
Mobile						
Gasoline	701,301	1,467,467	766,166	1,484,410	783,109	Gallons/year
Diesel	120,547	252,245	131,697	255,157	134,609	Gallons/year
Total (Including Emergency Generators)	825,068	1,726,151	901,084	1,739,567	914,499	Gallons/year

Construction Electricity Usage

Construction Electricity Usage

Caterpillar 40-C4.4 Generator^a

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)	697
Total Construction (kWh)	35,129
Total Construction (MWh)	35.1

^a<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	Excavators	3	8	36	0.38	0.6	195	1,921
Demolition	Air Compressors	1	8	37	0.48	0.6	195	831
Demolition	Other Construction Equipment	1	8	82	0.42	0.6	195	1,612
Demolition	Tractors/Loaders/Backhoes	3	8	84	0.37	0.6	195	4,364
Grading	Graders	1	8	148	0.41	0.6	218	3,175
Grading	Excavators	3	8	36	0.38	0.6	218	2,147
Grading	Tractors/Loaders/Backhoes	2	8	84	0.37	0.6	218	3,252
Grading	Bore/Drill Rigs	2	8	83	0.5	0.6	218	4,343
Grading	Cranes	2	8	367	0.29	0.6	218	11,137
Grading	Other Construction Equipment	2	8	82	0.42	0.6	218	3,604
Grading	Pumps	2	8	11	0.74	0.6	218	852
Grading	Rubber Tired Loaders	3	8	150	0.36	0.6	218	8,476
Grading	Welders	2	8	46	0.45	0.6	218	2,166
Building Exterior	Forklifts	4	8	82	0.2	0.6	697	10,974
Building Exterior	Cranes	3	8	367	0.29	0.6	697	53,411
Building Exterior	Welders	2	8	46	0.45	0.6	697	6,925
Building Exterior	Tractors/Loaders/Backhoes	1	8	84	0.37	0.6	697	5,199
Building Exterior	Aerial Lifts	10	8	46	0.31	0.6	697	23,854
Building Exterior	Cranes	2	8	367	0.29	0.6	697	35,607
Building Exterior	Other Construction Equipment	4	8	82	0.42	0.6	697	23,044
Building Exterior	Rough Terrain Forklifts	4	8	96	0.4	0.6	697	25,694
Foundation	Cranes	2	7	367	0.29	0.6	434	19,400
Foundation	Pumps	6	8	11	0.74	0.6	434	5,087
Paving	Paving Equipment	1	8	89	0.36	0.6	109	838
Paving	Rollers	1	8	36	0.38	0.6	109	358
Paving	Signal Boards	1	8	6	0.82	0.6	109	129
Paving	Skid Steer Loaders	2	8	71	0.37	0.6	109	1,374
Paving	Trenchers	2	8	40	0.5	0.6	109	1,046
Architectural Coating	Air Compressors	6	8	37	0.48	0.6	653	16,700
Architectural Coating	Aerial Lifts	10	8	46	0.31	0.6	653	22,348
Architectural Coating	Cranes	2	8	367	0.29	0.6	653	33,359
Architectural Coating	Cranes	3	8	367	0.29	0.6	653	50,039
Architectural Coating	Forklifts	4	8	82	0.2	0.6	653	10,281
Architectural Coating	Pumps	2	8	11	0.74	0.6	653	2,551
Architectural Coating	Rough Terrain Forklifts	4	8	96	0.4	0.6	653	24,072
Undergrounding	Graders	1	8	148	0.41	0.6	23	335
Undergrounding	Rubber Tired Loaders	1	8	150	0.36	0.6	23	298
Undergrounding	Tractors/Loaders/Backhoes	1	8	84	0.37	0.6	23	172
Undergrounding	Trenchers	1	8	40	0.5	0.6	23	110
Bridge Construction	Cranes	2	8	367	0.29	0.6	44	2,248
Bridge Construction	Rubber Tired Loaders	2	8	150	0.36	0.6	44	1,140
Bridge Construction	Tractors/Loaders/Backhoes	2	8	84	0.37	0.6	44	656
Bridge Construction	Trenchers	2	8	40	0.5	0.6	44	422
Radford and Carpenters	Rollers	4	8	36	0.38	0.6	42	552
Radford and Carpenters	Paving Equipment	2	8	89	0.36	0.6	42	646
Total Diesel Usage for Construction (Offroad Equipment):								426,751.0
								gallons of diesel fuel

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.

EMFAC2021 Emissions Inventory

Region Type: County

Region: Los Angeles

Calendar Year: 2025

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	Gasoline	Aggregate	3,337,440	132,004,234	15,494,312	4,510	0	29.3
South Coast	LDT1	Gasoline	Aggregate	313,469	11,445,443	1,380,698	468	0	24.5
South Coast	LDT2	Gasoline	Aggregate	1,623,397	67,107,095	7,642,462	2,812	0	23.9
Construction Worker Trip (Composite LDA/LDT1/LDT2):									26.7
South Coast	HHDT	Diesel	Aggregate	55,408	6,966,404	865,912	0	1135.9	6.1

LDA - Light Duty Auto, LDT1 - Light Duty Truck 1 (<3,750 lbs), LDT2 - Light Duty Truck 2 (3,751-8,500 lbs)

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 Construction (Onroad Vehicles):

Phase Name	Daily Worker Trips	Daily Vendor Trips	Daily Haul 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	56	0	24	195	10920	0	4680	18.5	10.2	34	202020	0	159120	0.6	4,537.3	25,944.8
Grading	40	0	846	218	8720	0	184428	18.5	10.2	34	161320	0	6270552	0.6	3,623.2	1,022,424.2
Foundation	456	140	0	697	317832	97580	0	18.5	10.2	20	5879892	995316	0	0.6	132,060.5	97,372.8
Building Exterior	822	220	0	434	356748	89404	0	18.5	10.2	20	6599838	911920.8	0	0.6	148,230.2	89,214.1
Paving	17.5	10	0	109	1907.5	1090	0	18.5	10.2	20	35288.75	11118	0	0.6	792.6	1,087.7
Architectural Coating	491	124	0	653	320623	80972	0	18.5	10.2	20	5931526	825914.4	0	0.6	133,220.2	80,800.1
Undergrounding	10	6	1	23	230	138	23	18.5	10.2	20	4255	1407.6	460	0.6	95.6	212.7
Bridge Construction	20	60	1	44	880	2640	44	18.5	10.2	20	16280	26928	880	0.6	365.6	2,777.9
Radford and Carpenters	15	10	0	42	630	420	0	18.5	10.2	20	11655	4284	0	0.6	261.8	419.1
Total:															423,186.9	1,320,253.4

Worker Miles per gallon= 26.71 gasoline
 Vendor/Haul miles per gallon= 6.13 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)
 Trips presented are one-way trips

Water Usage for Control of Fugitive Dust during Construction:

Phase	Days	Average Daily Acreage Disturbed	Gallons Per Year	Electricity (kWhr)
Demolition	195	2.0	1,177,800	11,456
Grading	218	2.0	1,316,720	12,808
Foundation	697	2.0	4,209,880	40,950
Building Exterior	434	0	0	0
Paving	109	0	0	0
Architectural Coating	653	0	0	0
Undergrounding	23	0	0	0
Bridge Construction	44	0	0	0
Radford and Carpenters	42	0	0	0
Total:			6,704,400	65,214

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).

