
Appendix C

Energy Technical Report

NCE has made every effort to provide this report and all associated information in an accessible format. If you need the appendices in an alternative format please contact Jeffrey Esquivel, (916) 341-6337, jeffery.esquivel@calrecycle.ca.gov.

**California Department
of Resources Recycling
and Recovery**

**P.O. Box 4025
Sacramento, CA 95812**

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Prepared by:



Office Locations:
Los Angeles, Orange County,
Long Beach, Riverside, Ventura, San Diego,
Fresno, Merced, Berkeley, San Francisco

Tel: (949) 248-8490
Fax: (949) 248-8499

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**Energy Impact Study for Small/Medium
Composting Project Permitting**

Energy Impact Study for Small/Medium Composting Project Permitting

Prepared for:

**California Department of Resources
Recycling and Recovery
P.O. Box 4025
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Attachments

ATTACHMENT 1 – PROPOSED PROJECT ENERGY REQUIREMENTS CALCULATION WORKSHEETS

List of Acronyms and Abbreviations

ASP	Aerated Static Pile
BHP	Brake Horsepower
BSFC	Brake-Specific Fuel Consumption
BTS	Bureau of Transportation Statistics
Btu	British Thermal Unit
CalEEMod	California Emissions Estimator Model®
CalRecycle	California Department of Resources Recycling and Recovery
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CASP	Covered Aerated Static Pile
CDTFA	California Department of Tax and Fee Administration
CEC	California Energy Commission
cy	Cubic Yard
DOE	Department of Energy
EPA	[United States] Environmental Protection Agency
Gal	Gallon
GHG	Greenhouse Gas
GVWR	Gross Vehicle Weight Rating
GWh	Gigawatt Hour
HP	Horsepower
HP-hr	Horsepower-Hour
kW	Kilowatt
kW-hr	Kilowatt Hour
lb	Pound
LDA	Light-Duty Auto
LHD2	Light Heavy-Duty 2
MMBtu	Million British Thermal Unit
PEIR	Program Environmental Impact Report
SB	Senate Bill
TPY	Tons per Year
yr	Year

Energy Impact Study for Small/Medium Composting Project Permitting

1.0 INTRODUCTION

1.1 Project Overview

The California Department of Resources Recycling and Recovery (CalRecycle) is preparing a Program Environmental Impact Report (PEIR) pursuant to Senate Bill (SB) 1046 to facilitate the permitting and development of small and medium compostable material handling facilities and operations throughout California. The PEIR is designed to support implementation of SB 1383 by increasing California's capacity to process organic waste diverted from landfills through the development of additional composting facilities throughout the State. Implementation of SB 1046 would result in the construction and operation of new small and medium composting facilities that process agricultural, food, and green materials.

1.2 Purpose and Objectives

This technical report provides the energy impact analyses prepared in support of the PEIR for the CalRecycle Small and Medium Composting Facilities Program. Yorke estimated energy requirements for three representative small compost facilities and three representative medium compost facilities and evaluated the potential for inefficient, wasteful, or unnecessary consumption of energy associated with construction and operation of representative composting facility scenarios developed for the program. This report contains:

- A description of the representative facility scenarios and analysis assumptions;
- An evaluation of construction energy consumption;
- An evaluation of operational energy demand; and
- An assessment of the program's consistency with applicable energy conservation requirements and policies.

1.3 Project Location

The program area encompasses the entire State of California. The program is intended to facilitate the development and operation of new small and medium compostable material handling facilities and operations; however, specific facility locations have not been identified.

1.4 Facility Operations and Project Description

The Statewide program would facilitate the development and operation of small and medium compostable material handling facilities that process agricultural, vegetative food, green, and other organic materials. As defined by SB 1046, small facilities, which are anticipated to occupy approximately 5 acres, would process up to 10,000 tons per year (TPY) of material and would have an on-site capacity of up to 5,000 cubic yards (cy). Medium facilities, which are expected to occupy approximately 11 acres, would process up to 25,000 TPY of material and would have an on-site capacity of 5,000 to 12,500 cy.

Composting operations typically involve feedstock receiving and preparation, active composting, curing, screening, and product export. Incoming feedstocks may be ground, shredded, and sorted to improve particle size, blend various feedstocks, and remove contaminants before being placed into windrows, covered aerated static piles (CASPs), or negatively aerated static pile (ASP) systems for active composting. Following the active composting phase, material would be cured in windrows, screened to remove oversized materials and contaminants, and transported off-site for use as a soil amendment in agricultural, landscaping, and horticultural applications. Equipment commonly used during operations includes loaders, grinders, screeners, water trucks, and haul trucks. Windrow composting operations use windrow turners to agitate and aerate the piles; windrow turners can be self-propelled or be towed by a tractor, loader, or other heavy equipment. ASPs use electric blowers to aerate the piles. A general description of the three small composting scenarios and three medium composting scenarios is provided in Table 1-1.

Table 1-1: Operating Scenarios

Parameter	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Facility Size	Small	Small	Small	Medium	Medium	Medium
Facility Capacity (cy)	5,000	5,000	5,000	12,500	12,500	12,500
Facility Size (acres)	5	5	5	11	11	11
Throughput (TPY)	10,000	10,000	10,000	25,000	25,000	25,000
Active Technology	Windrows	Positive CASP	Negative ASP with Biofilter	Windrows	Positive CASP	Negative ASP with Biofilter

2.0 VEHICLE AND EQUIPMENT ENERGY USE ESTIMATES

2.1 Construction Fuel Use Estimates

Construction fuel use estimates are based on the California Emissions Estimator Model® (CalEEMod) construction scenarios that were developed for the Air Quality and Greenhouse Gas (GHG) Technical Report developed for the PEIR. CalEEMod does not report fuel use directly; however, the equipment data that is reported is sufficiently detailed to allow direct calculation of fuel consumption.

For the equipment used on-site, overall power requirements [horsepower-hours (HP-hr)] is calculated based on the number of devices, horsepower (HP), and days and hours of operation. Equipment operation is converted to fuel use estimates using the Brake-Specific Fuel Consumption (BSFC) of 0.3602 lb/HP-hr for the diesel-fueled equipment, which is based on an Environmental Protection Agency (EPA)-published fuel consumption rate of 7,000 British thermal units (Btu)/HP-hr.¹

¹ This value is calculated from an average BSFC of 7,000 Btu/HP-hr published by the EPA for Diesel Industrial Engines (EPA 2025, pg. 7) with the appropriate conversion factors applied.

To estimate construction worker commute mileage, CalEEMod reports the number of one-way trips per day, one-way mileage driven, and construction phase duration. Mileage is converted to fuel consumption using published fuel economy values for the vehicle type.

Construction is a one-time event that lasts approximately 1 year. Construction fuel use is summarized in Table 2-1. Construction fuel use estimates are provided in Table 3 in Attachment 1.

