

Technical Appendix for Energy

# **222 West 2<sup>nd</sup> Street**Draft EIR Technical Appendix for Energy

Prepared by Eyestone Environmental **December 2018** 

- Energy Calculations Summary
- Construction Electricity Usage
- Construction Equipment Fuel Usage
- Construction Vehicle Fuel Usage
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#### 222 West 2nd Project - Energy Calculations

#### **Summary of Energy Use During Construction**

#### **Project With Project Features**

| Electricty                        |                           |  |
|-----------------------------------|---------------------------|--|
| Water Consumption                 | 10,972 kWh                |  |
| Temporary Power (lighting, tools) | 70,157 kWh                |  |
| Total:                            | <b>81,128.56</b> kWh      |  |
| Gasoline                          |                           |  |
| On Road                           | 165,124.81 Gallons        |  |
| Off Road                          | -                         |  |
| Total:                            | <b>165,124.81</b> Gallons |  |
| Diesel                            |                           |  |
| On Road                           | 47,284.49 Gallons         |  |
| Off Road                          | 122,806.17 Gallons        |  |
| Total:                            | <b>170,090.66</b> Gallons |  |

#### **Summary of Energy Use During Operations**

| Electricity            | Baseline (Buildout) | Project With | nout Project Features | Project With Project Features | Percent Reduction | Net (Project -<br>Baseline<br>(Buildout) |
|------------------------|---------------------|--------------|-----------------------|-------------------------------|-------------------|--|
| Electricity (building) |                     | 0            | 7,485,942             | 6,694,247 kWh/yea             | r -11%            | 6 6,694,247                              |
| Electricity (water)    |                     | 0            | 1,749,805             |                               |                   |  |
| Electricity Total      |                     | 0            | 9,235,747             | 8,094,090 kWh/yea             | r -12%            | 8,094,090                                |
| Natural Gas            |                     | 0            | 6,245,163             | 5,690,050 cu ft/yea           | r -9%             | 5,690,050                                |
| Mobile                 |                     |              |                       |                               |                   |  |
| Gasoline               |                     | 0            | 724,864               | 241,016 Gallons/y             | ear -67%          | 6 241,016                                |
| Diesel                 |                     | 0            | 133,766               | 44,477 Gallons/y              | ear -67%          | 44,477                                   |

## **Construction Electricity Usage**

## **Construction Electricity Usage**

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

| Peak Power Rating - Prime (kW)              | 36     |
|---|--------|
| Typical Load                                | 70%    |
| Average Output (kW)                         | 25.2   |
| Hours per Day                               | 4      |
| Average Daily Output (kWh)                  | 100.8  |
| Building Construction Phase Duration (days) | 696    |
| Total Construction (kWh)                    | 70,157 |
| Total Construction (MWh)                    | 70.2   |