Radford Studio Center - Existing Operations
Los Angeles-South Coast County, Annual

Land Use Details

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building ¹	556,621	1000sqft	12.8	556,621	0
Industrial Park	359,730	1000sqft	8.3	359,730	0
High Turnover (Sit Down Restaurant) ¹	7,249	1000sqft	0.2	7,249	
Enclosed Parking with Elevator	2097	Space	18.9	709,508	
Strip Mall	255,510	1000sqft	5.7	255,510	
Parking Lot	998	Space	3.7		

Trip Summary Information²

Land Uses	Average Daily Trip Rate			Annual VMT
	Weekday	Saturday	Sunday	
All Land Uses	7,783	7,783	7,783	19,186,955
Total	7,783	7,783	7,783	19,186,955

Gasoline and Diesel Usage

	Buildout Year		Existing (Baseline) Year	
	Gasoline	Diesel	Gasoline	Diesel
Miles/Gallon	25.8	9.0	23.8	8.4
% Fleet Mix	94.4%	5.6%	94.9%	5.1%
Total (Gallons):	701,301	120,547	763,682	116,812

Energy by Land Use - Natural Gas

Land Uses	kBTU/yr	cu ft/year
General Office Building	11,183,551	10,651,000
Industrial Park	7,227,644	6,883,471
High Turnover (Sit Down Restaurant)	686,695	653,995
Enclosed Parking with Elevator		0
Strip Mall	1,258,168	1,198,255
Parking Lot		0
Total	20,356,058	19,386,722

Energy by Land Use - Electricity

Land Uses	kWH/yr
General Office Building	8,866,277
Industrial Park	5,730,049
High Turnover (Sit Down Restaurant)	236,101
Enclosed Parking with Elevator	2,619,100
Strip Mall	2,543,994
Parking Lot	142,100
Total	20,137,621

Water Detail

Land Uses	Indoor Use	Outdoor	Electricity
	(Mgal)	Use (Mgal)	Use (kWh/yr)
General Office Building	79.144	0.112	539,330
Industrial Park	66.550	0.112	453,602
High Turnover (Sit Down Restaurant)	1.760	0.006	19,613
Enclosed Parking with Elevator	0.000	0.000	0
Strip Mall	15.141	0.112	169,323
Parking Lot			0
Total	147.455	0.230	1,181,868

Notes: Indoor water results in 0.00687 kWh of electricity usage per gallon from delivery, treatment, and distribution of water within Southern California (CalEEMod). Outdoor water results in 0.005306 kWh of electricity usage per gallon from delivery and distribution of water within Southern California (CalEEMod).

¹ Existing General Office Building includes commissary uses which are modeled as High Turnover (Sit Down Restaurant) uses. Square footage for the commissary was subtracted from the General Office Building square footage

² Transportation Assessment for the Radford Studio Center Project Studio City, California. March 2024. Gibson Transportation Consulting

Radford Studio Center - Buildout Operations
Los Angeles-South Coast County, Annual

Land Use Details

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building ¹	1418	1000sqft	32.5	1,417,751	
Industrial Park	450	1000sqft	10.3	450,000	
High Turnover (Sit Down Restaurant) ¹	32	1000sqft	2	32,249	
Enclosed Parking with Elevator	5775	Space	52	1613761	
Strip Mall	300	1000sqft	6.89	300,000	
Parking Lot	275	Space	1.03	0	

Trip Summary Information²

Land Uses	Average Daily Trip Rate			Mitigated
	Weekday	Saturday	Sunday	
Total	16,435	16,435	16,435	40,148,540

Mitigated Gasoline and Diesel Usage

	Gasoline	Diesel
Miles/Gallon	25.8	9.0
% Fleet Mix	94.4%	5.6%
Total (Gallons):	1,467,467	252,245

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)

Land Uses	kBTU/yr	cu ft/year
General Office Building	4363570	4,155,781
Industrial Park	4488923	4,275,165
High Turnover (Sit Down Restaurant)	3054936	2,909,463
Enclosed Parking with Elevator	0	0
Strip Mall	419241	399,277
Parking Lot	0	0
Total	12,326,670	11,739,686

Energy by Land Use - Electricity (Mitigated)

Land Uses	kWH/yr
General Office Building	30,121,380
Industrial Park	7,550,914
High Turnover (Sit Down Restaurant)	1,050,353
Enclosed Parking with Elevator	5,957,088
Strip Mall	3,923,106
Parking Lot	838,560
Total	49,441,401

Note: Reduction in electricity usage reflects 2019 Title 24 energy efficiency standards and 25% for lighting.

Water Detail (Unmitigated)

Land Uses	Indoor Use (Mgal)	Outdoor Use (Mgal)	Electricity Use (kWh/yr)
General Office Building	201.586	0.112	1,372,790
Industrial Park	83.250	0.112	567,278
High Turnover (Sit Down Restaurant)	7.831	0.006	53,335
Enclosed Parking with Elevator	0.000	0.006	30
Strip Mall	17.777	0.006	121,041
Parking Lot	0.000	0.006	30
Total	310.44	0.25	2,114,503

Notes: Indoor water results in 0.00687 kWhr of electricity usage per gallon from delivery, treatment, and distribution of water within Southern California (CalEEMod). Outdoor water results in 0.005306 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

¹ Existing General Office Building includes commissary uses which are modeled as High Turnover (Sit Down Restaurant) uses. Square footage for the commissary was subtracted from the General Office Building square footage

² Transportation Assessment for the Radford Studio Center Project Studio City, California. March 2024. Gibson Transportation Consulting

**Radford Studio Center - Land Use Exchange
Los Angeles-South Coast County, Annual**

Land Use Details

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building ¹	1418	1000sqft	32.5	1,417,751	0
Industrial Park	575	1000sqft	13.2	575,000	0
High Turnover (Sit Down Restaurant) ¹	32	1000sqft	2	32,249	0
Enclosed Parking with Elevator	5775	Space	52	1613761	0
Strip Mall	175	1000sqft	4.02	175,000	0
Parking Lot	275	Space	1.03	0	0

Trip Summary Information²

Land Uses	Average Daily Trip Rate			Annual VMT
	Weekday	Saturday	Sunday	
Total	16,623	16,623	16,623	40,612,090

Gasoline and Diesel Usage

	Gasoline	Diesel
Miles/Gallon	25.8	9.0
% Fleet Mix	94.4%	5.6%
Total (Gallons):	1,484,410	255,157

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

Land Uses	kBTU/yr	cu ft/year
General Office Building	4,363,570	4,155,781
Industrial Park	4,488,923	4,275,165
High Turnover (Sit Down Restaurant)	3,054,936	2,909,463
Enclosed Parking with Elevator	0	0
Strip Mall	419,241	399,277
Parking Lot	0	0
Total	12,326,670	11,739,686

Energy by Land Use - Electricity

Land Uses	kWH/yr
General Office Building	30,121,380
Industrial Park	9,753,289
High Turnover (Sit Down Restaurant)	1,050,353
Enclosed Parking with Elevator	5,957,088
Strip Mall	2,133,914
Parking Lot	838,560
Total	49,854,584

Water Detail (Unmitigated)

Land Uses	Indoor Use (Mgal)	Outdoor Use (Mgal)	Electricity Use (kWh/yr)
General Office Building	201.586	0.112	1,372,790
Industrial Park	106.375	0.112	724,690
High Turnover (Sit Down Restaurant)	7.831	0.006	53,335
Enclosed Parking with Elevator	0.000	0.006	30
Strip Mall	10.370	0.006	70,619
Parking Lot	0.000	0.006	30
Total	326.16	0.25	2,221,493

Notes: Indoor water results in 0.00687 kWhr of electricity usage per gallon from delivery, treatment, and distribution of water within Southern California (CalEEMod). Outdoor water results in 0.005306 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.

