

## Template for Evidence(s) UI GreenMetric Questionnaire

University : Gebze Technical University  
Country : Türkiye  
Web Address : [www.gtu.edu.tr](http://www.gtu.edu.tr)

### [2] Energy and Climate Change (EC)

#### [2.11] Please Provide The Total Carbon Footprint (CO<sub>2</sub> emission in the last 12 months, in metric tons)

As part of the GreenMetric 2022 rating assessment, Gebze Technical University's carbon footprint has been calculated manually for period between 26 may 2022-26 may 2023. The following equation was used in the calculation. Since accessing specific data regarding car models and engine sizes was difficult, the average car emission factor was selected for automobiles, while the large car emission factor was chosen for service vehicles.

$$\text{Carbon Footprint} = \text{Activity Data} \times \text{Emission Factor}$$

#### Option 1: Recommended by UI GreenMetric

The carbon footprint of Gebze Technical University has been calculated according to Appendix 3 of the UI GreenMetric Guidelines 2022.

#### Calculation of Carbon Footprint Per Year

The Carbon footprint calculation has been conducted based on the stage of calculation as stated in <https://greenmetric.ui.ac.id/publications/guidelines/2022/english>, which is the sum of electricity usage per year and transportation per year.

#### Electricity usage per year

The CO<sub>2</sub> emission from electricity  
= (electricity usage per year in kWh/1000) x 0,84  
= (7049117,2 kWh/1000) x 0,84  
= 5.921,26 metric tons

Notes:

Electricity usage per year= 7049117,2 kWh

0,84 is the coefficient to convert kWh to metric tons

(source: <https://greenmetric.ui.ac.id/publications/guidelines/2022/english>)

#### Transportation per year (Shuttle)

= (Number of the shuttle bus in the 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  
= 1 x 5 x 5 x 240/100 x 0,01  
= 0,6 metric tons

Notes:

240 is the number of working days per year

0,01 is the coefficient (source: <https://greenmetric.ui.ac.id/publications/guidelines/2022/english>) to calculate the emission in metric tons per 100 km for bus

**Transportation per year (Car)**

= (Number of cars entering the university x 2 x approximate travel distance of a vehicle each day inside campus only (in kilometers) x 240/100) x 0,02  
= ((1500 x 2 x 6 x 240/100) x 0,02  
= 864 metric tons

**Notes:**

240 is the number of working days per year

0,02 is the coefficient (source: <https://greenmetric.ui.ac.id/publications/guidelines/2022/english>) to calculate the emission in metric tons per 100 km car

**Transportation per year (Motorcycle)**

= (Number of motorcycle entering the university x 2 x approximate travel distance of a vehicle each day inside campus only (in kilometers) x 240/100) x 0,01  
= 20 x 2 x 6 x 240/100) x 0,01  
= 5,76 metric tons

**Notes:**

240 is the number of working days per year

0,01 is the coefficient (source: <https://greenmetric.ui.ac.id/publications/guidelines/2022/english>) to calculate the emission in metric tons per 100 km motorcycle

**Total emission per year**

= total emission from electricity usage + transportation (bus, car, motorcycle)  
= 5.921,26 + 0,6 + 864 + 5,76  
= 6.791,62 metric tons

**Carbon footprint between 26 May 2022-26 may 2023 = 6.791,62 metric tons**

**Description:** The data provided by Gebze Technical University Transportation Unit and Office of Construction and Technical Works (<https://www.gtu.edu.tr/kategori/1083/0/display.aspx?languageId=1>) were used for the calculations.

**Additional evidence link:**