

APPENDIX C: ENERGY CALCULATIONS

Table 1. Project Fuel Consumption*PG&E S-238 Hinkley Compressor Station Electrical Upgrades***Fuel Consumption During Construction**

Construction Phase	Fuel Type	Fuel Consumption (gallons or MMscf)
Phase/Activity #1 - Site Mobilization/Site Preparation	Gasoline	477
	Diesel	6,517
	Natural Gas	0
Phase/Activity #2 - Ground Disturbing Activities	Gasoline	716
	Diesel	9,810
	Natural Gas	0
Phase/Activity #3 - Electrical Equipment Replacement or Modification	Gasoline	4,294
	Diesel	67,071
	Natural Gas	179
Phase/Activity #4 - Demobilization	Gasoline	477
	Diesel	6,517
	Natural Gas	0
Total	Gasoline	5,964
	Diesel	89,914
	Natural Gas	179

Portion of Statewide Fuel Resources Used for Project Activities

Project Activity	Fuel Type	Consumed by Project (gallons or MMscf) ^[a]	Statewide Fuel Resources (gallons or MMscf) ^[b]	Consumed by Project (%)
Construction	Gasoline	5,964	12,746,185,200	0.00005%
	Diesel	89,914	2,373,378,000	0.004%
	Natural Gas	179	--	--

^[a] Total gallons of fuel consumed for project construction represents the total gasoline and diesel from employee vehicle trips, construction equipment, vendor delivery truck trips, and material and equipment hauling truck trips during the construction phases, as applicable. Total natural gas consumed (in million standard cubic feet [MMscf]) represents the total natural gas from use of the Portable Equipment Registration Program (PERP) engines during construction.

^[b] Data taken from the California Energy Commission's Weekly Fuels Watch Report, available at <https://www.energy.ca.gov/data-reports/reports/weekly-fuels-watch/refinery-inputs-and-production>. A conservative estimate of annual statewide fuel resources consumed is assumed to be equivalent to 100 percent of annual production/stocks consumed within the state for the period of January 1, 2023 through December 31, 2023. California Energy Commission data not available for statewide natural gas production.

Table 2. Fuel Consumption by Vehicle and Equipment
PG&E S-238 Hinkley Compressor Station Electrical Upgrades