¹ Existing General Office Building includes commissary uses which are modeled as High Turnover (Sit Down Restaurant) uses. Square footage for the commissary was subtracted from the General Office Building square footage

² Transportation Assessment for the Radford Studio Center Project Studio City, California. March 2024. Gibson Transportation Consulting

EMFAC2021 Emissions Inventory
 Region Type: County
 Region: Los Angeles
 Calendar Year: 2028
 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)		
Los Angeles	2028	Annual	HHDT	Diesel	Aggregated	Aggregated	58,802	7,268,319	923,761	0.00	1,133.53		
Los Angeles	2028	Annual	HHDT	Gasoline	Aggregated	Aggregated	26	2,301	511	0.52	0.00		
Los Angeles	2028	Annual	LDA	Diesel	Aggregated	Aggregated	5,944	181,299	24,998	0.00	4.26		
Los Angeles	2028	Annual	LDA	Gasoline	Aggregated	Aggregated	3,213,384	125,421,546	14,894,855	4,082.09	0.00		
Los Angeles	2028	Annual	LDT1	Diesel	Aggregated	Aggregated	29	585	82	0.00	0.02		
Los Angeles	2028	Annual	LDT1	Gasoline	Aggregated	Aggregated	301,279	10,938,459	1,329,539	426.63	0.00		
Los Angeles	2028	Annual	LDT2	Diesel	Aggregated	Aggregated	5,918	247,792	28,317	0.00	7.56		
Los Angeles	2028	Annual	LDT2	Gasoline	Aggregated	Aggregated	1,722,542	70,095,593	8,098,768	2,789.33	0.00		
Los Angeles	2028	Annual	LHDT1	Diesel	Aggregated	Aggregated	68,342	2,929,501	859,660	0.00	140.41		
Los Angeles	2028	Annual	LHDT1	Gasoline	Aggregated	Aggregated	125,767	4,998,300	1,873,734	341.69	0.00		
Los Angeles	2028	Annual	LHDT2	Diesel	Aggregated	Aggregated	31,735	1,322,864	399,180	0.00	74.65		
Los Angeles	2028	Annual	LHDT2	Gasoline	Aggregated	Aggregated	18,808	698,178	280,210	54.90	0.00		
Los Angeles	2028	Annual	MCY	Gasoline	Aggregated	Aggregated	163,868	1,054,761	327,735	25.31	0.00		
Los Angeles	2028	Annual	MDV	Diesel	Aggregated	Aggregated	11,719	445,451	54,804	0.00	18.07		
Los Angeles	2028	Annual	MDV	Gasoline	Aggregated	Aggregated	1,006,930	38,280,930	4,681,153	1,866.61	0.00		
Los Angeles	2028	Annual	MH	Diesel	Aggregated	Aggregated	6,245	65,723	624	0.00	6.60		
Los Angeles	2028	Annual	MH	Gasoline	Aggregated	Aggregated	14,378	149,468	1,438	30.86	0.00		
Los Angeles	2028	Annual	MHDT	Diesel	Aggregated	Aggregated	64,376	2,619,668	793,116	0.00	288.66		
Los Angeles	2028	Annual	MHDT	Gasoline	Aggregated	Aggregated	13,448	731,487	269,064	136.02	0.00		
Los Angeles	2028	Annual	OBUS	Diesel	Aggregated	Aggregated	2,339	171,148	30,982	0.00	23.86		
Los Angeles	2028	Annual	OBUS	Gasoline	Aggregated	Aggregated	3,293	120,645	65,877	23.06	0.00		
Los Angeles	2028	Annual	SBUS	Diesel	Aggregated	Aggregated	1,692	34,406	24,496	0.00	4.60		
Los Angeles	2028	Annual	SBUS	Gasoline	Aggregated	Aggregated	1,543	70,332	6,172	7.69	0.00		
Los Angeles	2028	Annual	UBUS	Diesel	Aggregated	Aggregated	8	1,453	33	0.00	0.26		
Los Angeles	2028	Annual	UBUS	Gasoline	Aggregated	Aggregated	432	30,444	1,727	6.55	0.00		
Los Angeles	2028	Annual	LDA	Plug-in Hybrid	Aggregated	Aggregated	114,381	2,303,255	472,964	83.91	0.00		
Los Angeles	2028	Annual	LDT1	Plug-in Hybrid	Aggregated	Aggregated	1,428	28,830	5,904	1.05	0.00		
Los Angeles	2028	Annual	LDT2	Plug-in Hybrid	Aggregated	Aggregated	24,232	483,151	100,200	17.76	0.00		
Los Angeles	2028	Annual	MDV	Plug-in Hybrid	Aggregated	Aggregated	14,853	276,882	61,417	10.33	0.00		
							Totals	270,972,774.38		9,904.31	1,702.46	MPG	Gallons Per Mile
							Total (GAS)	255,684,563.42	0.94			23.8	0.04
							Total (DSL)	15,288,210.96	0.06			9.0	0.11

Baseline Year
 Calendar Year: 2023
 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)		
Los Angeles	2023	Annual	HHDT	Diesel	Aggregated	Aggregated	51,746	6,735,516	804,221	0.00	1,127.80		
Los Angeles	2023	Annual	HHDT	Gasoline	Aggregated	Aggregated	52	3,245	1,050	0.82	0.00		
Los Angeles	2023	Annual	LDA	Diesel	Aggregated	Aggregated	9,775	293,631	40,275	0.00	7.39		
Los Angeles	2023	Annual	LDA	Gasoline	Aggregated	Aggregated	3,441,157	137,073,184	16,009,115	4,845.08	0.00		
Los Angeles	2023	Annual	LDT1	Diesel	Aggregated	Aggregated	135	2,742	393	0.00	0.12		
Los Angeles	2023	Annual	LDT1	Gasoline	Aggregated	Aggregated	323,318	11,785,010	1,422,834	497.89	0.00		
Los Angeles	2023	Annual	LDT2	Diesel	Aggregated	Aggregated	4,736	207,450	22,903	0.00	6.82		
Los Angeles	2023	Annual	LDT2	Gasoline	Aggregated	Aggregated	1,558,893	64,432,894	7,331,380	2,816.72	0.00		
Los Angeles	2023	Annual	LHDT1	Diesel	Aggregated	Aggregated	54,739	2,400,706	688,551	0.00	118.37		
Los Angeles	2023	Annual	LHDT1	Gasoline	Aggregated	Aggregated	126,299	4,975,896	1,881,670	379.01	0.00		
Los Angeles	2023	Annual	LHDT2	Diesel	Aggregated	Aggregated	24,419	1,058,012	307,155	0.00	62.09		
Los Angeles	2023	Annual	LHDT2	Gasoline	Aggregated	Aggregated	19,347	720,926	288,247	62.66	0.00		
Los Angeles	2023	Annual	MCY	Gasoline	Aggregated	Aggregated	147,384	966,253	294,767	23.59	0.00		
Los Angeles	2023	Annual	MDV	Diesel	Aggregated	Aggregated	10,935	433,865	51,746	0.00	18.92		
Los Angeles	2023	Annual	MDV	Gasoline	Aggregated	Aggregated	951,501	36,274,737	4,402,600	1,944.85	0.00		
Los Angeles	2023	Annual	MH	Diesel	Aggregated	Aggregated	5,471	56,805	547	0.00	5.69		
Los Angeles	2023	Annual	MH	Gasoline	Aggregated	Aggregated	16,465	159,232	1,647	32.88	0.00		
Los Angeles	2023	Annual	MHDT	Diesel	Aggregated	Aggregated	60,070	2,566,786	735,674	0.00	288.96		
Los Angeles	2023	Annual	MHDT	Gasoline	Aggregated	Aggregated	15,250	833,770	305,130	163.55	0.00		
Los Angeles	2023	Annual	OBUS	Diesel	Aggregated	Aggregated	2,107	170,067	27,221	0.00	24.73		
Los Angeles	2023	Annual	OBUS	Gasoline	Aggregated	Aggregated	3,862	157,361	77,280	31.50	0.00		
Los Angeles	2023	Annual	SBUS	Diesel	Aggregated	Aggregated	2,010	41,462	29,104	0.00	5.64		
Los Angeles	2023	Annual	SBUS	Gasoline	Aggregated	Aggregated	1,386	64,114	5,545	7.17	0.00		
Los Angeles	2023	Annual	UBUS	Diesel	Aggregated	Aggregated	45	7,197	180	0.00	1.18		
Los Angeles	2023	Annual	UBUS	Gasoline	Aggregated	Aggregated	439	31,153	1,755	6.81	0.00		
Los Angeles	2023	Annual	LDA	Plug-in Hybrid	Aggregated	Aggregated	86,566	2,058,404	357,950	75.01	0.00		
Los Angeles	2023	Annual	LDT1	Plug-in Hybrid	Aggregated	Aggregated	309	7,382	1,279	0.27	0.00		
Los Angeles	2023	Annual	LDT2	Plug-in Hybrid	Aggregated	Aggregated	11,316	271,382	46,790	9.96	0.00		
Los Angeles	2023	Annual	MDV	Plug-in Hybrid	Aggregated	Aggregated	6,330	141,006	26,173	5.25	0.00		
							Totals	273,930,189.78		10,903.00	1,667.71	MPG	Gallons Per Mile
							Total (GAS)	259,955,950.25	0.95			21.8	0.05
							Total (DSL)	13,974,239.53	0.05			8.4	0.12

