

The Carbon Tax Calculator comes to us with the help of Community Mennonite Church in Harrisonburg, VA.

Here was the thought process behind the Carbon Tax Calculator:

Gasoline:

Gasoline will provide a baseline for the other types of fuels commonly used at the household level.

Gasoline: 6.4 pounds per gallon, produces approximately 20 lbs of CO₂ per liter burned.

Common tax at \$0.50 per gallon.

Natural Gas:

Natural gas, methane, CH₄. Commonly measured as 1 therm or 1000 cubic feet of gas.

176 cubic feet of gas has the same carbon as 1 gal of gasoline.

1000 cubic feet has the equivalent of 5.68 gallons of gasoline, or a tax of \$2.84 per therm.

Liquid Propane:

Liquid propane is sold by the gallon, which is lower density than gasoline and has a carbon equivalent of 0.52 gallons of gas.

1 gallon of LPG is taxed at \$0.26 per gallon.

Electricity (based on VA standards):

Electricity is more complicated. It comes from 4 major sources; coal fired power plants, natural gas power plants, nuclear power and renewables (solar, wind, hydro, etc. lumped together).

Together renewables and nuclear account for 43% of Virginia's electric energy mix. Coal is 16% and Natural gas is 41% according to best available figures for 2017. Coal emits 11lb of CO₂ for every 0.96 kilowatt hour of electricity delivered. This would be a tax of \$0.062 per kilowatt hour of electricity from coal. Natural gas is more efficient and is taxed at \$0.0287 per kilowatt hour produced. Because only 16% of our electricity comes from coal and 41% from natural gas, with the rest coming from non-emitting sources, we used the following formula:

$.16*.062+.41*.0287=\underline{\$0.022/kwh}$ for electricity use.