Table 2-1: Construction Fuel Use

Energy Category	Scenario 1 (Gal)	Scenario 2 (Gal)	Scenario 3 (Gal)	Scenario 4 (Gal)	Scenario 5 (Gal)	Scenario 6 (Gal)
Construction Gasoline	207	207	207	189	189	189
Construction Diesel	24,217	24,217	24,217	25,616	25,616	25,616

2.2 Operations Energy Consumption

2.2.1 On-Road Vehicle Fuel Use Estimates

Employee travel, routine business travel, transport of materials to the facility, and transport of finished compost to customers would require diesel or gasoline fuel.

2.2.1.1 Vehicle Miles Traveled

The daily operation of a compost facility will require the use of on-road mobile sources for personnel transport, conducting routine business, the transport of waste feedstocks to the facility, and the transport of finished compost and byproducts from the facility.

The travel distances to and from the compost facility depend on the source of the waste materials and the location of the compost customer. The purpose of the program is to facilitate landfill diversion. It is assumed, therefore, that the organic feedstock for the compost facilities is currently transported to a landfill via truck.

There are three possible scenarios to evaluate with respect to travel distances for feedstock delivery:

1. The feedstock supplier is closer to the compost facility than to the landfill, which would reduce the fuel use required for waste disposal;
2. The feedstock supplier is the same distance to the compost facility as it is to the landfill, which could occur if the compost facility were co-located at a landfill site; this scenario would result in no change to the fuel required for waste disposal; and
3. The feedstock supplier is farther from the compost facility than to the landfill, which would require additional fuel for waste disposal.

Because the project locations are not known, travel distances are estimated. To ensure that energy usage is not underestimated, it is assumed that the compost facility is farther from the feedstock supplier than from the landfill, per scenario (3) above. The travel distance from the feedstock generator to the compost facility is estimated to be 20 miles, one-way. For the purpose of these energy usage estimates, it is assumed that the travel distance from the waste generator to the landfill is 15 miles, one way. To reduce the complexity of the

fuel use calculations, the net increase in feedstock delivery distance is used to estimate the increase in fuel use associated with the proposed projects. The net increase in vehicle miles is 5 miles per one-way trip (20 – 15 miles = 5 miles).

On-site mileage for waste delivery and compost shipment was based on the distance from the facility access gate to the farthest point of the facility, approximately 0.2 miles (one-way).

The fuel use due to employee travel would depend on the travel distance. The small and medium-sized compost facilities have modest employment requirements, estimated to be eight employees for the small compost facility and 12 employees for the medium facility. It is assumed that any community local to the compost facility could support this level of employment and long travel distances would not be required. Employee travel to the compost facility is estimated at 15 miles, one way, for both small and medium facilities. Employees are assumed not to travel on-site.

The following vehicle types were characterized to support the composting operations:

- LDA – Light-Duty Auto is a vehicle weight category that includes cars and light trucks that weigh less than 8,500 pounds and are assumed to be gasoline fueled; this vehicle category is assigned for employee commuting;
- LHD2 – Light Heavy-Duty 2 [Gross Vehicle Weight Rating (GVWR): 10,001 pounds to 14,000 pounds] vehicles are assumed to be diesel fueled and used for miscellaneous business deliveries; and
- T7 Tractor Class 8 – Typically weighs over 33,000 pounds as this is the minimum weight requirement for a Class 8 vehicle according to U.S. truck classifications, meaning it falls into the heavy-duty truck category with a GVWR exceeding 33,001 pounds. T7 tractors are used for the incoming feedstock loads (three or more axles), and outgoing finished compost. T7 Tractor Class 8 vehicles are assumed to be diesel fueled.

Vehicle descriptions, purpose, and travel distance estimates are summarized in Table 2-2.

Table 2-2: Vehicles and Travel Distances

Vehicle Use	Vehicle	One-Way Travel Distance Small Facility (Miles/Day)	One-Way Travel Distance Medium Facility (Miles/Day)
Employee	LDT1	15.00	15.00
Delivery of Office Supplies	LHD2	15.20	15.20
Ship Raw Material	T7 Tractor	20.20	20.20
Ship Finished Compost	T7 Tractor	15.20	15.20
Baseline Waste Hauling to Landfill	T7 Tractor	15.00	15.00

2.2.1.2 Fuel Economy

Vehicle miles travelled for each vehicle type are divided by the average fuel economy values shown in Table 2-3 to estimate annual fuel usage.

Table 2-3: Vehicle Fuel Economy

Vehicle Type	Fuel	Fuel Economy ¹ (Miles/Gal)
LDA	Gasoline	33.5
LHD2	Diesel	10.0
T7 Tractor Class 8	Diesel	5.0

¹ Fuel economy estimates provided by Google AI, which is compiled U.S. EPA, Department of Energy (DOE), Bureau of Transportation Statistics (BTS), and industry fleet data.

2.2.2 Off-Road Equipment Fuel Use

Off-road equipment includes the on-site heavy-duty equipment used to support on-site operations, including front-end loaders and excavators used to build compost piles, windrow turners used to mix and aerate windrows, fuel trucks used to fuel on-site equipment, and water trucks used to water compost piles and roadways. Each of the six scenarios evaluated is assumed to operate with the following diesel-fueled equipment:

- Windrow Turner – A windrow turner would be required for Scenarios 1 and 4 to mix and aerate the windrow compost piles; windrow turners are not used with CASPs or ASPs (Scenarios 2, 3, 5 and 6);
- Fuel Truck – Operated on-site to fuel mobile and stationary equipment; the fuel truck is assumed to operate on-site for 2 hours per day refueling equipment;
- Tractor – Used on-site to move feedstock, compost, and mulch;
- Excavator – Used on-site to move feedstock, compost, and mulch;
- Front-end Loader – Used on-site to move feedstock, compost, and mulch;
- Water Truck – Used on-site to apply water compost and curing piles for both moisture control and dust suppression, as well as to apply water to road surfaces for dust control; and
- Sweeper Truck – Used on-site for dust control on paved surfaces.

A summary of equipment information and equipment counts is provided in Table 2-4. Equipment operation is converted to fuel use estimates using the BSFC of 0.3602 lb per HP-hr for the diesel-fueled equipment.

2.2.3 Stationary Equipment Fuel Use

Each of the six proposed operating scenarios evaluated is assumed to operate with the following diesel-fueled equipment. It is possible that a grinder, screen, stacker or colorizer could be electrically powered.²

- Grinder – Used to grinder feedstock in preparation for composting; grinding aides in mixing and ensuring consistent particle size;
- Screen – Used to separate mulch and debris from compost following composting;
- Stacker – Used to construct storage piles: commonly used for mulch and finished compost; could also be used for feedstock;
- Colorizer – Used to apply dye to mulch; assumed to be used at the medium facilities and assumed not to be used at the small facilities due to the limited amount of mulch processed;
- Emergency Generator – Assumed to be available to support facility operations in the event of power loss; and
- Emergency Fire Pump – Assumed to be available to extinguish pile fires.