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

Calculation of Diesel Usage During Cosnstruciton (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               | 10                        | 90                |  |
| Demolition            | Concrete/Industrial Saws  | 1     | 8     | 81  | 0.73        | 0.6               | 10                        | 142               |  |
| Demolition            | Excavators                | 0     | 8     | 158 | 0.38        | 0.6               | 10                        | 0                 |  |
| Demolition            | Rubber Tired Dozers       | 0     | 8     | 247 | 0.4         | 0.6               | 10                        | 0                 |  |
| Demolition            | Rubber Tired Loaders      | 2     | 8     | 203 | 0.36        | 0.6               | 10                        | 351               |  |
| Demolition            | Tractors/Loaders/Backhoes | 1     | 8     | 97  | 0.37        | 0.6               | 10                        | 86                |  |
| Grading               | Bore/Drill Rigs           | 1     | 8     | 221 | 0.5         | 0.6               | 22                        | 583               |  |
| rading                | Cranes                    | 1     | 8     | 231 | 0.29        | 0.6               | 22                        | 354               |  |
| Grading               | Excavators                | 1     | 8     | 158 | 0.38        | 0.6               | 22                        | 317               |  |
| Grading               | Graders                   | 1     | 8     | 187 | 0.41        | 0.6               | 22                        | 405               |  |
| Grading               | Plate Compactors          | 1     | 8     | 8   | 0.43        | 0.6               | 22                        | 18                |  |
| Grading               | Rubber Tired Dozers       | 1     | 8     | 247 | 0.4         | 0.6               | 22                        | 522               |  |
| Grading               | Scrapers                  | 0     | 8     | 367 | 0.48        | 0.6               | 22                        | 0                 |  |
| Grading               | Tractors/Loaders/Backhoes | 0     | 8     | 97  | 0.37        | 0.6               | 22                        | 0                 |  |
| oundation             | Cranes                    | 1     | 8     | 231 | 0.29        | 0.6               | 97                        | 1,560             |  |
| oundation             | Plate Compactors          | 2     | 8     | 8   | 0.43        | 0.6               | 97                        | 160               |  |
| oundation             | Pumps                     | 2     | 8     | 84  | 0.74        | 0.6               | 97                        | 2,894             |  |
| oundation             | Rubber Tired Dozers       | 0     | 8     | 247 | 0.4         | 0.6               | 97                        | 0                 |  |
| oundation             | Tractors/Loaders/Backhoes | 2     | 8     | 97  | 0.37        | 0.6               | 97                        | 1,671             |  |
| oundation             | Welders                   | 1     | 8     | 46  | 0.45        | 0.6               | 97                        | 482               |  |
| ilding Construction   | Aerial Lifts              | 5     | 8     | 63  | 0.31        | 0.6               | 696                       | 16,311            |  |
| uilding Construction  | Air Compressors           | 2     | 8     | 78  | 0.48        | 0.6               | 696                       | 12,508            |  |
| uilding Construction  | Concrete/Industrial Saws  | 3     | 8     | 81  | 0.73        | 0.6               | 696                       | 29,631            |  |
| uilding Construction  | Cranes                    | 1     | 8     | 231 | 0.29        | 0.6               | 696                       | 11,190            |  |
| uilding Construction  | Forklifts                 | 5     | 8     | 89  | 0.2         | 0.6               | 696                       | 14,867            |  |
| uilding Construction  | Generator Sets            | 0     | 8     | 84  | 0.74        | 0.6               | 696                       | 0                 |  |
| uilding Construction  | Pumps                     | 1     | 8     | 84  | 0.74        | 0.6               | 696                       | 10,383            |  |
| Building Construction | Tractors/Loaders/Backhoes | 0     | 8     | 97  | 0.37        | 0.6               | 696                       | 0                 |  |
| Building Construction | Welders                   | 5     | 8     | 46  | 0.45        | 0.6               | 696                       | 17,289            |  |
| rchitectural Coating  | Air Compressors           | 0     | 6     | 78  | 0.48        | 0.6               | 239                       | 0                 |  |
| aving                 | Concrete/Industrial Saws  | 1     | 8     | 81  | 0.73        | 0.6               | 21                        | 298               |  |
| aving                 | Pavers                    | 0     | 8     |     | 0.42        | 0.6               | 21                        | 0                 |  |
| aving                 | Paving Equipment          | 1     | 8     | 132 | 0.36        | 0.6               | 21                        | 240               |  |
| Paving                | Rollers                   | 1     | 8     | 80  | 0.38        | 0.6               | 21                        | 153               |  |
| Paving                | Skid Steer Loaders        | 1     | 8     | 65  | 0.37        | 0.6               | 21                        | 121               |  |
| Paving                | Tractors/Loaders/Backhoes | 1     | 8     | 97  | 0.37        | 0.6               | 21                        | 181               |  |
|                       |                           |       |       |     | -           | Total Diesel Usag | e for Construction (Offre | 122,806.2         |  |

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.