Radford Studio Center - All Electric Conversion

Project Description - Land Use Summary

Land Use	Units	Existing	Demolition	Remain	New		Net Change
					Construction	Project	
Sound Stages	KSF	359.73	136.31	223	227	450	90.27
Production Support	KSF	255.51	170.37	85	215	300	44.49
Production Office	KSF	450.06	297.11	153	572	725	274.94
Creative Office	KSF	113.81	42.33	71	629	700	586.19
Retail	KSF	0	0	0	25	25	25
Total	KSF	1179.11	646.12	532.99	1667.01	2200	1020.89
Parking	spaces	3095	925	2170	3880	6050	
Parking	KSF	871.723	207.064	664.659	993.927	1658.586	

Existing

Land Use	Units	Amount	Energy Factors		Energy Demand (Annual)	
			kWh / sf	kbtu / sf	Annual kWh	Annual kbtu
General Office Building	KSF	556.621	15.9	20.1	8,866,277	11,183,551
Industrial Park	KSF	359.73	15.9	20.1	5,730,049	7,227,644
Strip Mall	KSF	255.51	10.0	4.9	2,543,994	1,258,168
Enclosed Parking	KSF	709.508	3.7	0.0	2,619,100	0
Surface Parking	KSF	162.215	0.9	0.0	142,100	0
Restaurant/Commissary	KSF	7.249	32.6	94.7	236,101	686,695
Total (minus parking)		1179.11			20,137,621	20,356,058

Existing to Remain

Land Use	Units	Amount	Energy Factors		Energy Demand (Annual)	
			kWh / sf	kbtu / sf	Annual kWh	Annual kbtu
General Office Building	KSF	217	15.9	20.1	3,459,422	4,363,570
Industrial Park	KSF	223	15.9	20.1	3,558,801	4,488,923
Strip Mall	KSF	85	10.0	4.9	847,699	419,241
Enclosed Parking	KSF	619.834	3.7	0.0	2,288,075	0
Surface Parking	KSF	44.825	0.9	0.0	39,267	0
Restaurant/Commissary	KSF	7.249	32.6	94.7	236,101	686,695
Total (minus parking)		532.99			10,429,365	9,958,430

New Construction Only

Land Use	Units	Amount	Energy Factors		Energy Demand (Annual)	
			kWh / sf	kbtu / sf	Annual kWh	Annual kbtu
General Office Building	KSF	1,200.57	15.9	20.1	19,123,579	24,121,683
Industrial Park	KSF	226.58	11.34	20.1	2,569,417	4,552,413
Strip Mall	KSF	214.86	10.0	4.9	2,139,261	1,058,001
Enclosed Parking	KSF	993.93	3.7	0.0	3,669,014	0
Restaurant	KSF	25.00	32.6	94.7	814,252	2,368,241
Total (minus parking)		1,667.01			28,315,523	32,100,338

New Construction Only (All Electric)

Land Use	Units	Amount	Energy Factors		Energy Demand (Annual)	
			kWh / sf	kbtu / sf	Annual kWh	Annual kbtu
General Office Building	KSF	1,200.57	15.9	0.0	26,661,958	0
Industrial Park	KSF	226.58	11.3	0.0	3,992,113	0
Strip Mall	KSF	214.86	10.0	0.0	3,075,406	0
Enclosed Parking	KSF	993.93	3.7	0.0	3,669,014	0
Restaurant	KSF	25.00	32.6	94.7	814,252	2,368,241
Total (minus parking)		1,667.01			38,212,743	2,368,241

Summary (With Natural Gas)

	Existing	Existing to	New		Net Increase
		Remain	Construction	Total Project	
Electricity (kWh / year)	20,137,621	10,429,365	28,315,523	38,744,888	18,607,267
Natural Gas (kbtu / year)	20,356,058	9,958,430	32,100,338	42,058,768	21,702,710

Summary (All Electric)

	Existing	Existing to	New		Net Increase
		Remain	Construction	Total Project	
Electricity (kWh / year)	20,137,621	10,429,365	38,212,743	48,642,108	28,504,486
Natural Gas (kbtu / year)	20,356,058	9,958,430	2,325,951	12,284,381	(8,071,677)

Radford Studio Center

All Electric Calculation--Proposed Development Program

CAPCOA Consumption Rate ³

Building Type	Natural Gas (Therm/yr/KSF)							Electricity (kWh/yr/KSF)						
	Water Heater	Primary Heat	Cooking	Dryer	Cooling	Misc	Refrig.	Water Heater	Primary Heat	Cooking	Dryer	Cooling	Misc	Refrig.
Industrial Park	20	119	1		18	43	0	46	396	9		3103	2714	11
Strip Mall	1	4	0	0	7	34	3	24	28	27		1249	2867	162
General Office Building	20	119	1	0	18	43	1	46	396	9	0	3103	2714	11
High Turnover (Sit Down Restaurant)	90	37	702	0	48	67	4	35	268	1279		3254	8965	6236

³ California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emissions Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity. Appendix C. Table E-15. December 2021.

Project Energy Demand - New Construction Only

Project Uses	Amount (DU/KSF)	Natural Gas (Therm/yr/KSF)							Electricity (kWh/yr/KSF)								
		Water Heater	Primary Heat	Cooking	Cooling	Misc	Refrig.	Total	Water Heater	Primary Heat	Cooking	Cooling	Misc	Refrig.	Title 24 Total	Non-Title 24 Total	Total
Industrial Park (Sound Stages)	227	4,532	26,963	227	4,078	9,743	0	45,543	10,423	89,726	2,039	703,078	614,938	2,492	803,226	619,470	1,422,696
Strip Mall	215	215	859	0	1,504	7,305	645	10,528	5,157	6,016	5,801	268,360	616,004	34,807	279,533	656,612	936,145
General Office Building	1,201	24,011	142,868	1,201	21,610	51,625	1,201	242,515	55,226	475,426	10,805	3,725,369	3,258,347	13,206	4,256,027	3,282,358	7,538,379
High Turnover (Sit Down Restaurant)	25	2,250	925	17,550	1,200	1,675	100	23,700	875	6,700	31,975	81,350	224,125	155,900	88,925	412,000	500,925
Total	1,667	28,758	170,690	1,427	27,193	68,673	1,845	298,586	71,681	577,867	50,621	4,778,157	4,713,414	206,406	5,427,705	4,970,440	10,398,145

Total Annual Consumption

CalEEMod 2022 Default	Electricity				Natural Gas			
	Total (kWh/yr)	Title 24 (kWh/yr)	Non-Title 24 (kWh/yr)	KWh/sf/yr	Total (kBtu/yr)	Title 24 (kBtu/yr)	Non-Title 24 (kBtu/yr)	kBTU/sf/yr
Industrial Park (Sound Stages)	2,569,417	1,872,864	696,554	11.34	4,552,413	3,555,728	996,685	20.09
Strip Mall (Production Support)	2,139,261	1,380,201	759,061	10.0	1,058,001	248,777	809,224	4.92
General Office Building	19,123,571	13,939,292	5,184,287	15.93	24,121,683	18,840,588	5,281,095	20.09
High Turnover (Sit Down Restaurant)	814,252	389,808	424,444	32.57	2,368,241	435,178	1,933,063	94.73