A summary of equipment information and counts is provided in Table 2-5.

² Diesel power was assumed for the air quality analysis because diesel emissions lead to the greatest health risk impacts, making the analysis conservative. Diesel fuel consumption is evaluated for this energy impacts analysis for consistency.

Table 2-4: Off-Road Equipment Operating Information and Equipment Counts

Off-Road Equipment	Engine Information			Equipment Count					
	BHP	Hr/Yr	Operating Load	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Windrow Turner	250	3,120	0.8	1	0	0	1	0	0
Fuel Truck	350	624	0.38	1	1	1	1	1	1
Tractors	200	3,120	0.37	1	1	1	1	1	1
Excavator	201	3,120	0.38	1	1	1	1	1	1
Loader	250	3,120	0.36	2	2	2	3	3	3
Water Truck	350	3,120	0.38	1	1	1	1	1	1
Sweeper Truck	240	3,120	0.46	1	1	1	1	1	1

Table 2-5: Stationary Equipment Operating Information and Equipment Counts

Function	Engine Information			Equipment Count					
	BHP	Hours/ Yr	Operating Load	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Grinder	100	3,120	0.95	1	1	1	1	1	1
Screen	100	3,120	0.95	1	1	1	1	1	1
Stacker	100	3,120	0.95	1	1	1	1	1	1
Colorizer	100	3,120	0.95	0	0	0	1	1	1
Emergency Generator	150	200	0.74	1	1	1	1	1	1
Emergency Fire Pump	300	200	0.74	1	1	1	1	1	1

2.2.4 Electricity Usage Estimates

A small or medium compost facility would require electric power for normal operations. The three primary anticipated uses are listed below.

1. Blower Operation for ASPs – Electricity usage is calculated based on operating hours and motor HP. Blowers are not operated at windrow facilities. Blower requirements are listed in Table 2-6.
2. Water Supply – This is the power required to provide water to the facility. Electricity use for water supply is indirect power consumption (i.e., it is electricity consumed at the pump plant or treatment plant, not at the compost facility itself). Electricity use is calculated based on water demand and published energy intensity factors for water supply [California Air Pollution Control Officers Association (CAPCOA) 2026]. Water usage is estimated based on the water content of feedstock (assumed to be 20% by weight as received) and the maximum water content recommended for efficient composting, 70% by weight (CARB 2015, pg. 18). An additional 50% safety factor is applied to the calculated water demand to account for water truck usage on the piles and roadways and sprinkler system usage on the compost and curing piles. Estimated water demand for the facility is listed in Table 2-7.
3. Office Building – Electricity is used for lighting, computers, air conditioning, and sanitary water use. The office building may also use natural gas for space heating and water heating. Electricity and natural gas consumption for the building operation, as well as water demand, are calculated based on published energy intensity factors (CAPCOA 2026) and are included in Table 2-9 and Attachment 1.

Table 2-6: Blower Operating Requirements

Scenario	Installed Blower (HP)	Installed Blower (kW)	Operating (Hours/Yr)
1	0	0.0	0
2	10	7.5	8,760
3	10	7.5	8,760
4	0	0.0	0
5	30	22.4	8,760
6	30	22.4	8,760

Table 2-7: Water Demand

Scenario	Raw Throughput, As Delivered (Ton/Yr)	Moisture Content, As Delivered (Ton/Yr)	Throughput (Bone Dry Ton/Yr)	Moisture as Composted (Ton/Yr)	Water Required (Acre/Yr)
1	10,000	2,000	8,000	5,600	6.3
2	10,000	2,000	8,000	5,600	6.3
3	10,000	2,000	8,000	5,600	6.3
4	25,000	5,000	20,000	14,000	15.5
5	25,000	5,000	20,000	14,000	15.5
6	25,000	5,000	20,000	14,000	15.5

2.3 Results and Analysis

2.3.1 Summary of Energy Use

Construction and operations energy demands are summarized in Tables 2-8 and 2-9, respectively. Energy use calculations are provided in Attachment 1.

Table 2-8: Summary of Construction Energy Requirements

Energy Category	Unit of Measure	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Gasoline	Gal/Period	207	207	207	189	189	189
Diesel	Gal/Period	24,217	24,217	24,217	25,616	25,616	25,616

Table 2-9: Summary of Operations Energy Requirements

Energy Category	Unit of Measure	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
On-Road Gasoline	Gal/yr	2,235	2,235	2,235	3,353	3,353	3,353
On-Road Diesel	Gal/yr	15,725	15,725	15,725	36,941	36,941	36,941
Off-Road Diesel	Gal/yr	127,593	95,710	95,710	141,941	110,058	110,058
Stationary Diesel	Gal/yr	48,836	48,836	48,836	63,981	63,981	63,981
Electricity	kW-hr/yr	36,544	101,869	101,869	85,753	281,726	281,726
Natural Gas	MMBtu/yr	4.3	4.3	4.3	4.3	4.3	4.3

2.3.2 Analysis and Discussion

According to the California Department of Tax and Fee Administration (CDTFA) approximately 2.9 billion gallons (gal) of diesel was sold in California in 2025 (CDTFA 2026). Based on the fuel use calculations presented herein, the annual diesel fuel

consumption of a small or medium compost facility is approximately 0.00552% to 0.00836% of the annual diesel consumption in California, depending on which operating scenario is evaluated. However, the hauling of finished compost to end users would likely result in the reduced fuel economy of vehicles operating on these routes. Because fuel costs are embedded into the cost of transporting feedstock and processed materials, which would be a substantial portion of operating cost of organic waste handling facilities, composting facilities would be incentivized to locate close to agricultural areas, where finished compost would be applied to the land (CalRecycle 2019, pg. 3.6-13). For this reason, the most likely scenario for most facilities eligible for the program is a reduction in fuel use associated with waste disposal, rather than an increase in fuel use, as presented herein.

Gasoline is the most used transportation fuel in California, with 97% of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles. In 2025, approximately 13.3 billion gal of gasoline were sold, according to the CDTFA (CDTFA 2026). Gasoline sold in California at retail is made up of 90 percent petroleum-based gasoline, as specified by the California Air Resources Board (CARB), and 10% ethanol (CEC 2026a). The annual gasoline consumption of a small or medium compost facility is approximately 0.00002% to 0.00003% of the annual gasoline consumption in California, depending on which operating scenario is evaluated.

According to the California Energy Commission (CEC), Statewide electricity consumption was more than 281,000 gigawatt hours (GWh) in 2024. Consumption is projected to reach nearly 417,000 GWh in 2045 in the mid baseline used in the planning forecast and 434,000 GWh in the high baseline used in the local reliability scenario (CEC 2026b, pg. 54). The projected electrical demand for a single compost project would be 0.00130% to 0.01003% of the 2024 electric demand in the State, depending on which operating scenario is considered.