EMFAC2014 Emissions Inventory Region Type: Air Basin Region: South Coast

Calendar Year: 2022

Season: Annual Vehicle Classification: EMFAC2011 Categories

| Verificie Classification.                           | LIVII ACZUTT Categories |      |            |            |             |             |                    |                    |                  |
|---|-------------------------|------|------------|------------|-------------|-------------|--------------------|--------------------|------------------|
| Region  | Veh_Class               | Fuel | Speed      | Population | VMT         | Trips       | Fuel_Gas           | Fuel_DSL           | Miles per Gallon |
|   |                         |      | (miles/hr) | (vehicles) | (miles/day) | (trips/day) | (1000 gallons/day) | (1000 gallons/day) |                  |
| South Coast   | LDA                     | GAS  | Aggregate  | 6003986.27 | 203834624.8 | 37881273.8  | 8979.411325        | 0                  | 22.7             |
| South Coast   | LDT1                    | GAS  | Aggregate  | 709614.235 | 24148511.38 | 4288047.373 | 1228.456545        | 0                  | 19.7             |
| South Coast   | LDT2                    | GAS  | Aggregate  | 2016981.84 | 73608549.11 | 12686637.83 | 4389.113693        | 0                  | 16.8             |
| Construction Worker Trip (Composite LDA/LDT1/LDT2): |                         |      |            |            |             |             |                    |                    | 20.5             |
| South Coast   | T7                      | DSL  | Aggregate  | 89153.534  | 13501381.84 | 0           | 0                  | 2416.821803        | 5.6              |

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 Leng | gth (miles) |      | Tota     | l Length (mi | iles) | Avg. Daily Factor   | Gallons   | of Fuel  |
|-----------------------|-------------------|--------------------|-------|--------------------|--------------------|------------------|-----------|-------------|------|----------|--------------|-------|---------------------|-----------|----------|
|                       |                   |                    |       |                    |                    |                  | Worker    | Vendor      | Haul | Worker   | Vendor       | Haul  | (worker and vendor) | Gasoline  | Diesel   |
| Demolition            | 30                |                    | 0 10  | 300                | 0                  | 150              | 14.7      | 6.9         | 80   | 4410     | 0            | 12000 | 0.6                 | 129.3     | 2,148.1  |
| Grading               | 60                |                    | 0 22  | 1320               | 0                  | 1100             | 14.7      | 6.9         | 80   | 19404    | 0            | 88000 | 0.6                 | 569.1     | 15,752.5 |
| Foundation            | 76                | 5                  | 0 97  | 7372               | 4850               | 0                | 14.7      | 6.9         | 20   | 108368.4 | 33465        | 0     | 0.6                 | 3,178.4   | 3,594.3  |
| Building Construction | 500               | 5                  | 0 696 | 348000             | 34800              | 0                | 14.7      | 6.9         | 20   | 5115600  | 240120       | 0     | 0.6                 | 150,038.2 | 25,789.7 |
| Architectural Coating | 100               |                    | 0 239 | 23900              | 0                  | 0                | 14.7      | 6.9         | 20   | 351330   | 0            | 0     | 0.6                 | 10,304.3  | 0.0      |
| Paving                | 100               |                    | 0 21  | 2100               | 0                  | 0                | 14.7      | 6.9         | 20   | 30870    | 0            | 0     | 0.6                 | 905.4     | 0.0      |

Total: 165,124.8 47,284.5

Worker Miles per gallon= 20.46 gasoline Vedor/Haul miles per gallon= 5.59 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 A | Average Daily Acreage Distrubed | Gallons Per Year | Electricity (kWhr) |
|------------------------------|--------|---------------------------------|------------------|--------------------|
| Demolition                   | 30     | 3                               | 249,150          | 2,423              |
| Grading                      | 60     | 3                               | 498,300          | 4,847              |
| Foundation                   | 76     | 1                               | 229,520          | 2,233              |
| <b>Building Construction</b> | 500    | 0                               | 151,000          | 1,469              |
| Architectural Coating        | 100    | 0                               | 0                | 0                  |
| Paving                       | 100    |                                 |                  |                    |
|                              |        | Tota                            | ıl: 1,127,970    | 10,972             |

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).