Total Annual Consumption

With Adjustment for Input to	Electricity			Natural Gas
	Total (kWh/yr)	Title 24 (kWh/yr)	Non-Title 24 (kWh/yr)	Total (kBtu/yr)
Industrial Park (Sound Stages)	3,992,113	2,676,090	1,316,023	0
Strip Mall (Production Support)	3,075,406	1,659,733	1,415,673	
General Office Building	26,661,958	18,195,313	8,466,646	0
High Turnover (Sit Down Restaurant)	814,252	389,808	424,444	2,325,951
Enclosed Parking	3,669,014			
Total:	38,212,743	22,920,944	11,622,786	2,325,951

Radford Studio Center

Land Use Exchange - Energy Screening Calculations

Energy Factors

Land Use	Existing		Project	
	kWh / sf	kbtu / sf	kWh / sf	kbtu / sf
General Office Building	15.9	20.1	22.2	0.0
Industrial Park	15.9	20.1	17.6	0.0
Strip Mall	10.0	4.9	14.3	0.0
Restaurant	32.6	94.7	32.6	94.7

Square Footage Summary

Land Use Summary - Land Use Exchange

Land Use	Total Project (Existing to Remain + New Construction)							New Construction Only			
	Existing	Existing to Remain	Project	Scenario 1 ¹	Scenario 2 ²	Scenario 3 ³	Scenario 4 ⁴	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Sound Stages	359,730	223,420	450,000	575,000	175,000	575,000	450,000	351,580	-48,420	351,580	226,580
Production Support	255,510	85,140	300,000	175,000	575,000	300,000	575,000	89,860	489,860	214,860	489,860
Production Office	450,060	152,950	725,000	725,000	725,000	600,000	450,000	572,050	572,050	447,050	297,050
Creative Office	113,810	71,480	700,000	700,000	700,000	700,000	700,000	628,520	628,520	628,520	628,520
Retail	-	0	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Total Development	1,179,110	532,990	2,200,000	2,200,000	2,200,000	2,200,000	2,200,000	1,667,010	1,667,010	1,667,010	1,667,010

CalEEMod Categories

Land Use	Total Project (Existing to Remain + New Construction)							New Construction Only			
	Existing	Existing to Remain	Project	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 1	Scenario 2	Scenario 3	Scenario 4
General Office Building	563,870	217,181	1,425,000	1,417,751	1,417,751	1,292,751	1,142,751	1,200,570	1,200,570	1,075,570	925,570
Industrial Park	359,730	223,420	450,000	575,000	175,000	575,000	450,000	351,580	-48,420	351,580	226,580
Strip Mall	255,510	85,140	300,000	175,000	575,000	300,000	575,000	89,860	489,860	214,860	489,860
Restaurant	0	7,249	32,249	32,249	32,249	32,249	32,249	25,000	25,000	25,000	25,000
Total (minus parking)	1,179,110	532,990	2,207,249	2,200,000	2,200,000	2,200,000	2,200,000	1,667,010	1,667,010	1,667,010	1,667,010
								0	0	0	0

Energy and VMT Comparisons

Electricity Usage (kWh/year)

Land Use	Total Project (Existing to Remain + New Construction)							New Construction Only			
	Existing	Existing to Remain	Project	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 1	Scenario 2	Scenario 3	Scenario 4
General Office Building		3,459,422						26,652,654	26,652,654	23,877,654	20,547,654
Industrial Park		3,558,801						6,194,488	-771,270	6,194,488	3,992,113
Strip Mall		847,699						1,285,897	7,009,897	3,074,647	7,009,897
Restaurant		236,101						814,252	814,252	814,252	814,252
Total (minus parking)		8,102,023						34,947,291	33,705,533	33,961,041	32,363,916

Natural Gas Usage (kBtu/year)

Land Use	Total Project (Existing to Remain + New Construction)							New Construction Only			
	Existing	Existing to Remain	Project	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 1	Scenario 2	Scenario 3	Scenario 4
General Office Building		4,363,570						0	0	0	0
Industrial Park		4,488,923						0	-972,848	0	0
Strip Mall		419,241						0	0	0	0
Restaurant		686,695						2,368,241	2,368,241	2,368,241	2,368,241
Total (minus parking)		9,958,430						2,368,241	1,395,393	2,368,241	2,368,241

VMT⁵

Land Use	Total Project (Existing to Remain + New Construction)						
	Existing	Existing to Remain	Project	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Daily Trips				16,623	16,017	16,067	15,205
Daily VMT				111,266	107,168	107,504	106,589

Note: Values presented are for screening purposes only. Values not to be used for final evaluation.

¹ 125 ksf of additional sound stage with the same reduction in production support

² 275 ksf reduction in sound stage with the same increase in production support

³ 125 ksf of additional sound stage with the same reduction in production office

⁴ 275 ksf of additional production support with the same reduction in production office

⁵ Transportation Assessment for the Radford Studio Center Project Studio City, California. March 2024. Gibson Transportation Consulting

Radford Studio Center

All Electric Calculation--Conceptual Development Plan Scenario

CAPCOA Consumption Rate^a

Building Type	Natural Gas (Therm/yr/KSF)							Electricity (kWh/yr/KSF)						
	Water		Primary					Water		Primary				
	Heater	y Heat	Cooking	Dryer	Cooling	Misc	Refrig	Heater	y Heat	Cooking	Dryer	Cooling	Misc	Refrig
Industrial Park	20	115	1		18	43	0	46	396	9		3,103	2,714	11
Strip Mall	1	4	0	0	7	34	3	24	28	27		1,249	2,867	162
General Office Building	20	115	1		18	43	0	46	396	9		3,103	2,714	11

^a California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emissions Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity. Appendix

Project Energy Demand - New Construction Only

Project Uses	Amount (DU/KSF)	Natural Gas (Therm/yr/KSF)							Total	Electricity (kWh/yr/KSF)							Title 24 Total	Non-Title 24 Total	Total
		Water		Primary						Water		Primary							
		Heater	Heat	Cooking	Cooling	Misc	Refrig.	Heater		Heat	Cooking	Cooling	Misc	Refrig.					
Industrial Park (Sound Stage)	1	20	119	1	18	43	0	201	46	396	9	3,103	2,714	11	3,545	2,734	6,279		
Strip Mall	1	1	4	0	7	34	3	49	24	28	27	1,249	2,867	162	1,301	3,056	4,357		
General Office Building	1	20	119	1	18	43	1	202	46	396	9	3,103	2,714	11	3,545	2,734	6,279		
Total		41	242	2	43	120	4	452	151	1,080	1,324	10,705	17,286	6,426	11,944	25,004	36,952		

Energy Factor Adjustments

Land Use	Default ^a kWh / sf	Adjusted ^b kWh / sf
General Office Building	15.9	22.2
Industrial Park	11.3	17.6
Strip Mall	10.0	14.3
Enclosed Parking	3.7	3.7
Restaurant	32.6	32.6
Total (minus parking)		

^a Default electricity usage factors are based on CalEEMod defaults or factors calculated by Arup. These usage factors take into account uses normally powered by electricity (air conditioning, lighting, appliances) ARUP, Peer Review of Draft EIR Energy Analysis for Radford Studio Center Project, May 3, 2024.

^b Adjusted electricity usage factors include default factors, plus uses which are typically powered by natural gas (water heater, heating, cooking, clothes dryer)

Peak Electricity Demand Calculations

Electrical Load Factor Equation

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

Load Factor (%)¹ **52%**

Project Electricity Demand (Operational)

	Baseline (Existing)	Project	Net Increase
Annual Demand			
Building (MWh)	21,501	52,551	31,050
Water (MWh)	1,182	2,115	933
Total (MWh)	22,683	54,665	31,983

Average Daily Demand

Building (kWh)	58,906	143,974	85,068
Water (kWh)	3,238	5,793	2,555
Total (kWh)	62,144	149,768	87,624

Average Load

Building (kW)	2,454	5,999	3,545
Water (kW)	135	241	106
Total (kW)	2,589	6,240	3,651

Peak Load Calculation

Peak Load (kW)	4,855	11,778	11,778
Systemwide Peak Load (MW)	5,832	5,832	5,832
Percent of Peak			0.202%

¹2017 Report: System Efficiency of California's Electric Grid. California Public Utilities Comm 2017. Page 11, Figure 6. Visual estimate.