Implementing the proposed small and medium compost facility projects would also displace some amount of petroleum-based fertilizers as compost materials become increasingly available. Over the past decade, the average annual amount of petroleum-derived nitrogen fertilizer purchased for use in California was approximately 600,000 tons. The application of these fertilizers is a notable contributor to global emissions of nitrogen dioxide, a potent GHG. Moreover, the production of nitrogen-rich fertilizers requires the combustion of natural gas. To produce, transport, and apply one ton of nitrogen fertilizer requires an amount of energy equal to almost two tons of gasoline. Compost materials generated under the proposed Project would reduce overall reliance on petroleum-based fertilizers (CalRecycle 2019, pg. 3.8-17). The energy reductions associated with using compost rather than petroleum-based fertilizers are not determined; however, any reductions would serve to offset the increase in energy use associated with construction and operation of the proposed small and medium compost facilities.

3.0 IMPACTS ANALYSIS

3.1 Would the Project Result in a Potentially Significant Environmental Impact Due to Wasteful, Inefficient, or Unnecessary Consumption of Energy Resources During Project Construction or Operation?

Construction of the proposed small or medium compost facilities would result in the temporary use of fuels for employee travel and heavy equipment usage. Construction-related fuel consumption would be finite, short-term, and consistent with construction activities of a similar character. This energy use would not be considered wasteful, inefficient, or unnecessary.

Operation of the small and medium compost facilities could cause an increase in Statewide fuel consumption associated with feedstock and finished compost transport. Operation of the on-site equipment (screens, grinders, front-end loaders, etc.) may also use fuel and/or electricity. The fuel economy and emissions standards required by the State would minimize the total amount of fuel and electricity consumed by mandating efficient vehicle fleets and energy-efficient electric motors. Furthermore, the use of compost fertilizer may decrease the State's reliance on petroleum-based fertilizer, reducing the energy demand for manufacturing and distributing those products. For these reasons, the impact of the project on energy resources would be Less Than Significant.

3.2 Would the Project Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency?

The construction and operation of small and medium compost facilities would entail the use of buildings, equipment, and vehicles subject to State energy policies. State policies seek to reduce energy consumption through efficiency, and transition to energy generation with lower carbon intensities. The buildings, vehicles, and equipment used to process organic waste would conform to the energy efficiency standards set forth by the State. For these reasons, this impact would be Less Than Significant.

4.0 REFERENCES

- CalRecycle 2019. Draft Environmental Impact Report, SB 1383 Regulations, Short-Lived Climate Pollutants: Organic Waste Methane Emission Reduction. Pgs. 3.6-13, 3.8-17. Website (<https://www2.calrecycle.ca.gov/Docs/Web/114912>).
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- EPA 2025. U.S. Environmental Protection Agency, AP-42, Compilation of Air Pollutant Emissions Factors from Stationary Sources, Section 3.3, Gasoline and Diesel Industrial Engines, Pg. 7, Table 3.3-1, Footnote a, April. Website (https://www.epa.gov/system/files/documents/2025-04/c03s03_april2025.pdf).

**ATTACHMENT 1 – PROPOSED PROJECT ENERGY REQUIREMENTS
CALCULATION WORKSHEETS**

CalRecycle Small and Medium Compost Facility PEIR
Energy Analysis



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Table 1: Compost Facility Operations Assumptions

Parameter	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Facility Size	Small	Small	Small	Medium	Medium	Medium
Facility Capacity (cu yd)	5,000	5,000	5,000	12,500	12,500	12,500
Facility Size (acres)	5	5	5	11	11	11
Throughput (tpy)	10,000	10,000	10,000	25,000	25,000	25,000
Operating Schedule (Hours per Day)	10	10	10	10	10	10
Operating Schedule (Weeks per Year)	52	52	52	52	52	52
Operating Schedule (Days per Year)	312	312	312	312	312	312
Feedstock	Green Waste (includes vegetative food material)	Green Waste (includes vegetative food material)	Green Waste (includes vegetative food material)	Green Waste (includes vegetative food material) + Food Waste	Green Waste (includes vegetative food material) + Food Waste	Green Waste (includes vegetative food material) + Food Waste
Feedstock Storage Time (days)	2	2	2	2	2	2
Feedstock Storage Building	N/A	N/A	N/A	Only as a BMP for facilities near receptors. No separate calculations.	Only as a BMP for facilities near receptors. No separate calculations.	Only as a BMP for facilities near receptors. No separate calculations.
Active Technology	Windrows	Positive CASP	Negative ASP with Filter	Windrows	Positive CASP	Negative ASP with Filter
VOC Control Efficiency	0%	80%	90%	0%	80%	90%
NH3 Control	0%	80%	80%	0%	80%	80%
Water intensity factor from CalEEMod Users's Guide, Appendix G, Table G-31	Yes	Yes	Yes	Yes	Yes	Yes
Mulch Colorizer (Tons per Hour)	0	0	0	50	50	50
Diesel Grinders	1	1	1	1	1	1
Diesel Screens	1	1	1	1	1	1
Diesel Stackers	1	1	1	1	1	1
Diesel Colorizer	0	0	0	1	1	1
Diesel Emergency Generator	1	1	1	1	1	1
Diesel Emergency Fire Pump	1	1	1	1	1	1
Employee and Commercial Light Duty Gasoline Vehicle Round Trips Per Day	8	8	8	12	12	12
Employee and Commercial Light Duty Diesel Vehicle Round Trips Per Day	1	1	1	1	1	1
Tractor Trailers for Raw Materials Round Trips Per Day	14	14	14	35	35	35
Tractor Trailers for Product Round Trips Per Day	3	3	3	7	7	7
Employee Mileage (one-way)	15	15	15	15	15	15
Delivery of Office Supplies Offsite Mileage (one-way)	15	15	15	15	15	15
Feedstock Haul Truck Offsite Mileage (one-way)	20	20	20	20	20	20
Compost Product Haul Truck Offsite Mileage (one-way)	15	15	15	15	15	15
Baseline Feedstock Haul Truck Mileage (one-way)	15	15	15	15	15	15
Windrow Turner	1	0	0	1	0	0
Fuel Truck	1	1	1	1	1	1
Tractors	1	1	1	1	1	1
Excavator	1	1	1	1	1	1
Loader	2	2	2	3	3	3
Water Truck	1	1	1	1	1	1
Sweeper Truck	1	1	1	1	1	1
Fuel Truck (Hours per Day)	1	1	1	2	2	2
Other Off-road Engine (mobile and non-emergency stationary) (Hours per Day)	4	4	4	10	10	10

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Table 2: Additional Datasets and Assumptions

Table 2-1: Stationary Engine Information'

Equipment	Engine Power ^{1,2}	Operating Load ³
Windrow Turner	250	0.80
Diesel Grinders	100	0.95
Diesel Screens	100	0.95
Diesel Stackers	100	0.95
Diesel Colorizer	100	0.95
Diesel Emergency Generator	150	0.74
Diesel Emergency Fire Pump	300	0.74