EMFAC2014 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      | Population  | VMT            | Trips       | Fuel_Gas           | Fuel_DSL           |       |                  |
|-------------|--------------|-----------|------|------------|------------|-------------|----------------|-------------|--------------------|--------------------|-------|------------------|
|             |              |           |      |            | (miles/hr) | (vehicles)  | (miles/day)    | (trips/day) | (1000 gallons/day) | (1000 gallons/day) |       |                  |
| South Coast | 2025 Annual  | LDA       | GAS  | Aggregated | Aggregated | 6071060.68  | 205902409.4    | 38292310    | 9111.109818        | 0                  |       |                  |
| South Coast | 2025 Annual  | LDA       | DSL  | Aggregated | Aggregated | 20824.0174  | 645425.8768    | 128989.92   | 0                  | 20.65758718        |       |                  |
| South Coast | 2025 Annual  | LDT1      | GAS  | Aggregated | Aggregated | 727841.419  | 24800256.37    | 4394580     | 1266.913117        | 0                  |       |                  |
| South Coast | 2025 Annual  | LDT1      | DSL  | Aggregated | Aggregated | 1053.67134  | 36078.4157     | 6234.0443   | 0                  | 1.171563938        |       |                  |
| South Coast | 2025 Annual  | LDT2      | GAS  | Aggregated | Aggregated | 2074233.28  | 75543800.58    | 13032475    | 4523.847088        | 0                  |       |                  |
| South Coast | 2025 Annual  | LDT2      | DSL  | Aggregated | Aggregated | 991.377933  | 34127.5637     | 6127.8756   | 0                  | 1.101277945        |       |                  |
| South Coast | 2025 Annual  | LHD1      | GAS  | Aggregated | Aggregated | 323270.582  | 13864618.41    | 4816249.9   | 1044.719264        | 0                  |       |                  |
| South Coast | 2025 Annual  | LHD1      | DSL  | Aggregated | Aggregated | 104319.762  | 4299963.974    | 1312211.3   | 0                  | 223.1849953        |       |                  |
| South Coast | 2025 Annual  | LHD2      | GAS  | Aggregated | Aggregated | 33644.5797  | 1460581.241    | 501254.08   | 110.3347382        | 0                  |       |                  |
| South Coast | 2025 Annual  | LHD2      | DSL  | Aggregated | Aggregated | 34490.5892  | 1419749.324    | 433848.21   | 0                  | 73.74246796        |       |                  |
| South Coast | 2025 Annual  | MCY       | GAS  | Aggregated | Aggregated | 239885.113  | 1731655.111    | 479722.24   | 43.71614475        | 0                  |       |                  |
| South Coast | 2025 Annual  | MDV       | GAS  | Aggregated | Aggregated | 1739544.2   | 58559254.91    | 10668747    | 4474.113627        | 0                  |       |                  |
| South Coast | 2025 Annual  | MDV       | DSL  | Aggregated | Aggregated | 1755.7551   | 60649.8279     | 10849.884   | 0                  | 1.945288903        |       |                  |
| South Coast | 2025 Annual  | MH        | GAS  | Aggregated | Aggregated | 75295.7515  | 860676.901     | 7532.5871   | 60.53312102        | 0                  |       |                  |
| South Coast | 2025 Annual  | MH        | DSL  | Aggregated | Aggregated | 13248.1626  | 145717.0342    | 1324.8163   | 0                  | 16.3589763         |       |                  |
| South Coast | 2025 Annual  | OBUS      | GAS  | Aggregated | Aggregated | 7498.39475  | 280278.822     | 342438.65   | 22.41915013        | 0                  |       |                  |
| South Coast | 2025 Annual  | OBUS      | DSL  | Aggregated | Aggregated | 6601.40973  | 547639.4845    | 0           | 0                  | 79.35093715        |       |                  |
| South Coast | 2025 Annual  | SBUS      | GAS  | Aggregated | Aggregated | 1724.08121  | 61931.96529    | 6896.3247   | 5.591068406        | 0                  |       |                  |
| South Coast | 2025 Annual  | SBUS      | DSL  | Aggregated | Aggregated | 4776.29059  | 168600.404     | 0           | 0                  | 23.40373204        |       |                  |
| South Coast | 2025 Annual  | T6        | GAS  | Aggregated | Aggregated | 26695.7609  | 1270280.635    | 534128.8    | 96.19718166        | 0                  |       |                  |
| South Coast | 2025 Annual  | T6        | DSL  | Aggregated | Aggregated | 91293.9897  | 5560998.022    | 0           | 0                  | 618.8923217        |       |                  |
| South Coast | 2025 Annual  | T7        | GAS  | Aggregated | Aggregated | 1827.70554  | 235586.7155    | 36568.73    | 18.6067846         | 0                  |       |                  |
| South Coast | 2025 Annual  | T7        | DSL  | Aggregated | Aggregated | 93287.8054  | 14465115.58    | 0           | 0                  | 2577.463819        |       |                  |
| South Coast | 2025 Annual  | UBUS      | GAS  | Aggregated | Aggregated | 2000.01302  | 214725.7263    | 8000.0521   | 19.45142627        | 0                  |       |                  |
| South Coast | 2025 Annual  | UBUS      | DSL  | Aggregated | Aggregated | 7740.13643  | 829683.7616    | 30960.546   | 0                  | 200.6921606        |       |                  |
|             |              |           |      |            |            |             |                |             |                    | ı                  | MPG ( | Gallons Per Mile |
|             |              |           |      |            |            | Totals      | 397,490,281.01 |             | 20,797.55          | 3,837.97           | 16.1  | 0.06             |
|             |              |           |      |            |            | Total (GAS) | 384,786,056.81 |             | ,                  | •                  | 18.5  | 0.05             |
|             |              |           |      |            |            | Total (DSL) | 28,213,749.27  |             |                    |                    | 7.4   | 0.14             |

