

Helicopter Emissions Calculations - Greenhouse Gas

| Activity | Qty. | Equip. | Mode | Days/ Week | Hours/ Day | Duration (weeks) | Power (hp) | Fuel Consumption (gal/hr) | Emission Factors (kg/gallon) | | | Emissions total (metric tons) | | | |
|-------------------|------|-------------------------|-----------|---------------|---------------|---------------------|---------------|------------------------------|---------------------------------|-------|-------|----------------------------------|------------|------------|---------------|
| | | | | | | | | | CO2 | N2O | CH4 | CO2 | N2O | CH4 | CO2e |
| Pole Installation | 2 | light duty - Hughes 500 | LTO | 7 | 0.68 | 17 | 317 | 5.4 | 9.57 | 3E-04 | 3E-04 | 8.2 | 0.0 | 0.0 | 8.3 |
| Pole Installation | 2 | light duty - Hughes 500 | Operation | 7 | 9.33 | 17 | 317 | 32.4 | 9.57 | 3E-04 | 3E-04 | 687.9 | 0.0 | 0.0 | 695.3 |
| Pole Installation | 1 | heavy duty - Bell 214B | LTO | 7 | 0.68 | 9 | 1850 | 12.9 | 9.57 | 3E-04 | 3E-04 | 5.3 | 0.0 | 0.0 | 5.3 |
| Pole Installation | 1 | heavy duty - Bell 214B | Operation | 7 | 9.33 | 9 | 1850 | 91.0 | 9.57 | 3E-04 | 3E-04 | 511.3 | 0.0 | 0.0 | 516.8 |
| Total | | | | | | | | | | | | 1212.8 | 0.0 | 0.0 | 1225.8 |

Notes

Density of fuel from *ExxonMobil Aviation World Jet Fuel Specifications, 2005 Edition*

$$775-840 \text{ kg/m}^3 = 6.47 - 7.01 \text{ lb/gallon}$$

Fuel usage data obtained from the *FOCA Guidance on Determination of Helicopter Emissions, Edition 1, March 2009*

Fuel usage for Bell 214B (single engine @ 1,850 shp) was derived from the Bell 412 (twin engines @ 1,800 shp each)

Emission factors obtained from *California Climate Action Registry General Reporting Protocol, Version 3.1, January 2009*

Each day of 10-hour helicopter operations assumes 3 LTOs at 13/5 minutes each. The remaining time is assumed to be operational (no idle time has been assumed).

LTO = Landing and take-off cycle