Table 2-2: Emergency Engine Operation Assumptions

Parameter	Value	Unit of Measure
Emergency Engine Operating Hours	2	hours/day, assumption
Emergency Engine Operating Days	100	day/yr, for 200 hours per year, assumption

Water intensity factor from CalEEMod Users's Guide, Appendix G, Table G-31

Table 2-3: Onroad Vehicle Information and Mileage

Vehicle Type	Vehicle Use	Fuel
LDT1	Employee	Gasoline
LHD2	Delivery of Office Supplies	Diesel
T7 Tractor	Ship Raw Material	Diesel
T7 Tractor	Ship Finished Compost	Diesel

Table 2-4: Offroad Vehicle Information

Offroad Equipment	Typical Model (or Equivalent)	Fuel	Operating Load ⁴
Fuel Truck	Freightliner M2106	Diesel	0.38
Tractors	Massey Fergusen, 7619	Diesel	0.37
Excavator	Caterpillar 326	Diesel	0.38
Loader	Caterpillar, 962K	Diesel	0.36
Water Truck	International, 7400 6x4	Diesel	0.38
Sweeper Truck	Freightliner M2	Diesel	0.46

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Table 2-5: Fuel Economy Values

Vehicle	Fuel Economy ⁵ (mile/gal)
LDT1	33.5
LHD2	10
T7 Tractor	5

Table 2-6 General Data and Parameters

Parameter	Value	UOM
Days of Operation	312	day/year
Fuel Truck Hr/Day	2	hr/day
Operating Hr/Day	10	hr/day

Table 2-7: Brake Specific Fuel Consumption (BSFC) Conversion

Parameter	Value	Unit of Measure	Basis
BSFC	7000	btu/hp-hr	Per EPA AP-42 Table 3,3-1, Footnote a
Heat Content	137,000	btu/gal	SDS
Density	7.05	lb/gal	SDS
Heat Content	19,433	Btu/lb	calculated
BSFC	0.3602	lb/hp-hr	calculated

Notes:

1. From User Guide for CalEEMod Version
2. Engineering estimate based on projected throughput and machine capacity.
3. Engineering estimate based on projected throughput and machine capacity except for emergency engines, which are from User Guide for CalEEMod Version 2022.1, Appendix G, Table G-12
4. User Guide for CalEEMod Version 2022.1, Appendix G, Table G-12
5. Fuel economy estimates provided by Google AI, which is compiled U.S. EPA, Department of Energy (DOE), Bureau of Transportation Statistics (BTS), and industry fleet data.

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Table 3: Construction Equipment Fuel Use

Table 3-1: Construction Equipment Fuel Estimate - Small Facilities

Phase	Equipment Type	Unit Count per Day	Hours per Day	Days per Phase	Engine Information		Fuel (gal)
					BHp	Op Load	
Site Preparation	Rubber Tired Dozers	3	8	5	367	0.40	900
Site Preparation	Tractors/Loaders/Backhoes	4	8	5	84	0.37	254
Grading	Excavators	1	8	8	36	0.38	45
Grading	Graders	1	8	8	148	0.41	198
Grading	Rubber Tired Dozers	1	8	8	367	0.40	480
Grading	Tractors/Loaders/Backhoes	3	8	8	84	0.37	305
Building Construction	Cranes	1	7	200	367	0.29	7,613
Building Construction	Forklifts	3	8	200	82	0.20	4,022
Building Construction	Generator Sets	1	8	200	14	0.74	847
Building Construction	Tractors/Loaders/Backhoes	3	7	200	84	0.37	6,670
Building Construction	Welders	1	8	200	46	0.45	1,692
Paving	Cement and Motar Mixers	2	6	18	10	0.56	62
Paving	Pavers	1	8	18	81	0.42	250
Paving	Paving Equipment	2	6	18	89	0.36	354
Paving	Rollers	2	6	18	36	0.38	151
Paving	Tractors/Loaders/Backhoes	1	8	18	84	0.37	229
Architechural Coating	Air Compressors	1	6	25	37	0.48	136
						Total	24,208

Table 3-2: Construction Worker Fuel Use - Small Facilities

Phase	Equipment Type	Vehicle Type	Fuel Type	One-Way	Miles per	Days per	Total Miles	Fuel Mileage	Fuel
Site Preparation	Worker	LDT1	gasoline	17.5	11.7	5	1023.75	33.50	31
Grading	Worker	LDT1	gasoline	15	11.7	8	1404.00	33.50	42
Building Construction	Worker	LDT1	gasoline	0.1184	11.7	200	277.06	33.50	8
Building Construction	Vendor	LHD2	diesel	0.052448	8.4	200	88.11	10.00	9
Paving	Worker	LDT1	gasoline	20	11.7	18	4212.00	33.50	126
Architechural Coating	Worker	LDT1	gasoline	0.02368	11.7	25	6.93	33.50	0.2
								Total	215

Table 3-3: Construction Equipment Fuel Estimate - Medium Facilities

Phase	Equipment Type	Unit Count	Hours per	Days per	Engine Information		Fuel
					BHp	Op Load	
Site Preparation	Rubber Tired Dozers	3	8	5	367	0.40	900
Site Preparation	Tractors/Loaders/Backhoes	4	8	5	84	0.37	254
Grading	Excavators	2	8	8	36	0.38	89
Grading	Graders	1	8	8	148	0.41	198
Grading	Rubber Tired Dozers	1	8	8	367	0.40	480
Grading	Tractors/Loaders/Backhoes	2	8	8	84	0.37	203
Grading	Scrapers	2	8	8	423	0.48	1,328
Building Construction	Cranes	1	7	200	367	0.29	7,613
Building Construction	Forklifts	3	8	200	82	0.20	4,022
Building Construction	Generator Sets	1	8	200	14	0.74	847
Building Construction	Tractors/Loaders/Backhoes	3	7	200	84	0.37	6,670
Building Construction	Welders	1	8	200	46	0.45	1,692
Paving	Pavers	2	8	18	81	0.42	501
Paving	Paving Equipment	2	8	18	89	0.36	471
Paving	Rollers	2	8	18	36	0.38	201
Architechural Coating	Air Compressors	1	6	25	37	0.48	136
						Total	25,607

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Table 3-4: Construction Worker Fuel Use - Medium Facilities

Phase	Equipment Type	Vehicle Type	Fuel Type	One-Way	Miles per	Days per	Total Miles	Fuel Mileage	Fuel
Site Preparation	Worker	LDT1	gasoline	17.5	11.7	5	1023.75	33.50	31
Grading	Worker	LDT1	gasoline	20	11.7	8	1872.00	33.50	56
Building Construction	Worker	LDT1	gasoline	0.1184	11.7	200	277.06	33.50	8
Building Construction	Vendor	LHD2	diesel	0.052448	8.4	200	88.11	10.00	9
Paving	Worker	LDT1	gasoline	15	11.7	18	3159.00	33.50	94
Architechural Coating	Worker	LDT1	gasoline	0.02368	11.7	25	6.93	33.50	0.2
								Total	198

