



UI GreenMetric Questionnaire

University : Ubon Ratchathani Rajabhat University
Country : Thailand
Web Address : <https://www.ubru.ac.th/>

[2] Energy and Climate Change (EC)

[2.11] Please Provide The Total Carbon Footprint (CO₂ emission in the last 12 months, in metric tons)

Option 2: Recommended by UI GreenMetric

CO₂ (electricity)

$$\begin{aligned} &= \frac{\text{electricity usage per year (kWh)}}{1000} \times 0.84 \\ &= \frac{6609735.01 \text{ kWh}}{1000} \times 0.84 \\ &= 5,552.17 \text{ metric tons} \end{aligned}$$

CO₂ (bus)

$$\begin{aligned} &= \frac{\text{number of shuttle bus in your university} \times \text{total trips for shuttle bus service each day} \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0.01 \\ &= \frac{8 \times 2 \times 1.2 \times 240}{100} \times 0.01 \\ &= 0.4608 \text{ metric tons} \end{aligned}$$

CO₂ (cars)

$$\begin{aligned} &= \frac{\text{number of cars entering your university} \times 2 \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0.02 \\ &= \frac{405 \times 2 \times 1.2 \times 240}{100} \times 0.02 \\ &= 46.656 \text{ metric tons} \end{aligned}$$

CO₂ (motorcycle)

$$\begin{aligned} &= \frac{\text{number of motorcycle entering your university} \times 2 \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0.01 \\ &= \frac{1585 \times 2 \times 1.2 \times 240}{100} \times 0.01 \\ &= 91.296 \text{ metric tons} \end{aligned}$$

CO₂ (total)

$$\begin{aligned} &= 5,552.17 + 0.4608 + 46.656 + 91.296 \\ &= 5690.5828 \text{ metric tons} \end{aligned}$$

Carbon footprint in 2023 = 5690.5828 metric tons

- *Number of shuttle buses being operated on campus from 5.6
- *Number of rounds that shuttle buses run daily from 5.8
- *Travel distance that a vehicle travels within campus daily (in km.) from 5.17
- *Number of cars that travel to and from university daily from 5.2
- *Number of motorcycles that travel to and from university daily from 5.3
- *Electricity usage per year (fiscal year 2023) from 2.6

Example of Total Carbon Footprint (UI GreenMetric)



Descriptions:

The Carbon footprint produce by UBRU population on average is calculated as the following:

Population according to Academic Year 2022

No. of Students = 12,061

No. of staff = 1,175

Total population = 13,236

Total Carbon Footprint / Total number of UBRU population

= 5690.5828 / 13236

= 0.4299 metric tons/ person

Therefore, UBRU total Carbon Footprint (metric tons/ person) is between 0.42 - 1.11 metric tons.