# 222 West 2nd Project Operations Without Project Features Los Angeles-South Coast County, Annual

#### **Land Use Details**

| Land Uses                 | Size   | Metric               | Lot Acreage | Floor Surface Area | Population |
|---------------------------|--------|----------------------|-------------|--------------------|------------|
| Condo/Townhouse High Rise | 107    | <b>Dwelling Unit</b> | 1.67        | 137347             | 306        |
| Strip Mall                | 7.2    | 1000sqft             | 0.17        | 7200               | 0          |
| General Office Building   | 534.04 | 1000sqft             | 12.26       | 534044             | 0          |

#### **Trip Summary Information**

| Land Uses                 |       | Α        | verage Daily Trip | Rate     | Unmitigated |
|---------------------------|-------|----------|-------------------|----------|-------------|
|                           |       | Weekday  | Saturday          | Sunday   |             |
| Condo/Townhouse High Rise |       | 711.55   | 734.02            | 584.22   | 2,380,286   |
| Strip Mall                |       | 4,688.91 | 1,046.73          | 448.60   | 11,477,538  |
| General Office Building   |       | 308.02   | 292.18            | 141.98   | 536,597     |
|                           | Total | 5,708.47 | 2,072.92          | 1,174.80 | 14,394,421  |

#### **Unmitigated Gasoline and Diesel Usage**

|                  | Gasoline | Diesel  |
|------------------|----------|---------|
| Miles/Gallon     | 18.5     | 7.4     |
| % Fleet Mix      | 93.2%    | 6.8%    |
| Total (Gallons): | 724,864  | 133,766 |

#### **Energy by Land Use - Natural Gas (Unmitigated)**

| Land Uses                 |       | kBTU/yr   | cu ft/year |
|---------------------------|-------|-----------|------------|
| Condo/Townhouse High Rise |       | 986,213   | 939,250    |
| General Office Building   |       | 5,559,400 | 5,294,667  |
| Strip Mall                |       | 11,808    | 11,246     |
|                           | Total | 6,557,421 | 6,245,163  |

#### **Energy by Land Use - Electricity (Unmitigated)**

| Strip Mall                | 97,200    |
|---------------------------|-----------|
|                           | 0,337,230 |
| General Office Building   | 6,937,230 |
| Condo/Townhouse High Rise | 451,512   |
| Land Uses                 | kWH/yr    |

#### Water Detail (Unmitigated)

|                           |       | Indoor Use | Outdoor Use | Electricity Use |
|---------------------------|-------|------------|-------------|-----------------|
| Land Uses                 |       | (Mgal)     | (Mgal)      | (kWh/yr)        |
| Condo/Townhouse High Rise |       | 6.97       | 4.40        | 120,211         |
| Strip Mall                |       | 0.53       | 0.33        | 9,105           |
| General Office Building   |       | 94.92      | 58.17       | 1,620,489       |
| 1                         | Total | 102.42     | 62.90       | 1,749,805       |

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).