Table 4: Onroad Mobile Source Vehicle Information and Fuel Use

Table 4-1: Vehicle Information and Mileage Calculation - Scenario 1

Vehicle Type	Vehicle Use	Number of Vehicles per Day	Fuel	Days	One-way Trips per Vehicle per Day	One-way Trips per Year	One-way Onsite Trip Mileage	One-way Offsite Trip Mileage ¹	Total One-way Trip Mileage	Onsite Total VMT/yr	Offsite Total VMT/yr	Total VMT/yr	Fuel Use Gal/yr
LDT1	Employee	8	Gasoline	312	2	4,992	0.00	15	15.00	0	74,880	74,880	2,235
LHD2	Delivery of Office Supplies	1	Diesel	312	2	624	0.20	15	15.20	125	9,360	9,485	948
T7 Tractor	Ship Raw Material	14	Diesel	312	2	8,736	0.20	5	5.20	1,747	43,680	45,427	9,085
T7 Tractor	Ship Finished Compost	3	Diesel	312	2	1,872	0.20	15	15.20	374	28,080	28,454	5,691

Table 4-2: Vehicle Information and Mileage Calculation - Scenario 2

Vehicle Type	Vehicle Use	Number of Vehicles per Day	Fuel	Days	One-way Trips per Vehicle per Day	One-way Trips per Year	One-way Onsite Trip Mileage	One-way Offsite Trip Mileage ¹	Total One-way Trip Mileage	Onsite Total VMT/yr	Offsite Total VMT/yr	Total VMT/yr	Fuel Use Gal/yr
LDT1	Employee	8	Gasoline	312	2	4,992	0.00	15	15.00	0	74,880	74,880	2,235
LHD2	Delivery of Office Supplies	1	Diesel	312	2	624	0.20	15	15.20	125	9,360	9,485	948
T7 Tractor	Ship Raw Material	14	Diesel	312	2	8,736	0.20	5	5.20	1,747	43,680	45,427	9,085
T7 Tractor	Ship Finished Compost	3	Diesel	312	2	1,872	0.20	15	15.20	374	28,080	28,454	5,691

Table 4-3: Vehicle Information and Mileage Calculation - Scenario 3

Vehicle Type	Vehicle Use	Number of Vehicles per Day	Fuel	Days	One-way Trips per Vehicle per Day	One-way Trips per Year	One-way Onsite Trip Mileage	One-way Offsite Trip Mileage ¹	Total One-way Trip Mileage	Onsite Total VMT/yr	Offsite Total VMT/yr	Total VMT/yr	Fuel Use Gal/yr
LDT1	Employee	8	Gasoline	312	2	4,992	0.00	15	15.00	0	74,880	74,880	2,235
LHD2	Delivery of Office Supplies	1	Diesel	312	2	624	0.20	15	15.20	125	9,360	9,485	948
T7 Tractor	Ship Raw Material	14	Diesel	312	2	8,736	0.20	5	5.20	1,747	43,680	45,427	9,085
T7 Tractor	Ship Finished Compost	3	Diesel	312	2	1,872	0.20	15	15.20	374	28,080	28,454	5,691

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Table 4-4: Vehicle Information and Mileage Calculation - Scenario 4

Vehicle Type	Vehicle Use	Number of Vehicles per Day	Fuel	Days	One-way Trips per Vehicle per Day	One-way Trips per Year	One-way Onsite Trip Mileage	One-way Offsite Trip Mileage ¹	Total One-way Trip Mileage	Onsite Total VMT/yr	Offsite Total VMT/yr	Total VMT/yr	Fuel Use Gal/yr
LDT1	Employee	12	Gasoline	312	2	7,488	0.00	15	15.00	0	112,320	112,320	3,353
LHD2	Delivery of Office Supplies	1	Diesel	312	2	624	0.20	15	15.20	125	9,360	9,485	948
T7 Tractor	Ship Raw Material	35	Diesel	312	2	21,840	0.20	5	5.20	4,368	109,200	113,568	22,714
T7 Tractor	Ship Finished Compost	7	Diesel	312	2	4,368	0.20	15	15.20	874	65,520	66,394	13,279

Table 4-5: Vehicle Information and Mileage Calculation - Scenario 5

Vehicle Type	Vehicle Use	Number of Vehicles per Day	Fuel	Days	One-way Trips per Vehicle per Day	One-way Trips per Year	One-way Onsite Trip Mileage	One-way Offsite Trip Mileage ¹	Total One-way Trip Mileage	Onsite Total VMT/yr	Offsite Total VMT/yr	Total VMT/yr	Fuel Use Gal/yr
LDT1	Employee	12	Gasoline	312	2	7,488	0.00	15	15.00	0	112,320	112,320	3,353
LHD2	Delivery of Office Supplies	1	Diesel	312	2	624	0.20	15	15.20	125	9,360	9,485	948
T7 Tractor	Ship Raw Material	35	Diesel	312	2	21,840	0.20	5	5.20	4,368	109,200	113,568	22,714
T7 Tractor	Ship Finished Compost	7	Diesel	312	2	4,368	0.20	15	15.20	874	65,520	66,394	13,279

Table 4-6: Vehicle Information and Mileage Calculation - Scenario 6

Vehicle Type	Vehicle Use	Number of Vehicles per Day	Fuel	Days	One-way Trips per Vehicle per Day	One-way Trips per Year	One-way Onsite Trip Mileage	One-way Offsite Trip Mileage ¹	Total One-way Trip Mileage	Onsite Total VMT/yr	Offsite Total VMT/yr	Total VMT/yr	Fuel Use Gal/yr
LDT1	Employee	12	Gasoline	312	2	7,488	0.00	15	15.00	0	112,320	112,320	3,353
LHD2	Delivery of Office Supplies	1	Diesel	312	2	624	0.20	15	15.20	125	9,360	9,485	948
T7 Tractor	Ship Raw Material	35	Diesel	312	2	21,840	0.20	5	5.20	4,368	109,200	113,568	22,714
T7 Tractor	Ship Finished Compost	7	Diesel	312	2	4,368	0.20	15	15.20	874	65,520	66,394	13,279

Notes:

1. One-way Offsite Trip Mileage for raw material shipment represents the incremental mileage relative to the baseline scenario (waste hauling to landfill).

