



Conversion of 1 MMT CO₂ to Familiar Equivalents

Climate change documentation uses the unit of million metric tons of carbon dioxide equivalents (MMT CO₂) to describe the magnitude of greenhouse gas (GHG) emissions or reductions. However, most of us have little "feel" for this unit of measure. For public benefit and the news media, we provide the following conversions to a "visual" equivalent unit, such as numbers of passenger cars not driven for one year or gallons of gasoline usage avoided. The references and databases for these conversions are publicly available and can be provided by the contact below.

Reducing 1 MMT of CO₂ emissions is equivalent to:

- Avoiding the total emissions from 1.5 state-of-the-art 500 megawatt (MW) combined-cycle gas-fired power plants for one year (500 MW is a typical power plant size in California and there are a total of 965 power plants ranging in size from 0.1 MW to 2,545 MW)
- Converting a typical 500 MW power plant burning coal to two state-of-the-art 500 MW combined-cycle gas-fired power plants and running for one year (i.e., the efficiency gains are great enough to reduce CO₂ emissions while generating twice the electricity)
- 216,000 passenger cars not driven for one year (in 2005, about 14 million passenger cars were operated on California roads)
- 179,000 passenger cars and light trucks not driven for one year (in 2005, over 21 million passenger cars and light trucks were operated on California roads)
- 114 million gallons of gasoline saved (California consumes about 16 billion gallons of gasoline per year)
- 2.3 million barrels of oil saved (California consumes about 320 million barrels of oil per year)
- 13,400 tanker trucks of gasoline saved
- One year of electricity use by 128,000 average U.S. households
- One year of electricity use by 193,000 average California households
- Replacing 1.5 million less efficient refrigerators by Energy Star refrigerators
- The energy savings in one year from replacing 13 million standard light bulbs with compact fluorescent lamps
- Every adult under 65 in California walking up one floor instead of taking an elevator each workday
- 26,000,000 tree seedlings grown for 10 years
- 833,000 acres of pine or fir forests absorbing CO₂ for one year
- 556,000 tons of waste being recycled instead of going to a landfill in California
- 110,000 round trips around the world by one typical passenger car (traveling at the equator)
- 1 MMT CO₂ has the same volume as the air in about 500 Empire State Buildings (under standard conditions of pressure and temperature)
- 1 MMT CO₂ has the same volume as the air in about 200,000 hot air balloons (under standard conditions of pressure and temperature)

For More Information:

Please contact the ARB toll-free at (800) END-SMOG / (800) 363-7664 (California only) or (800) 272- 4572. For information on the ARB's Climate Change Program, visit www.arb.ca.gov/cc/cc.htm. You may obtain this document in an alternative format by contacting ARB's Americans with Disabilities Act Coordinator at (916) 323-7053 (Voice); 7-1-1 (TTY / TDD / Speech-to-Speech); or California Relay Service (CRS): (800) 735-2922 (Voice).