



University : Phranakhon Si Ayutthaya Rajabhat University (ARU)
Country : Thailand
Web Address : www.aru.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)

$$\begin{aligned} &= (\text{electricity usage per year in kWh}/1000) \times 0.84 \\ &= \frac{4,446,096.95}{1000} \times 0.84 \\ &= 3,734.72 \text{ metric tons} \end{aligned}$$

CO₂ (bus)

(Number of the shuttle buses at your university x total trips for shuttle bus service each day x approximate travel distance of a vehicle each day inside campus only (in kilometers) x 240/100) x 0.01

$$\begin{aligned} &= \frac{3 \times 15 \times 3 \times 240}{100} \times 0.01 \\ &= 3.24 \text{ metric tons} \end{aligned}$$

CO₂ (cars)

$$\begin{aligned} &= \frac{\text{number of cars entering your university} \times 2 \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0.02 \\ &= \frac{529 \times 2 \times 3 \times 240}{100} \times 0.02 \\ &= 152.35 \text{ metric tons} \end{aligned}$$

CO₂ (motorcycle)

$$\begin{aligned} &= \frac{\text{number of motorcycle entering your university} \times 2 \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0.01 \\ &= \frac{357 \times 2 \times 3 \times 240}{100} \times 0.01 \\ &= 25.34 \text{ metric tons} \end{aligned}$$

CO₂ (total)

$$\begin{aligned} &= 3,734.72 + 3.24 + 152.35 + 25.34 \\ &= 3,157 \text{ metric tons} \end{aligned}$$

Carbon footprint in 2020-2021 = 3,915.66 metric tons

Description:

The carbon footprint of an organization from activities within the campus in 2023 is 3,915.66 metric tons of CO₂ per year. The largest emission source was from electricity consumption (3,734.72 metric tons of CO₂ per year). The net carbon footprint of ARU may be less than the calculated value, as the campus has further contributed to reducing and offsetting its carbon footprint through adapting to intensify the eco-friendly activities and available natural forest and newly planted trees within the campus.



year	Carbon footprint	Carbon footprint/person	Remarks
2020	3,456	0.5	2-month Covid-19 situation
2021	2,236	0.75	8-month Covid-19 situation
2022	3,157	0.63	Fully operated after covid-19 situation
2023	3,915	0.78	Fully operated

Carbon footprint (metric tons)/Total population = - 3,915.66 /6,598 = 0.59 metric tons /person