Table 5: Offroad Equipment Fuel Use**Table 5-1: Offroad Equipment Fuel Usage - Scenario 1**

Unit Count	Offroad Equipment	Typical Model (or Equivalent)	Engine Information		Op Load ¹	Fuel (gal/yr)
			BHp	Hr/Yr		
1	Windrow Turner	Scarab	250	3,120	0.80	31,883
1	Fuel Truck	Freightliner M2106	350	624	0.38	4,240
1	Tractors	Massey Ferguson, 7619	200	3,120	0.37	11,797
1	Excavator	Caterpillar 326	201	3,120	0.38	12,176
2	Loader	Caterpillar, 962K	250	3,120	0.36	28,695
1	Water Truck	International, 7400 6x4	350	3,120	0.38	21,202
1	Sweeper Truck	Freightliner M2	240	3,120	0.46	17,600
					Total	127,593

Table 5-2: Offroad Equipment Fuel Usage - Scenario 2

Unit Count	Offroad Equipment	Typical Model (or Equivalent)	Engine Information		Op Load ¹	Fuel (gal/yr)
			BHp	Hr/Yr		
0	Windrow Turner	Scarab	250	0	0.00	0
1	Fuel Truck	Freightliner M2106	350	624	0.38	4,240
1	Tractors	Massey Ferguson, 7619	200	3,120	0.37	11,797
1	Excavator	Caterpillar 326	201	3,120	0.38	12,176
2	Loader	Caterpillar, 962K	250	3,120	0.36	28,695
1	Water Truck	International, 7400 6x4	350	3,120	0.38	21,202
1	Sweeper Truck	Freightliner M2	240	3,120	0.46	17,600
					Total	95,710

Table 5-3: Offroad Equipment Fuel Usage - Scenario 3

Unit Count	Offroad Equipment	Typical Model (or Equivalent)	Engine Information		Op Load ¹	Fuel (gal/yr)
			BHp	Hr/Yr		
0	Windrow Turner	Scarab	250	0	0.00	0
1	Fuel Truck	Freightliner M2106	350	624	0.38	4,240
1	Tractors	Massey Ferguson, 7619	200	3,120	0.37	11,797
1	Excavator	Caterpillar 326	201	3,120	0.38	12,176
2	Loader	Caterpillar, 962K	250	3,120	0.36	28,695
1	Water Truck	International, 7400 6x4	350	3,120	0.38	21,202
1	Sweeper Truck	Freightliner M2	240	3,120	0.46	17,600
					Total	95,710

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Table 5-4: Offroad Equipment Fuel Usage - Scenario 4

Unit Count	Offroad Equipment	Typical Model (or Equivalent)	Engine Information		Op Load ¹	Fuel (gal/yr)
			BHp	Hr/Yr		
1	Windrow Turner	Scarab	250	3,120	0.80	31,883
1	Fuel Truck	Freightliner M2106	350	624	0.38	4,240
1	Tractors	Massey Ferguson, 7619	200	3,120	0.37	11,797
1	Excavator	Caterpillar 326	201	3,120	0.38	12,176
3	Loader	Caterpillar, 962K	250	3,120	0.36	43,042
1	Water Truck	International, 7400 6x4	350	3,120	0.38	21,202
1	Sweeper Truck	Freightliner M2	240	3,120	0.46	17,600
					Total	141,941

Table 5-5: Offroad Equipment Fuel Usage - Scenario 5

Unit Count	Offroad Equipment	Typical Model (or Equivalent)	Engine Information		Op Load ¹	Fuel (gal/yr)
			BHp	Hr/Yr		
0	Windrow Turner	Scarab	250	0	0.00	0
1	Fuel Truck	Freightliner M2106	350	624	0.38	4,240
1	Tractors	Massey Ferguson, 7619	200	3,120	0.37	11,797
1	Excavator	Caterpillar 326	201	3,120	0.38	12,176
3	Loader	Caterpillar, 962K	250	3,120	0.36	43,042
1	Water Truck	International, 7400 6x4	350	3,120	0.38	21,202
1	Sweeper Truck	Freightliner M2	240	3,120	0.46	17,600
					Total	110,058

Table 5-6: Offroad Equipment Fuel Usage - Scenario 6

Unit Count	Offroad Equipment	Typical Model (or Equivalent)	Engine Information		Op Load ¹	Fuel (gal/yr)
			BHp	Hr/Yr		
0	Windrow Turner	Scarab	250	0	0.00	0
1	Fuel Truck	Freightliner M2106	350	624	0.38	4,240
1	Tractors	Massey Ferguson, 7619	200	3,120	0.37	11,797
1	Excavator	Caterpillar 326	201	3,120	0.38	12,176
3	Loader	Caterpillar, 962K	250	3,120	0.36	43,042
1	Water Truck	International, 7400 6x4	350	3,120	0.38	21,202
1	Sweeper Truck	Freightliner M2	240	3,120	0.46	17,600
					Total	110,058

Notes:

1. CalEEMod User Guide, Appendix G Default Data Tables, Table G12,
<https://www.caleemod.com/user-guide>
except for windrow turner which is based on an engineering estimate.

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Table 6: Stationary Engine Fuel Use

Table 6-1: Stationary Engine Fuel Consumption - Scenario 1

Function	Number of Engines	Engine Characteristics		Hr/Yr	Fuel (gal/yr)
		BHp	Op Load		
Diesel Grinders	1	100	0.95	3,120	15,145
Diesel Screens	1	100	0.95	3,120	15,145
Diesel Stackers	1	100	0.95	3,120	15,145
Diesel Colorizer	0	100	0.95	3,120	0
Diesel Emergency Generator	1	150	0.74	200	1,134
Diesel Emergency Fire Pump	1	300	0.74	200	2,269

Table 6-2: Stationary Engine Fuel Consumption - Scenario 2

Function	Number of Engines	Engine Characteristics		Hr/Yr	Fuel (gal/yr)
		BHp	Op Load		
Diesel Grinders	1	100	0.95	3,120	15,145
Diesel Screens	1	100	0.95	3,120	15,145
Diesel Stackers	1	100	0.95	3,120	15,145
Diesel Colorizer	0	100	0.95	3,120	0
Diesel Emergency Generator	1	150	0.74	200	1,134
Diesel Emergency Fire Pump	1	300	0.74	200	2,269

Table 6-3: Stationary Engine Fuel Consumption - Scenario 3

Function	Number of Engines	Engine Characteristics		Hr/Yr	Fuel (gal/yr)
		BHp	Op Load		
Diesel Grinders	1	100	0.95	3,120	15,145
Diesel Screens	1	100	0.95	3,120	15,145
Diesel Stackers	1	100	0.95	3,120	15,145
Diesel Colorizer	0	100	0.95	3,120	0
Diesel Emergency Generator	1	150	0.74	200	1,134
Diesel Emergency Fire Pump	1	300	0.74	200	2,269

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Table 6-4: Stationary Engine Fuel Consumption - Scenario 4

Function	Number of Engines	Engine Characteristics		Hr/Yr	Fuel (gal/yr)
		BHp	Op Load		
Diesel Grinders	1	100	0.95	3,120	15,145
Diesel Screens	1	100	0.95	3,120	15,145
Diesel Stackers	1	100	0.95	3,120	15,145
Diesel Colorizer	1	100	0.95	3,120	15,145
Diesel Emergency Generator	1	150	0.74	200	1,134
Diesel Emergency Fire Pump	1	300	0.74	200	2,269

