



Template for Evidence(s) UI GreenMetric Questionnaire

University : Universitas Syiah Kuala
Country : Indonesia
Web Address : <https://usk.ac.id/>

[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)

$$\begin{aligned} &= \frac{\text{electricity usage per year (kWh)}}{1000} \times 0,84 \\ &= \frac{1,633,286 \text{ kWh}}{1000} \times 0,84 \\ &= 8,946 \text{ metric tons} \end{aligned}$$

CO₂ (bus)

$$\begin{aligned} &= \frac{\text{number of shuttle bus in your university} \times \text{total trips for shuttle bus service each day} \times \text{approximate travel distance of vehicle each day inside campus (KM)}}{100} \\ &= \frac{16 \times 150 \times 5 \times 240}{100} \times 0,01 \\ &= 288 \text{ metric tons} \end{aligned}$$

CO₂ (cars)

$$\begin{aligned} &= \frac{\text{number of cars entering your university} \times 2 \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0,02 \\ &= \frac{7516 \times 2 \times 5 \times 240}{100} \times 0,02 \\ &= 960 \text{ metric tons} \end{aligned}$$

CO₂ (motorcycle)

$$\begin{aligned} &= \frac{\text{number of motorcycle entering your university} \times 2 \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0,01 \\ &= \frac{12,263 \times 2 \times 5 \times 240}{100} \times 0,01 \\ &= 2,943 \text{ metric tons} \end{aligned}$$

CO₂ (total)

$$\begin{aligned} &= 8,946 + 288 + 960 + 2,943 \\ &= 13,137 \text{ metric tons} \end{aligned}$$

Carbon footprint in 2023 = 13,137 metric tons

Description:

In 2023, the carbon footprint assessment for the university revealed a total CO₂ emission of 13,137 metric tons. This includes emissions from various sources:



- Electricity usage contributed approximately 8.946 metric tons of CO₂, calculated based on the annual electricity consumption.
- The university's shuttle bus service accounted for around 288 metric tons of CO₂ emissions, derived from the number of buses, daily trips, and travel distances within the campus.
- Cars entering the campus produced approximately 960 metric tons of CO₂, calculated using the number of vehicles, travel distances, and frequency of use.
- Additionally, motorcycles contributed 2.943 metric tons of CO₂ emissions based on similar calculations.

These figures highlight the university's overall carbon emissions and underscore the importance of implementing strategies for reducing the carbon footprint and promoting sustainability on campus.