Vehicle and Equipment Fuel Consumption									
Equipment/Vehicle List ^[a]	Equipment/Vehicle Type	Fuel Type ^[b]	Equipmen t Power Rating (hp) ^[c]	Equipmen t Load Factor ^[c]	Quantity per Day	Number of Days Used ^[d]	Hours per Day	Miles per Day per Vehicle	Equipment Fuel Consumption Rate (gallons/ hour) ^[e]
Site Mobilization/Site Preparation									
Skid Steer	Skid Steer Loader	Diesel	71	0.37	1	37	10	NA	1.51
Backhoe	Tractors/Loaders/Backhoe	Diesel	84	0.37	1	37	10	NA	2.19
Large Generator	Generator Large	Diesel	50	0.74	2	37	10	NA	3.67
Small Honda Generator	Generator Small	Diesel	7	0.74	2	18	5	NA	3.67
6-ton Forklift	Rough Terrain Forklift	Diesel	96	0.40	1	37	10	NA	2.20
Water Truck	Heavy-Duty Diesel	Diesel	NA	NA	1	37	NA	2	NA
185 cfm Air Compressor	Air Compressor (Jackhammer)	Diesel	37	0.48	2	37	10	NA	1.19
Dump Truck	Heavy-Duty Diesel	Diesel	NA	NA	1	9	NA	2	NA
Worker Commutes	Light-duty Auto/Truck	Gasoline	NA	NA	18	37	NA	20	NA
Vendor/Delivery Trucks	Heavy-Duty Diesel	Diesel	NA	NA	1	12	NA	20	NA
Ground Disturbing Activities									
Skid Steer	Skid Steer Loader	Diesel	71	0.37	1	56	10	NA	1.51
Backhoe	Tractors/Loaders/Backhoe	Diesel	84	0.37	1	56	10	NA	2.19
Large Generator	Generator Large	Diesel	50	0.74	2	56	10	NA	3.67
Small Honda Generator	Generator Small	Diesel	7	0.74	2	28	5	NA	3.67
6-ton Forklift	Rough Terrain Forklift	Diesel	96	0.40	1	56	10	NA	2.20
Water Truck	Heavy-Duty Diesel	Diesel	NA	NA	1	56	NA	2	NA
185 cfm Air Compressor	Air Compressor (Jackhammer)	Diesel	37	0.48	2	56	10	NA	1.19
Vacuum Truck Onsite	Heavy-Duty Diesel	Diesel	NA	NA	1	56	4	2	NA
Dump Truck	Heavy-Duty Diesel	Diesel	NA	NA	1	13	NA	2	NA
Handheld Asphalt Saw	Concrete/Industrial Saw	Diesel	33	0.73	1	2	5	NA	1.50
Worker Commutes	Light-duty Auto/Truck	Gasoline	NA	NA	18	56	NA	20	NA
Vendor/Delivery Trucks	Heavy-Duty Diesel	Diesel	NA	NA	1	19	NA	20	NA
Electrical Equipment Replacement or Modification									
Temporary Generator	PERP Generators ^[a]	Natural Gas	302	--	22	160	24	NA	NA
Skid Steer	Skid Steer Loader	Diesel	71	0.37	1	333	10	NA	1.51
Backhoe	Tractors/Loaders/Backhoe	Diesel	84	0.37	1	333	10	NA	2.19
Large Generator	Generator Large	Diesel	50	0.74	2	333	10	NA	3.67
Small Honda Generator	Generator Small	Diesel	7	0.74	2	166	5	NA	3.67
Manlift	Aerial Lift	Diesel	46	0.31	1	52	5	NA	1.14
Weld Machine	Welder	Diesel	46	0.45	2	69	10	NA	1.71
6-ton Forklift	Rough Terrain Forklift	Diesel	96	0.40	1	333	10	NA	2.20
1/2-Ton Boom Truck	Heavy-Duty Diesel	Diesel	NA	NA	1	171	NA	1	NA
Water Truck	Heavy-Duty Diesel	Diesel	NA	NA	1	333	NA	2	NA
185 cfm Air Compressor	Air Compressor (Jackhammer)	Diesel	37	0.48	2	333	10	NA	1.19
Vacuum Truck Offsite	Heavy-Duty Diesel	Diesel	NA	NA	1	24	NA	20	NA
Vacuum Truck Onsite	Heavy-Duty Diesel	Diesel	NA	NA	2	24	NA	2	NA
Dump Truck	Heavy-Duty Diesel	Diesel	NA	NA	1	80	NA	2	NA
Concrete Pump Truck	Heavy-Duty Diesel	Diesel	NA	NA	1	12	NA	20	NA
Concrete Truck	Heavy-Duty Diesel	Diesel	NA	NA	1	12	NA	20	NA
Jumping Jack	Plate Compactor	Diesel	8	0.43	1	151	5	NA	3.16
Handheld Asphalt Saw	Concrete/Industrial Saw	Diesel	33	0.73	1	14	5	NA	1.50
Handheld Core Drill	Other General Industrial Equipment	Diesel	35	0.34	1	16	5	NA	4.37
Vibraplate	Plate Compactor	Diesel	8	0.43	1	151	5	NA	3.16
Worker Commutes	Light-duty Auto/Truck	Gasoline	NA	NA	18	333	NA	20	NA
Vendor/Delivery Trucks	Heavy-Duty Diesel	Diesel	NA	NA	2	112	NA	20	NA
Demobilization									
Skid Steer	Skid Steer Loader	Diesel	71	0.37	1	37	10	NA	1.51
Backhoe	Tractors/Loaders/Backhoe	Diesel	84	0.37	1	37	10	NA	2.19
Large Generator	Generator Large	Diesel	50	0.74	2	37	10	NA	3.67
Small Honda Generator	Generator Small	Diesel	7	0.74	2	18	5	NA	3.67
6-ton Forklift	Rough Terrain Forklift	Diesel	96	0.40	1	37	10	NA	2.20
Water Truck	Heavy-Duty Diesel	Diesel	NA	NA	1	37	NA	2	NA
185 cfm Air Compressor	Air Compressor (Jackhammer)	Diesel	37	0.48	2	37	10	NA	1.19
Dump Truck	Heavy-Duty Diesel	Diesel	NA	NA	1	9	NA	2	NA
Worker Commutes	Light-duty Auto/Truck	Gasoline	NA	NA	18	37	NA	20	NA
Vendor/Delivery Trucks	Heavy-Duty Diesel	Diesel	NA	NA	1	12	NA	20	NA
Total Diesel Fuel Use for Construction Equipment and Vehicles (gallons)									
Total Gasoline Fuel Use for Construction Equipment and Vehicles (gallons)									
Total Natural Gas Fuel Use for Construction Equipment and Vehicles (MMscf)									

^[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

^[b] Workers are conservatively assumed to travel in gasoline-fueled passenger vehicles or light-duty trucks, even though some of these vehicle trips may occur in diesel, electric, or plug-in hybrid vehicles. Onsite construction vehicles and offsite material and equipment transport vehicles are conservatively assumed to be diesel-fueled heavy/heavy-duty trucks, even though some of these vehicle trips may occur in gasoline-fueled, electric, or natural gas-fueled vehicles.