Table 6-5: Stationary Engine Fuel Consumption - Scenario 5

Function	Number of Engines	Engine Characteristics		Hr/Yr	Fuel (gal/yr)
		BHp	Op Load		
Diesel Grinders	1	100	0.95	3,120	15,145
Diesel Screens	1	100	0.95	3,120	15,145
Diesel Stackers	1	100	0.95	3,120	15,145
Diesel Colorizer	1	100	0.95	3,120	15,145
Diesel Emergency Generator	1	150	0.74	200	1,134
Diesel Emergency Fire Pump	1	300	0.74	200	2,269

Table 6-6: Stationary Engine Fuel Consumption - Scenario 6

Function	Number of Engines	Engine Characteristics		Hr/Yr	Fuel (gal/yr)
		BHp	Op Load		
Diesel Grinders	1	100	0.95	3,120	15,145
Diesel Screens	1	100	0.95	3,120	15,145
Diesel Stackers	1	100	0.95	3,120	15,145
Diesel Colorizer	1	100	0.95	3,120	15,145
Diesel Emergency Generator	1	150	0.74	200	1,134
Diesel Emergency Fire Pump	1	300	0.74	200	2,269

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Table 7: Building Utility Requirements

Table 7: Building Utility Requirements

Scenario	Building Size (sq.ft.)	Utility	Intensity Factor ^{1,2}	Annual Usage
1, 2, and 3	160	Electricity	20,468 kWh/1000 sq.ft./yr	3,274.9 kWh/yr
	160	Water	177,734 gallons/1000 sq.ft./yr	0.1 AF/yr
	160	Natural Gas	26,827 kBtu/1000 sq.ft./yr	4.3 MMBtu/yr
4, 5, and 6	160	Electricity	20,468 kWh/1000 sq.ft./yr	3,274.9 kWh/yr
	160	Water	177,734 gallons/1000 sq.ft./yr	0.1 AF/yr
	160	Natural Gas	26,827 kBtu/1000 sq.ft./yr	4.3 MMBtu/yr

Data and Parameters

Conversion	1000	kBtu/MMBtu
Conversion	325,851	gal/acre foot

Notes:

- Water intensity factor from CalEEMod Users's Guide, Appendix G, Table G-31
- Electricity and natural gas intensity factors from CalEEMod User's Guide, Appendix G, Table G-28

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Table 8: Electricity Usage

Table 8-1: Electricity Demand - Blower

Scenario	Installed Blower (Hp)	Installed Blower (kW)	Operating (Hours/yr)	Blower Electrical Energy Usage (kW-hr/yr)
1	0	0.0	0	0
2	10	7.5	8,760	65,324
3	10	7.5	8,760	65,324
4	0	0.0	0	0
5	30	22.4	8,760	195,973
6	30	22.4	8,760	195,973

Table 8-2: Electricity Demand - Water Supply

Scenario	Raw Throughput, as delivered (ton/yr)	Moisture Content as Delivered (ton/yr)	Throughput (Bone Dry Ton/yr)	Moisture as Composted (ton/yr)	Water Required (AF/yr)	Energy Intensity ¹ (kW-hr/AF)	Water Electrical Energy Usage (kW-hr/yr)
1	10,000	2,000	8,000	5,600	6.3	5306.771859	33,269
2	10,000	2,000	8,000	5,600	6.3	5306.771859	33,269
3	10,000	2,000	8,000	5,600	6.3	5306.771859	33,269
4	25,000	5,000	20,000	14,000	15.5	5306.771859	82,478
5	25,000	5,000	20,000	14,000	15.5	5306.771859	82,478
6	25,000	5,000	20,000	14,000	15.5	5306.771859	82,478

Table 8-3: Energy Intensity Factors - Water Supply²

	Supply	Treat	Distribute	Wastewater
kW-hr/AF	3044.175594	725.3146236	1537.281642	1500.553833

Data and Parameters

Conversion	1.341	kW per Hp
Conversion	2000	lb/ton
Moisture content of feedstock	20%	assumption
Moisture content required	70%	assumption
Allowance for sprinkler use	50%	engineering estimate
Density water	8.34	lb/gal
Conversion	325,851	gal/AF

Notes:

1. Energy intensity for supply, treatment and distribution. Wastewater disposal not required.
2. Energy Intensity Factors for water supply, distribution from CalEEMod Appendix G, Table G-32.

CalRecycle Small and Medium Compost Facility PEIR
Energy Analysis



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Table 9: Energy Summary

Table 9-1: Energy Summary by Source Category

Phase	Energy Category	Unit of Measure	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Construction	Gasoline	Gal/period	207	207	207	189	189	189
	Diesel	Gal/period	24,217	24,217	24,217	25,616	25,616	25,616
Operations	Onroad Gasoline	Gal/yr	2,235	2,235	2,235	3,353	3,353	3,353
	Onroad Diesel	Gal/yr	15,725	15,725	15,725	36,941	36,941	36,941
	Offroad Diesel	Gal/yr	127,593	95,710	95,710	141,941	110,058	110,058
	Stationary Diesel	Gal/yr	48,836	48,836	48,836	63,981	63,981	63,981
	Electricity	kW-hr/yr	36,544	101,869	101,869	85,753	281,726	281,726
	Natural Gas	MMBtu/yr	4.3	4.3	4.3	4.3	4.3	4.3

Table 9-2: Operations Energy Consumption Summary by Type

Totals	Unit of Measure	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Gasoline	Gal/yr	2,235	2,235	2,235	3,353	3,353	3,353
Diesel	Gal/yr	192,155	160,272	160,272	242,863	210,979	210,979
Electricity	kW-hr/yr	36,544	101,869	101,869	85,753	281,726	281,726
Natural Gas	MMBtu/yr	4.3	4.3	4.3	4.3	4.3	4.3

Table 9-3: Operations Energy Use as a Percentage of Statewide Energy Use

Fuel	California Consumption	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Gasoline	13,318,149,611 Gal/yr	0.00002%	0.00002%	0.00002%	0.00003%	0.00003%	0.00003%
Diesel	2,905,359,699 Gal/yr	0.0066%	0.0055%	0.0055%	0.0084%	0.0073%	0.0073%
Electricity	281,000 GW-hr/yr	0.00130%	0.00363%	0.00363%	0.00305%	0.01003%	0.01003%

Notes:

1. According to the California
2. The CDTFA reports that approximately 2.9 billion gallons of diesel fuel, including off road diesel, were sold in California in 2025 (CDTFA 2026).
3. According to the California Energy Commission (CEC), Statewide electricity consumption was more than 281,000 gigawatt hours (GW-hr) in 2024 (CEC 2026b, pg. 54).