

Category: Recreational Equipment

California's recreational equipment emissions inventory is an estimate of the amount and types of pollutants emitted from equipment used for off-road recreational driving purposes. Current available data represents gasoline 2-stroke and 4-stroke engines.

The equipment types found in this category are:

Equipment Type	Fuel Type	2000 Population
All Terrain Vehicles (ATVs)	G2	36583
All Terrain Vehicles (ATVs)	G4	184991
Golf Carts	G2	8793
Golf Carts	G4	6881
Minibikes	G4	8034
Off-Road Motorcycles	G2	137756
Off-Road Motorcycles	G4	94426
Snowmobiles	G2	16066
Specialty Vehicles Carts	G2	40745
Specialty Vehicles Carts	G4	27756

Their annual activity rates are:

Equipment Type	Fuel Type	Activity
All Terrain Vehicles (ATVs)	G2/G4	1323miles/yr
Golf Carts	G2/G4	1080hrs/yr
Minibikes	G4	135hrs/yr
Off-Road Motorcycles	G2/G4	1323miles/yr
Snowmobiles	G2	57 hrs/yr
Specialty Vehicles Carts	G2/G4	1145hrs/yr

Emissions Inventory:

As with other OFFROAD equipment types, the emissions inventory for recreational equipment is calculated as the product of the emission rate (in grams per horsepower-hour), engine population, and activity (hours per year or miles per year) in annual average use hours. The emission factors used in this category are found in the OFFROAD equipment specific emission factors link at the bottom of our emission factors documentation page:

[Calculating Emissions Inventory \(PDF Format\)](#)

For the current emissions inventory (tons/day):

[Air Resources Board Almanac](#)

Input Data Sources:

The input factors used by the OFFROAD Model are obtained from various data sources as listed below:

Input Factor	Source of Data (Diesel)
Population (base year 2000)	DMV Off-Road Vehicles Registration (2005)
Useful Life	Power Systems Research (1996)
Activity (hr/yr)	Power Systems Research (1996) EPA's Nonroad Model for Snowmobiles (2005)
Average horsepower	Power Systems Research (1996)
Load factor	Power Systems Research (1996) EPA's Nonroad Model for Snowmobiles (2005)
Allocation factor	DMV Off-Road Vehicles Registration (2005)
Growth factor	DMV Off-Road Vehicles Registration (2005)
Survival rate	Power Systems Research (1996)

For more additional background information on the input factors used by the OFFROAD Model: [\(Document Link\)](#)

For tables of input data for Recreational Equipment: [Document Link](#)

Adopted Regulations for Recreational Equipment:

2005: (*Reflected in OFFROAD Model*) Board approved Regulation for Off-Road Recreational Vehicles. [\(Document Link\)](#)

Future Improvements to the Recreational Equipment:

The emissions inventory from the OFFROAD Model strives to accurately represent the 'real-world' as accurately as possible. Therefore, the methodologies and data sources are constantly re-evaluated and updated where applicable. The following items are future improvements for the recreational equipment category:

- Update population and activity values as new data becomes available
- Revise growth factors using REMI employment data (2001)
- Allocate equipment from the county down to the neighborhood level (GIS)