^[c] Unless otherwise indicated, default equipment power ratings and load factors were used, as taken from Table G-12 of Appendix G of the *CalEEMod User's Guide* (ICF 2022). The small generator was assumed to be

^[d] A number of vehicles and equipment will be used for only a portion of the total duration for each phase.

^[e] Fuel consumption calculated from OFFROAD2021 model output for the Mojave Desert Air Quality Management District in the year 2025, based on aggregate equipment horsepower ratings. This output was generated using the OFFROAD Web Database (<https://arb.ca.gov/emfac/offroad/>).

^[f] Fuel efficiency calculated from EMFAC2021 model output for the Mojave Desert Air Quality Management District in the year 2025, based on the presumed vehicle mix. This output was generated using the EMFAC2021 Web Database (<https://arb.ca.gov/emfac/>).

^[g] Natural gas consumption from the PERP Engines (in million standard cubic feet, MMscf) is based on a total maximum heat input of 47.46 million British thermal units (MMBtu) per hour for all PERP and U.S. EPA's

NA = Parameter not required for computing fuel consumption.

Table 2. Fuel Consumption by Vehicle and Equipment
PG&E S-238 Hinkley Compressor Station Electrical Upgrades

Vehicle and Equipment Fuel Consumption							
Equipment/Vehicle List ^[a]	Equipment/Vehicle Type	Equipment Diesel Consumption (gallons/ phase)	Equipment Gasoline Consumption (gallons/ phase)	Equipment Natural Gas Consumption (MMscf/ phase)	Vehicle Fuel Efficiency (miles/ gallon) ^[f]	Vehicle Diesel Consumption (gallons/ phase)	Vehicle Gasoline Consumption (gallons/ phase)
Site Mobilization/Site Preparation							
Skid Steer	Skid Steer Loader	560	NA	NA	NA	NA	NA
Backhoe	Tractors/Loaders/Backhoe	812	NA	NA	NA	NA	NA
Large Generator	Generator Large	2,716	NA	NA	NA	NA	NA
Small Honda Generator	Generator Small	678	NA	NA	NA	NA	NA
6-ton Forklift	Rough Terrain Forklift	813	NA	NA	NA	NA	NA
Water Truck	Heavy-Duty Diesel	NA	NA	NA	6.29	12	NA
185 cfm Air Compressor	Air Compressor (Jackhammer)	883	NA	NA	NA	NA	NA
Dump Truck	Heavy-Duty Diesel	NA	NA	NA	6.29	3	NA
Worker Commutes	Light-duty Auto/Truck	NA	NA	NA	27.95	NA	477
Vendor/Delivery Trucks	Heavy-Duty Diesel	NA	NA	NA	6.29	40	NA
Ground Disturbing Activities							
Skid Steer	Skid Steer Loader	840	NA	NA	NA	NA	NA
Backhoe	Tractors/Loaders/Backhoe	1,218	NA	NA	NA	NA	NA
Large Generator	Generator Large	4,074	NA	NA	NA	NA	NA
Small Honda Generator	Generator Small	1,016	NA	NA	NA	NA	NA
6-ton Forklift	Rough Terrain Forklift	1,220	NA	NA	NA	NA	NA
Water Truck	Heavy-Duty Diesel	NA	NA	NA	6.29	18	NA
185 cfm Air Compressor	Air Compressor (Jackhammer)	1,325	NA	NA	NA	NA	NA
Vacuum Truck Onsite	Heavy-Duty Diesel	NA	NA	NA	6.29	18	NA
Dump Truck	Heavy-Duty Diesel	NA	NA	NA	6.29	4	NA
Handheld Asphalt Saw	Concrete/Industrial Saw	17	NA	NA	NA	NA	NA
Worker Commutes	Light-duty Auto/Truck	NA	NA	NA	27.95	NA	716
Vendor/Delivery Trucks	Heavy-Duty Diesel	NA	NA	NA	6.29	60	NA
Electrical Equipment Replacement or Modification							
Temporary Generator	PERP Generators ^[a]	NA	NA	178.67	NA	NA	NA