EMFAC Emission inventories for County

EMFAC2021 (v1.0.1) Emissions Inventory

Region Type: County

Region: Los Angeles

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

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Region	CalYr	VehClass	MdYr	Speed	Fuel	Fuel_Gasoline (1000 gallons/day)	Fuel_DSL (1000 gallons/day)
Los Angeles	2023	HHDT	Aggregated	Aggregated	Diesel	0.00	1127.80
Los Angeles	2023	HHDT	Aggregated	Aggregated	Gasoline	0.82	0.00
Los Angeles	2023	LDA	Aggregated	Aggregated	Diesel	0.00	7.39
Los Angeles	2023	LDA	Aggregated	Aggregated	Gasoline	4845.08	0.00
Los Angeles	2023	LDT1	Aggregated	Aggregated	Diesel	0.00	0.12
Los Angeles	2023	LDT1	Aggregated	Aggregated	Gasoline	497.89	0.00
Los Angeles	2023	LDT2	Aggregated	Aggregated	Diesel	0.00	6.82
Los Angeles	2023	LDT2	Aggregated	Aggregated	Gasoline	2816.72	0.00
Los Angeles	2023	LHDT1	Aggregated	Aggregated	Diesel	0.00	118.37
Los Angeles	2023	LHDT1	Aggregated	Aggregated	Gasoline	379.01	0.00
Los Angeles	2023	LHDT2	Aggregated	Aggregated	Diesel	0.00	62.09
Los Angeles	2023	LHDT2	Aggregated	Aggregated	Gasoline	62.66	0.00
Los Angeles	2023	MCY	Aggregated	Aggregated	Gasoline	23.59	0.00
Los Angeles	2023	MDV	Aggregated	Aggregated	Diesel	0.00	18.92
Los Angeles	2023	MDV	Aggregated	Aggregated	Gasoline	1944.85	0.00
Los Angeles	2023	MH	Aggregated	Aggregated	Diesel	0.00	5.69
Los Angeles	2023	MH	Aggregated	Aggregated	Gasoline	32.88	0.00
Los Angeles	2023	MHDT	Aggregated	Aggregated	Diesel	0.00	288.96
Los Angeles	2023	MHDT	Aggregated	Aggregated	Gasoline	163.55	0.00
Los Angeles	2023	OBUS	Aggregated	Aggregated	Diesel	0.00	24.73
Los Angeles	2023	OBUS	Aggregated	Aggregated	Gasoline	31.50	0.00
Los Angeles	2023	SBUS	Aggregated	Aggregated	Diesel	0.00	5.64
Los Angeles	2023	SBUS	Aggregated	Aggregated	Gasoline	7.17	0.00
Los Angeles	2023	UBUS	Aggregated	Aggregated	Diesel	0.00	1.18
Los Angeles	2023	UBUS	Aggregated	Aggregated	Gasoline	6.81	0.00
Los Angeles	2023	LDA	Aggregated	Aggregated	Plug-in Hybrid	75.01	0.00
Los Angeles	2023	LDT1	Aggregated	Aggregated	Plug-in Hybrid	0.27	0.00
Los Angeles	2023	LDT2	Aggregated	Aggregated	Plug-in Hybrid	9.96	0.00
Los Angeles	2023	MDV	Aggregated	Aggregated	Plug-in Hybrid	5.25	0.00
						3,979,596,395	608,715,539
Fuel Usage for Project Construction						423,187	1,747,004
Percentage of County for Construction						0.0106%	0.287%

EMFAC Emission inventories for County

EMFAC2021 (v1.0.1) Emissions Inventory

Region Type: County

Region: Los Angeles

Calendar Year: **2028** (Operational Start Year)

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Region	CalYr	VehClass	MdYr	Speed	Fuel	Fuel_Gasoline (1000 gallons/day)	Fuel_DSL (1000 gallons/day)
Los Angeles	2028	HHDT	Aggregated	Aggregated	Diesel	0.00	1133.53
Los Angeles	2028	HHDT	Aggregated	Aggregated	Gasoline	0.52	0.00
Los Angeles	2028	LDA	Aggregated	Aggregated	Diesel	0.00	4.26
Los Angeles	2028	LDA	Aggregated	Aggregated	Gasoline	4082.09	0.00
Los Angeles	2028	LDT1	Aggregated	Aggregated	Diesel	0.00	0.02
Los Angeles	2028	LDT1	Aggregated	Aggregated	Gasoline	426.63	0.00
Los Angeles	2028	LDT2	Aggregated	Aggregated	Diesel	0.00	7.56
Los Angeles	2028	LDT2	Aggregated	Aggregated	Gasoline	2789.33	0.00
Los Angeles	2028	LHDT1	Aggregated	Aggregated	Diesel	0.00	140.41
Los Angeles	2028	LHDT1	Aggregated	Aggregated	Gasoline	341.69	0.00
Los Angeles	2028	LHDT2	Aggregated	Aggregated	Diesel	0.00	74.65
Los Angeles	2028	LHDT2	Aggregated	Aggregated	Gasoline	54.90	0.00
Los Angeles	2028	MCY	Aggregated	Aggregated	Gasoline	25.31	0.00
Los Angeles	2028	MDV	Aggregated	Aggregated	Diesel	0.00	18.07
Los Angeles	2028	MDV	Aggregated	Aggregated	Gasoline	1866.61	0.00
Los Angeles	2028	MH	Aggregated	Aggregated	Diesel	0.00	6.60
Los Angeles	2028	MH	Aggregated	Aggregated	Gasoline	30.86	0.00
Los Angeles	2028	MHDT	Aggregated	Aggregated	Diesel	0.00	288.66
Los Angeles	2028	MHDT	Aggregated	Aggregated	Gasoline	136.02	0.00
Los Angeles	2028	OBUS	Aggregated	Aggregated	Diesel	0.00	23.86
Los Angeles	2028	OBUS	Aggregated	Aggregated	Gasoline	23.06	0.00
Los Angeles	2028	SBUS	Aggregated	Aggregated	Diesel	0.00	4.60
Los Angeles	2028	SBUS	Aggregated	Aggregated	Gasoline	7.69	0.00
Los Angeles	2028	UBUS	Aggregated	Aggregated	Diesel	0.00	0.26
Los Angeles	2028	UBUS	Aggregated	Aggregated	Gasoline	6.55	0.00
Los Angeles	2028	LDA	Aggregated	Aggregated	Plug-in Hybrid	83.91	0.00
Los Angeles	2028	LDT1	Aggregated	Aggregated	Plug-in Hybrid	1.05	0.00
Los Angeles	2028	LDT2	Aggregated	Aggregated	Plug-in Hybrid	17.76	0.00
Los Angeles	2028	MDV	Aggregated	Aggregated	Plug-in Hybrid	10.33	0.00
						3,573,808,379	621,398,931
Net Fuel Usage for Project Operation						766,166	131,697
Percentage of County for Operation						0.0214%	0.0212%

Memorandum

To Everest Yan, Eyestone Environmental
Date May 3, 2024
Copies Morad Pajouhan, Stephanie Eyestone Jones, Laura Rodriguez, Jenna Wittenberg, Daniel Kim, Bruce McKinlay, Mark Hagmann
Reference number 288097
From Geffen Oren
Subject Peer Review of Draft EIR Energy Analysis for Radford Studio Center Project

Executive Summary

Arup has been engaged to provide a peer review of the energy consumption factors for the Radford Studio Center Project (Project) located at 4024-4200 N. Radford Avenue, Studio City, CA, 91604 (Project Site). Electricity and natural gas consumption associated with the Project is being evaluated as part of the Environmental Impact Report (EIR) for the Project.