# 222 West 2nd Project Operations Los Angeles-South Coast County, Annual

#### **Land Use Details**

| Land Uses                 | Size   | Metric               | Lot Acreage | Floor Surface Area | Population |
|---------------------------|--------|----------------------|-------------|--------------------|------------|
| Condo/Townhouse High Rise | 107    | <b>Dwelling Unit</b> | 1.67        | 137347             | 306        |
| Strip Mall                | 7.2    | 1000sqft             | 0.17        | 7200               | 0          |
| General Office Building   | 534.04 | 1000sqft             | 12.26       | 534044             | 0          |

#### **Trip Summary Information**

| Land Uses                 |       | Ave      | late     | Mitigated |           |
|---------------------------|-------|----------|----------|-----------|-----------|
|                           |       | Weekday  | Sunday   |           |           |
| Condo/Townhouse High Rise |       | 711.55   | 734.02   | 584.22    | 791,445   |
| General Office Building   |       | 4,688.91 | 1,046.73 | 448.60    | 3,816,253 |
| Strip Mall                |       | 308.02   | 292.18   | 141.98    | 178,419   |
|                           | Total | 5,708.47 | 2,072.92 | 1,174.80  | 4,786,116 |

#### Mitigated Gasoline and Diesel Usage

| % Fleet Mix Total (Gallons): | 93.2%<br><b>241,016</b> | 6.8%<br><b>44,477</b> |
|------------------------------|-------------------------|-----------------------|
| Miles/Gallon                 | 18.5                    | 7.4                   |
|                              | Gasoline                | Diesel                |

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

| Land Uses                 |       | kBTU/yr   | cu ft/year |
|---------------------------|-------|-----------|------------|
| Condo/Townhouse High Rise |       | 939,283   | 894,555    |
| General Office Building   |       | 5,024,290 | 4,785,038  |
| Strip Mall                |       | 10,980    | 10,457     |
|                           | Total | 5.974.553 | 5.690.050  |

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

|                           | Total | 6,694,247 |
|---------------------------|-------|-----------|
| Strip Mall                |       | 83,045    |
| General Office Building   |       | 6,188,230 |
| Condo/Townhouse High Rise |       | 422,972   |
| Land Uses                 |       | kWH/yr    |

#### Water Detail (Unmitigated)

|                           |       | Indoor Use | Outdoor Use | Electricity Use |
|---------------------------|-------|------------|-------------|-----------------|
| Land Uses                 |       | (Mgal)     | (Mgal)      | (kWh/yr)        |
| Condo/Townhouse High Rise |       | 5.57718    | 3.51605     | 96,169          |
| Strip Mall                |       | 75.9335    | 46.5399     | 1,296,391       |
| General Office Building   |       | 0.426658   | 0.2615      | 7,284           |
|                           | Total | 81.94      | 50.32       | 1,399,844       |

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).

# **Peak Electricity Demand Calculations**

### **Electrical Load Factor Equation**

$$f_{Load} = rac{ ext{Average load}}{ ext{Maximum load in given time period}}$$

**52**%

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

#### **Project Electricity Demand (Operational)**

| Troject Electricity Demand (Op                   | er a troriar,     |
|--|-------------------|
| Annual Demand                                    |                   |
| Building (MWh)                                   | 6,694             |
| Water (MWh)                                      | 1,400             |
| Total (MWh)                                      | 8,094             |
| Average Daily Demand                             |                   |
| Building (kWh)                                   | 18,340            |
| Water (kWh)                                      | 3,835             |
| Total (kWh)                                      | 22,176            |
| Average Load Building (kW) Water (kW) Total (kW) | 764<br>160<br>924 |
| . 555. ()  | 32.               |

#### **Peak Load Calculation**

| Peak Load (kW)             | 1,629  |
|----------------------------|--------|
| Systemwide Peak Load (MWh) | 5,854  |
| Percent of Peak            | 0.028% |

