**Carbon Footprint Facts**

Carbon Footprint: "The amount of carbon dioxide (CO2) and other carbon compounds emitted by an individual(s) due to the consumption of fossil fuels."

Some General Terms

ton = 2000 lbs

tonne (metric ton) = 1000 kg = 2205 lbs One ton of carbon in co2 = 3.67 tons of co2

Kilowatt is a one thousand watts ( a watt is the power in a circuit in which a current of one ampere flows across a potential difference of one volt)

Kilowatt-hour is one kilowatt used for one hour - Kwh

Some co2 Numbers

Gasoline produces 19.4 lbs of co2/gal

Diesel fuel produces 22.38 lbs of co2/gal

One kwh using coal produces 2.1 lbs of co2

One kwh using natural gas produces 1.1 lbs of co2

Carbon Footprint Calculators

[www.nature.org](http://www.nature.org) (NC) (Nature Conservancy)

[www3.epa.gov](http://www3.epa.gov) (EPA)

[www.carbonfootprint.com](http://www.carbonfootprint.com) (UK) <http://www.carbonfootprint.com/calculator.aspx>

Calculator Questions (to answer to calculate footprint) - All three Calculators

Number in household

Select if individual

Location

Vehicle type and miles driven

Vehicle maintenance

Recycling

Heating and cooling

Lighting type

Energy Star Appliances

Specific Calculator Questions or not

House type (NC)

No house type (EPA, CF)

No food considerations or eating habits (NC, EPA)

No banking (NC)

No airline flights (EPA)

No banking (EPA)

Uses actual energy numbers or quantities (CF)

Uses airline flights (NC, CF)

Uses recreation, bus or rail use, fashion, # of cars (CF)

Calculator Results

NC EPA CF

Ave. US Person 27 tons 8 tons 20 tonnes

Ave. World Person 5.5 tons 8 tonnes

Current Status

Atmospheric CO2 (Dec. 2015) 401.85 parts per million (ppm)

CO2 increased 2 ppm per year 2000-2010

Human produced CO2 was:

 2007 24.1 giga-tons

 2011 36.6 giga-tons

 2014 40.0 giga-tons

Giga-ton = one billion tons

**Other Information**

Heat trapping gases

CO2 fossil fuel and industrial processes 65%

CO2 forestry and other land use 11%

Methane 16%

NO2 6%

F gas 2%

PG&E sources of electricity

Natural gas 27%

Nuclear 21%

Large hydro 11%

Renewable 19%

Unspecified 22%

Crescent Dunes new 110 mw solar plant in Tonopah, NV

Uses liquid salt which stays hot for 10 hours after sunset

13 cents/kwh paid to power company

Cars

New mileage label showing grams/gal

U.S. Dept of Energy on car economy [Fueleconomy.gov](http://Fueleconomy.gov)

Electric cars expensive and limited in range
Other considerations

Eliminate one mail delivery/day =1/4 megaton co2/yr

Purchases of cars from foreign countries - transportation CO2 cost

Urgent deliveries

Roads and bridges infrastructure maintenance

Building construction

Car and plane construction

Isolate your sources

Use smart meter to determine appliance use

Other CO2 sources

Air travel = 5% of emissions

Cement = 5% of emissions

People and Government not using money for climate change

CA cap and trade energy dollars for 2015 going to transportation not renewables

2015 auto sales largest since 2008 - mostly SUVs and trucks because of cheap gas

**The goal is 1-2 tons of CO2 per person per year to stop increases in atmospheric CO2. The question is, can we do this without returning to preindustrial living conditions?**