Operations personnel at Radford had provided an initial estimate of the energy use associated with the Project Site's buildings, electric vehicle (EV) charging, and basecamp energy use. Our technical review of these end uses is detailed in the following sections.

This memorandum confirms the analysis and methodology used in the Draft EIR to evaluate electricity and natural gas consumption. This memorandum also provides Arup's estimation for EV charging and basecamp electricity consumption.

Building Energy Consumption

To estimate building energy usage, Eyestone Environmental primarily makes use of CalEEMod default energy use factors recommended by the SCAQMD. These values are employed for all land uses except for the proposed studio spaces. To represent building energy usage, Eyestone uses the values from CalEEMod 2022.1. Energy use for the proposed studio uses is estimated through existing utility bills of a similar studio property: Manhattan Beach Studios (MBS). This same approach using existing utility bills for the studio uses and CalEEMod default values for all other land uses was utilized for the TVC 2050 Project EIR. These values are reported below in Table 1.

Arup compared these values to those from other reference databases, including Commercial Buildings Energy Consumption Survey (CBECS), California Building Energy Modeling (CalBEM), and California Assembly Bill (AB) 802 Benchmarking. We also compared them to the existing utility bills from Radford Studio Center.

We found the values proposed by Eyestone Environmental to be reasonable and valid for the Draft EIR as they fell into the same range as those from these other reference sources. As such, Arup confirms

that the Draft EIR adequately and thoroughly analyzes the building energy consumption associated with the Project and that the analysis is conservative.

Table 1. Building Energy Use Intensity (EUI) Values Used in Draft EIR

Land Use	Electricity		Natural Gas		CalEEMod Land Use Category
	Existing (kWh/sf/yr)	Project (kWh/sf/yr)	Existing (kBtu/sf/yr)	Project ¹ (kBtu/sf/yr)	
Sound Stage ²	15.93	11.34	20.09	0 or 20.09	Industrial Park
Production Support	10.0	10.0	4.9	0 or 4.9	Strip Mall
Production and Creative Office	15.93	15.93	20.09	0 or 20.09	General Office Building
Retail ³	32.6	32.6	94.7	94.7	High Turnover (Sit Down Restaurant)

Notes:

1. New buildings on the campus would be all-electric as a voluntary project design feature. Natural gas usage factors would be zero for all new buildings with the exception of retail/restaurant uses. As such, the EIR adjusts the natural gas values for the build out to reflect all-electric construction. As a conservative assumption, a separate calculation was performed to account for the possibility of natural gas within new buildings.
2. Sound stage electricity usage factors (build out) are based on MBS utility bills.
3. Retail includes restaurant use.

CalEEMod Value Determination

CalEEMod 2022.1 default electricity usage factors are used to estimate energy usage from the proposed land uses. Specifically, they are based on 2019 consumption estimates using the California Energy Commission’s (CEC’s) 2018–2030 Uncalibrated Commercial Sector Forecast and 2019 Residential Appliance Saturation Survey (RASS). Thus, the CalEEMod 2022 default energy usage rates are based on 2019 Title 24 standards (applicable to buildings built in 2019). These values reflect buildings constructed today.

Based on CalEEMod default energy usage factors, energy usage for the existing uses would be lower than what would be estimated assuming the utility bills for Radford Studio Center. This is important since SCAQMD’s regional significance threshold represents the incremental change from baseline (existing) conditions in comparison to Project buildout emissions (i.e., Project impact). Thus, the Draft EIR’s use of CalEEMod to estimate the baseline energy use is conservative because it results in a lower level of baseline energy use than would occur using the existing utility bills, resulting in a larger incremental change in energy use and emissions caused by the Project.

The Project includes five land uses: sound stage, production support, production office, creative office, and retail. Of the five land uses, only general office, retail, and restaurant uses have direct corresponding land use categories within CalEEMod. Note that general office was used both for the proposed creative and production office uses.

Given the few directly corresponding land uses, it is necessary to utilize representative land uses within this model. Because representative uses are not exact representations of the Project’s studio land uses, representative uses that would result in a conservative estimate of operational energy are selected.

While CalEEMod provides many different land use types, it is not exhaustive and does not provide a land use type for every possible use. Where a use is not specifically identified, it is appropriate to select a representative land use type or to use empirical data. The Draft EIR uses representative land use types

within CalEEMod that would conservatively reflect the type of operations which would occur for the proposed sound stage and production support uses.

The Project includes retail uses that could include restaurant uses. CalEEMod provides the following land use types for retail: free-standing discount store, free-standing discount superstore, discount club, regional shopping center, electronic superstore, home improvement superstore, strip mall, hardware/paint store, supermarket, 24-hour convenience market with or without gas pumps, automobile care center, and gasoline/service station. Also, CalEEMod provides the following land use types for restaurant uses: fast food, high turnover (sit down restaurant), and quality restaurant.

In review of the available retail and restaurant type land uses, the high turnover (sit down restaurant) land use was conservatively used for the Project's proposed retail use. Other retail land uses within CalEEMod which were considered include: discount store, superstore, discount club, regional shopping center, electronic or home improvement superstore, hardware/paint store, supermarket, 24-hour convenience market, automobile care center, or a gasoline/service station. However, these uses are not representative of the Project's retail uses (which would not be operated 24-hours or require substantial refrigeration/freezer needs).

Production support is a studio land use primarily used for the support of production activities and employee services (e.g., sets/facades manufacturing, mill shop, gym, childcare, and storage). As production support includes activities related to manufacturing sets and gym/childcare services, the "light industrial" and "strip mall" uses were considered to represent production support uses. CalEEMod provides an electricity usage factor of 10.0 kWh/sf/yr for strip mall retail and 9.7 kW/sf/yr for general light industry uses and manufacturing. Based on this information, Arup confirms that the Draft EIR correctly uses the CalEEMod strip mall land use type for production support as it would be representative of the maximum electricity usage from the types of land uses under production support.

Use of the CalEEMod industrial park land use type has been used to represent sound stages in other studio projects within the City of Los Angeles¹. Consistent with these studio projects, the Draft EIR used the CalEEMod industrial park land use type to represent existing sound stages which resulted in an electricity usage factor of 15.93 kWh/sf/yr. The electricity usage rate for the proposed sound stages was developed for the Draft EIR based on existing utility bills from MBS in which electricity bills were separately available for each sound stage. To develop a future sound stage kW/sf/yr rate that would reflect a more modern, energy-efficient use, the total annual electricity usage for the MBS sound stages was divided by the total square footage of the sound stages, resulting in a factor of 11.34 kWh/sf/yr. Arup agrees that use of the MBS electricity usage factor would be representative of the Project's proposed sound stages. Natural gas meters at MBS were not directly metered for each individual sound stage and, therefore, the same calculation method was not available. Instead, the Draft EIR uses the CalEEMod land use type of industrial park to represent the existing sound stages for the natural gas analysis.

For comparison purposes, the existing energy usage of the Project Site was calculated based on CalEEMod default energy factors and compared to the existing electricity and natural gas utility bills

¹ Page 88 of Appendix B, Technical Appendix for Air Quality and GHG, Sunset Gower Studios Enhancement Plan Draft EIR, 2020 (https://planning.lacity.org/eir/Sunset_Gower_Studios/DEIR/files/App_B.pdf); and Page 321 of Appendix E, Air Quality Data, Paramount Pictures Master Plan Draft EIR, 2011 (https://planning.lacity.org/eir/paramount/deir/files/App_E.pdf).

for the Project Site. The difference between the CalEEMod calculated energy usage and usage based on the existing utility bills was less than five percent for electricity and less than 10 percent for natural gas. Therefore, the use of CalEEMod default energy usage factors would be representative and conservative.