<sup>&</sup>lt;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**

EMFAC2014 (v1.0.7) Emissions Inventory

Region Type: County Region: Los Angeles Calendar Year: 2017

Season: Annual

| Vehicle Classif | ication: EMF | AC2011 Ca | tegories   |              |                  | Fuel_Gasoline      | Fuel_DSL           |
|-----------------|--------------|-----------|------------|--------------|------------------|--------------------|--------------------|
| Region          | CalYr        | VehClass  | MdlYr      | Speed        | Fuel             | (1000 gallons/day) | (1000 gallons/day) |
| Los Angeles     | 2017         | LDA       | Aggregated | . Aggregate  | ec GAS           | 8765.73            | 0.00               |
| Los Angeles     | 2017         | LDA       | Aggregated | . Aggregate  | c DSL            | 0.00               | 21.10              |
| Los Angeles     | 2017         | LDT1      | Aggregated | . Aggregate  | ec GAS           | 1188.49            | 0.00               |
| Los Angeles     | 2017         | LDT1      | Aggregated | . Aggregate  | c DSL            | 0.00               | 1.11               |
| Los Angeles     | 2017         | LDT2      | Aggregated | . Aggregate  | ec GAS           | 4186.32            | 0.00               |
| Los Angeles     | 2017         | LDT2      | Aggregated | . Aggregate  | c DSL            | 0.00               | 1.12               |
| Los Angeles     | 2017         | LHD1      | Aggregated | . Aggregate  | ec GAS           | 941.18             | 0.00               |
| Los Angeles     | 2017         | LHD1      | Aggregated | . Aggregate  | c DSL            | 0.00               | 200.42             |
| Los Angeles     | 2017         | LHD2      | Aggregated | . Aggregate  | ec GAS           | 98.91              | 0.00               |
| Los Angeles     | 2017         | LHD2      | Aggregated | . Aggregate  | c DSL            | 0.00               | 66.05              |
| Los Angeles     | 2017         | MCY       | Aggregated | . Aggregate  | ec GAS           | 42.47              | 0.00               |
| Los Angeles     | 2017         | MDV       | Aggregated | . Aggregate  | ec GAS           | 4109.93            | 0.00               |
| Los Angeles     | 2017         | MDV       | Aggregated | . Aggregate  | c DSL            | 0.00               | 1.84               |
| Los Angeles     | 2017         | MH        | Aggregated | . Aggregate  | ec GAS           | 49.33              | 0.00               |
| Los Angeles     | 2017         | MH        | Aggregated | . Aggregate  | c DSL            | 0.00               | 13.23              |
| Los Angeles     | 2017         | OBUS      | Aggregated | . Aggregate  | ec GAS           | 22.37              | 0.00               |
| Los Angeles     | 2017         | OBUS      | Aggregated | . Aggregate  | c DSL            | 0.00               | 70.14              |
| Los Angeles     | 2017         | SBUS      | Aggregated | . Aggregate  | ec GAS           | 5.20               | 0.00               |
| Los Angeles     | 2017         | SBUS      | Aggregated | . Aggregate  | c DSL            | 0.00               | 24.31              |
| Los Angeles     | 2017         | T6        | Aggregated | . Aggregate  | ec GAS           | 88.95              | 0.00               |
| Los Angeles     | 2017         | T6        | Aggregated | : Aggregate  | ec DSL           | 0.00               | 570.29             |
| Los Angeles     | 2017         | T7        | Aggregated | : Aggregate  | ec GAS           | 18.96              | 0.00               |
| Los Angeles     | 2017         | T7        | Aggregated | : Aggregate  | ec DSL           | 0.00               | 2120.71            |
| Los Angeles     | 2017         | UBUS      | Aggregated | : Aggregate  | ec GAS           | 18.07              | 0.00               |
| Los Angeles     | 2017         | UBUS      | Aggregated | Aggregate    | ec DSL           | 0.00               | 195.82             |
|                 |              |           |            |              |                  | 7,130,604,769      | 1,199,432,093      |
|                 |              |           | Fuel Usa   | ge for Proje | ect Construction |                    |                    |
|                 |              |           |            | ,            | for Construction | •                  | •                  |
|                 |              |           | •          |              | oject Operation  |                    |                    |
|                 |              |           |            | •            | ty for Operation | •                  | · ·                |
|                 |              |           | . Crecito  | De or court  | c, .or operation | 0.005470           | 0.30370            |