Skid Steer	Skid Steer Loader	5,043	NA	NA	NA	NA	NA
Backhoe	Tractors/Loaders/Backhoe	7,308	NA	NA	NA	NA	NA
Large Generator	Generator Large	24,443	NA	NA	NA	NA	NA
Small Honda Generator	Generator Small	6,098	NA	NA	NA	NA	NA
Manlift	Aerial Lift	296	NA	NA	NA	NA	NA
Weld Machine	Welder	2,355	NA	NA	NA	NA	NA
6-ton Forklift	Rough Terrain Forklift	7,320	NA	NA	NA	NA	NA
1/2-Ton Boom Truck	Heavy-Duty Diesel	NA	NA	NA	6.29	27	NA
Water Truck	Heavy-Duty Diesel	NA	NA	NA	6.29	106	NA
185 cfm Air Compressor	Air Compressor (Jackhammer)	7,948	NA	NA	NA	NA	NA
Vacuum Truck Offsite	Heavy-Duty Diesel	NA	NA	NA	6.29	76	NA
Vacuum Truck Onsite	Heavy-Duty Diesel	NA	NA	NA	6.29	15	NA
Dump Truck	Heavy-Duty Diesel	NA	NA	NA	6.29	25	NA
Concrete Pump Truck	Heavy-Duty Diesel	NA	NA	NA	6.29	38	NA
Concrete Truck	Heavy-Duty Diesel	NA	NA	NA	6.29	38	NA
Jumping Jack	Plate Compactor	2,384	NA	NA	NA	NA	NA
Handheld Asphalt Saw	Concrete/Industrial Saw	103	NA	NA	NA	NA	NA
Handheld Core Drill	Other General Industrial Equipment	350	NA	NA	NA	NA	NA
Vibraplate	Plate Compactor	2,384	NA	NA	NA	NA	NA
Worker Commutes	Light-duty Auto/Truck	NA	NA	NA	27.95	NA	4,294
Vendor/Delivery Trucks	Heavy-Duty Diesel	NA	NA	NA	6.29	715	NA
Demobilization							
Skid Steer	Skid Steer Loader	560	NA	NA	NA	NA	NA
Backhoe	Tractors/Loaders/Backhoe	812	NA	NA	NA	NA	NA
Large Generator	Generator Large	2,716	NA	NA	NA	NA	NA
Small Honda Generator	Generator Small	678	NA	NA	NA	NA	NA
6-ton Forklift	Rough Terrain Forklift	813	NA	NA	NA	NA	NA
Water Truck	Heavy-Duty Diesel	NA	NA	NA	6.29	12	NA
185 cfm Air Compressor	Air Compressor (Jackhammer)	883	NA	NA	NA	NA	NA
Dump Truck	Heavy-Duty Diesel	NA	NA	NA	6.29	3	NA
Worker Commutes	Light-duty Auto/Truck	NA	NA	NA	27.95	NA	477
Vendor/Delivery Trucks	Heavy-Duty Diesel	NA	NA	NA	6.29	40	NA
Total Diesel Fuel Use for Construction Equipment and Vehicles (gallons)							89,914
Total Gasoline Fuel Use for Construction Equipment and Vehicles (gallons)							5,964
Total Natural Gas Fuel Use for Construction Equipment and Vehicles (MMscf)							178.67

^[a] Unless otherwise noted, equipment/vehicle list and daily use provided by PG&E.

^[b] Workers are conservatively assumed to travel in gasoline-fueled passenger vehicles or light construction vehicles and offsite material and equipment transport vehicles are conservative fueled, electric, or natural gas-fueled vehicles.

^[c] Unless otherwise indicated, default equipment power ratings and load factors were used, as be

^[d] A number of vehicles and equipment will be used for only a portion of the total duration for e

^[e] Fuel consumption calculated from OFFROAD2021 model output for the Mojave Desert Air C generated using the OFFROAD Web Database (<https://arb.ca.gov/emfac/offroad/>).

^[f] Fuel efficiency calculated from EMFAC2021 model output for the Mojave Desert Air Quality I EMFAC2021 Web Database (<https://arb.ca.gov/emfac/>).

^[g] Natural gas consumption from the PERP Engines (in million standard cubic feet, MMscf) is l EPA's

NA = Parameter not required for computing fuel consumption.