ESTIMATING CONTEMPORARY GLOBAL ENERGY USE AND CO_2 EMISSIONS

$V_{gasoline} \approx 5\ L\ /\ day \times person$

$E_{gasoline} \approx 35 \times 10^3\ kJ\ /\ L$

$N^{(2020)}_{people} \approx 8 \times 10^9\ people$

$$E_{2020} \approx V_{gasoline} \times E_{gasoline} \times N^{(2020)}_{people}$$

$$\approx \frac{5\ L\ gasoline}{day \times person} \times \frac{35 \times 10^3\ kJ}{L\ gasoline} \times 8 \times 10^9\ people$$

$$\approx 1.4 \times 10^{15}\ kJ\ /day \approx 5 \times 10^{17}\ kJ/year$$

$E_{2020} \approx 5 \times 10^{17}\ kJ\ /\ year$

$CO_2\ yield_{gasoline} \approx 10^{-4}\ kg\ CO_2\ /\ kJ$

$CO_2\ emissions \approx E_{2020} \times CO2\ yield\ gasoline$

$\approx 5 \times 10^{17}\ kJ\ /\ year \times 10^{-4}\ kg\ CO_2\ /\ kJ$

$\approx 5 \times 10^{13}\ kg\ CO_2\ /\ year$