#### **EMFAC Emission inventories for County**

EMFAC2014 (v1.0.7) Emissions Inventory

Region Type: County Region: Los Angeles Calendar Year: 2022

Season: Annual

| Vehicle Classif | ication: EMFAC2011 | Categories F                          | uel_Gasoline      | Fuel_DSL           |
|-----------------|--------------------|---------------------------------------|-------------------|--------------------|
| Region          | CalYr VehClas      | s MdlYr Speed Fuel (                  | 1000 gallons/day) | (1000 gallons/day) |
| Los Angeles     | 2022 LDA           | Aggregatec Aggregatec GAS             | 8979.41           | 0.00               |
| Los Angeles     | 2022 LDA           | Aggregatec Aggregatec DSL             | 0.00              | 20.86              |
| Los Angeles     | 2022 LDT1          | Aggregatec Aggregatec GAS             | 1228.46           | 0.00               |
| Los Angeles     | 2022 LDT1          | Aggregatec Aggregatec DSL             | 0.00              | 1.13               |
| Los Angeles     | 2022 LDT2          | Aggregatec Aggregatec GAS             | 4389.11           | 0.00               |
| Los Angeles     | 2022 LDT2          | Aggregatec Aggregatec DSL             | 0.00              | 1.09               |
| Los Angeles     | 2022 LHD1          | Aggregatec Aggregatec GAS             | 997.19            | 0.00               |
| Los Angeles     | 2022 LHD1          | Aggregatec Aggregatec DSL             | 0.00              | 214.66             |
| Los Angeles     | 2022 LHD2          | Aggregatec Aggregatec GAS             | 104.74            | 0.00               |
| Los Angeles     | 2022 LHD2          | Aggregatec Aggregatec DSL             | 0.00              | 70.29              |
| Los Angeles     | 2022 MCY           | Aggregatec Aggregatec GAS             | 43.88             | 0.00               |
| Los Angeles     | 2022 MDV           | Aggregatec Aggregatec GAS             | 4321.68           | 0.00               |
| Los Angeles     | 2022 MDV           | Aggregatec Aggregatec DSL             | 0.00              | 1.87               |
| Los Angeles     | 2022 MH            | Aggregatec Aggregatec GAS             | 54.84             | 0.00               |
| Los Angeles     | 2022 MH            | Aggregatec Aggregatec DSL             | 0.00              | 14.81              |
| Los Angeles     | 2022 OBUS          | Aggregatec Aggregatec GAS             | 22.02             | 0.00               |
| Los Angeles     | 2022 OBUS          | Aggregatec Aggregatec DSL             | 0.00              | 75.36              |
| Los Angeles     | 2022 SBUS          | Aggregatec Aggregatec GAS             | 5.44              | 0.00               |
| Los Angeles     | 2022 SBUS          | Aggregatec Aggregatec DSL             | 0.00              | 23.67              |
| Los Angeles     | 2022 T6            | Aggregatec Aggregatec GAS             | 92.55             | 0.00               |
| Los Angeles     | 2022 T6            | Aggregatec Aggregatec DSL             | 0.00              | 597.94             |
| Los Angeles     | 2022 T7            | Aggregatec Aggregatec GAS             | 18.17             | 0.00               |
| Los Angeles     | 2022 T7            | Aggregatec Aggregatec DSL             | 0.00              | 2416.82            |
| Los Angeles     | 2022 UBUS          | Aggregatec Aggregatec GAS             | 18.92             | 0.00               |
| Los Angeles     | 2022 UBUS          | Aggregatec Aggregatec DSL             | 0.00              | 198.22             |
|                 |                    |                                       | 7,400,893,111     | 1,327,403,165      |
|                 |                    | Fuel Usage for Project Construction   | 165,125           | 170,091            |
|                 |                    | Percentage of County for Construction | 0.0022%           | 0.013%             |