All-Electric Ordinance – City of Los Angeles Ordinance No. 187,714

The City passed Ordinance No. 187,714 which requires all new buildings to be all-electric with some exceptions as specified in the ordinance. The Project would comply with the all-electric ordinance, as applicable. To reflect the all-electric ordinance, Eyestone Environmental adjusted CalEEMod values to replace gas energy usage in the new buildings with electricity consumption. This Ordinance was suspended in March of 2024 in light of the recent Berkeley decision in which the Ninth Circuit Court of Appeals determined that Berkeley's building electrification policy interferes with a federal law on appliance efficiency, the Energy Policy and Efficiency Act, or EPCA. The City has not taken any formal action to rescind the ordinance. Nonetheless, the Project would support the reduction in natural gas by voluntarily prohibiting use of natural gas in new buildings with the exception of the commissary or restaurant uses. Although the Project would not include natural gas uses within new buildings, a separate calculation was performed to account for the possibility of natural gas consumption within new buildings.

The results reflect a conservative estimation of energy consumption consistent with the California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emissions Reductions (CAPCOA GHG Handbook). The CAPCOA GHG Handbook provides a methodology to calculate the equivalent electricity usage of an appliance that is normally powered by natural gas, such as clothes dryers, water heaters and space heating. In order to account for the Project's all-electric design, calculations are performed to convert appliances which are typically powered by natural gas to electrically-powered.

Conversely, the CAPCOA GHG Handbook also assumes some appliances that are typically powered by electricity to be powered by natural gas by default (e.g., refrigeration and air conditioning). As CalEEMod 2022.1 categorizes electricity usage as either Title 24 (e.g., space heating and water heating) versus non-Title 24 (e.g., appliances), a specific conversion for each category provided in the CAPCOA GHG Handbook is not available. Thus, some natural gas categories within the CAPCOA GHG Handbook (e.g., refrigeration) are likely already included as electric within CalEEMod. Arup confirms that the conversion between natural gas to electricity for these categories within the CAPCOA GHG Handbook would be conservative and overstate the total electricity usage.

Electric Vehicle Charging

Arup was tasked with estimating the annual EV charging demand for both the existing Project Site and proposed Project. Our analysis incorporates information from the Transportation Assessment for the Radford Studio Center Project prepared by Gibson Transportation Consulting, Inc. dated March 2024 (Transportation Assessment).

Electric Vehicle Requirements

Per the 2023 City of Los Angeles Green Building Standards Code, the Project is required to make 30% of its parking spaces EV capable, i.e., have EV charging available in the near future (Section

5.106.5.3.1). In addition, 20% of the total spaces must have installed EV charging equipment; these spaces can contribute to the 30% EV capable requirement (Section 5.106.5.3.2).

The number of existing and proposed parking spaces are listed in Table 2 below. Currently, the Project Site has 29 EV charging spaces – approximately 1% of its total parking spaces. The Radford Studio Center operations team has observed that most of these spaces are occupied and in use throughout the week.

To meet the code requirements, 1,815 of the proposed 6,050 parking spaces must be EV capable. Arup expects that usage of these EV charging spaces may not be as high as compared to existing conditions given the much larger quantity of EV spaces and the proliferation of at-home charging capabilities. However, for our estimation of the EV charging demand, Arup made the conservative assumption that 100% of the EV spaces will be occupied and used daily for charging. This assumption is in alignment with current observed use, according to the onsite team, of the EV charging parking spaces. The quantity of EV charging spaces is provided in Table 3 below.

Table 2. Parking Space Summary

Parking	No. of Spaces
Existing to be Demolished	925
Existing to Remain	2,170
Proposed New	3,880
Total	6,050

Table 3. Electric Vehicle Space Requirements

EV Requirement	Percent of Parking Spaces	EV Charging Spaces
Existing (Requirement N/A)	0.94%	29
Electric Vehicle Charging Stations	20%	1,210
Electric Vehicle Capable	30%	1,815

EV Charging Estimation

To estimate the EV charging demand, Arup made use of the following calculations, which factor in values from the Transportation Assessment. The calculation estimates vehicles miles traveled (VMT) associated with a parking space. It multiplies the VMT by the average EV efficiency and the number of EV charging spaces.

- Vehicle Miles per year = Daily VMT * Operational Days per Year
- Annual EV Charging at Project Site = Average Electric Vehicle Efficiency * Vehicle Miles per Year * Percent of EV Charging Parking Spaces

Arup estimated the existing and future Project energy demand, which is provided in Table 4 below.

Table 4. Values Used to Estimate Electric Vehicle Charging

Metric	Value	Units	Sources
Average EV Efficiency	195 ¹	Wh/km	https://ev-database.org/cheatsheet/energy-consumption-electric-car
Existing Daily VMT	52,567	Miles	Transportation Assessment, Appendix D, VMT Analysis Worksheets
Proposed Daily VMT	109,996	Miles	Transportation Assessment, Appendix D, VMT Analysis Worksheets
Operational Days per Year	250	Days	5 days a week, roughly 10 holidays

Notes:

1. Electric vehicle efficiency report reported on this website has changed slightly since this memo was published.

Existing Project Site

- Vehicle Miles per Year = 52,567 VMT/day * 250 days / year = 13,141,750 vehicle miles per year
- Annual EV Charging at Project Site = 195 Wh/km * 13,141,750 miles per year * 0.94% = **38,767 kWh**

Proposed Project

- Daily Vehicle Miles per Trip = 109,996 VMT/day * 250 days / year = 27,499,000 vehicle miles per year
- Annual EV Charging at Project Site = 195 Wh/km * 27,499,000 miles per year * 30% = **2,588,938 kWh**

Basecamp Electricity Consumption

Arup reviewed the basecamp calculations provided by Radford Operations personnel. Their calculations estimated the power demand of each piece of equipment in the basecamp. They then applied a demand factor of 50% and multiplied them by the anticipated hours of operation – estimated based on the studio’s filming schedules. Arup found the calculations to be reasonable and in line with those produced and accepted for the TVC 2050 Project EIR. Arup had prepared additional calculations to estimate energy usage associated with golf carts and scissor lifts.

Assumptions for calculating golf cart and aerial lift energy usage is detailed in Table 4 below.

Table 4. Golf Cart and Scissor Lift Energy Usage Assumptions

Equipment	Energy	Calculations & Sources
Golf Cart	3 kWh/day	Research online shows that golf carts use on average 3 kWh/day ¹
Scissor lift	6 kWh/day	Based on battery size, assuming one full charge per day. Research online shows that scissor lifts have a battery size between 0.5 kWh and 6 kWh ²

Notes:

1. Golf cart sources:
 - 3.3 kWh: <https://www.golfcarsunlimited.com/electricity-consumed-charge-electric-golf-cart/>
 - 2-3 kWh/day: <https://ridereview.com/questions/how-much-power-does-an-electric-golf-cart-use-a-day>
 - 3 kWh battery size assuming golf carts are charged each night: <https://www.elitepowersolutions.com/golf-cart-battery-system#:~:text=The%20battery%20configuration%20is%20a,2.4KWh%20usable%20storage%20capacity>
2. Scissor lift sources:
 - 2 x 12V/80 Ah = 1.92 kWh: <https://www.rpmhardware.com/full-electric-scissor-lifted-working-platform-189-lifting-height-440-lbs-model-zsf2-4-8-tuyue-zsf0248-jtmrlsqcs>
 - 24V/30 Ah = 0.72 kWh: https://www.uline.com/BL_94/Battery-Operated-Lift-Tables
 - 4 x 6V/225 Ah = 5.4 kWh: <https://www.acmetools.com/genie-19-scissor-lift-32in-width-electric-with-e-drive-gs-1932e/407001000723.html#FeaturesPDP>
 - 2 x 12V/100 Ah = 2.4 kWh: https://www.cqliften.com/shop/product/mini-scissor-lift/?srsltid=AfmBOor6iYpwsJQrv22eLF1JNqZz_L0YfUNN-gdaTsy1OkP7G3Sc1168QHU

When the basecamp energy usage calculation prepared by Radford Operations personnel is augmented with golf cart and scissor lift energy use, the total annual energy usage is 938,749 kWh. The calculation of electricity usage associated with the basecamp is conservative since it assumes that all electrical hookups will be new rather than the incremental change from existing conditions.