



Evidence(s)

THE-Impact Ranking



HEI: TRIDENT ACADEMY OF TECHNOLOGY
COUNTRY: INDIA
WEBSITE: <https://tat.ac.in/activities/>
SDG 7: AFFORDABLE AND CLEAN ENERGY

7.2.3 Carbon Reduction and Emission Reduction Process:



Plate 7.2.3.a Promoting E-scooty



Plate 7.2.3.b Free E-Scooty charging facility



Plate 7.2.3.c free charging facility for E-Vehicle



Plate 7.2.3.d 2kW Solar panels for street light



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Plate 7.2.3.e Plantation drive

Description:

When it comes to mitigating human-caused carbon dioxide emissions, trees play a crucial role. Through photosynthesis, they absorb CO₂, which supports their growth. Trident College organizes year-round plantation drives both on campus and in nearby communities. Several additional initiatives contribute to reducing carbon emissions:

1. **Promoting Eco-Friendly Transportation (Plates 7.2.3.a, b):** The college encourages the use of electric scooters (e-scooters) for staff and students, reducing the need for fuel-based vehicles on campus. A free charging facility for e-scooters further promotes this cleaner mode of transportation.
2. **Electric Vehicle Charging Support (Plates 7.2.3.b, c):** Free charging stations for electric vehicles (EVs) are available, supporting the use of EVs among staff and students and helping reduce campus-related carbon emissions.
3. **Solar-Powered Street Lighting (Plate 7.2.3.d):** The installation of 2kW solar panels powers street lighting across campus, reducing reliance on non-renewable energy sources and cutting down on carbon emissions.
4. **Plantation Drives (Plate 7.2.3.e):** Regular plantation drives are held on campus and in neighboring areas, enhancing green cover and supporting carbon absorption efforts.
5. **Campus Green Audit:** Trident College conducted a comprehensive green audit in March 2024. The audit provided insights that guide ongoing efforts to reduce carbon emissions and increase campus sustainability.

These initiatives, supported by renewable energy, eco-friendly transportation, and campus-wide planting efforts, underscore Trident College's commitment to a sustainable, environmentally responsible campus.



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Total carbon footprint (CO₂) emission in the last 12 months, in metric tons)

Liquefied petroleum gas (LPG) = 2.983 kg CO₂ per kilogram, Source: Emission factors are taken from the file “Emission factors from across the sector -tool” extracted from <http://www.ghgprotocol.org/calculation-tools/alltools>

Electricity usages per year

The CO₂ emission from electricity

$=(\text{electricity usages per year in kWh}) \times 0.85$

$=(1,464,840 \text{ kWh} \times 0.84) / 1000$

$= 1230.46 \text{ metric ton}$

Note: Electricity = 0.85 kg CO₂ per KWh, Source: CO₂ emission factor database, version 06, CEA (Government of India), http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm

b. Transportation per year (Bus)

We can calculate the total CO₂ emissions as follows:

Total distance travelled by all buses = Number of buses * Average distance travelled by each bus per day * Number of days

Total distance travelled by all buses = 15 buses * 277 days = 4155 km

Total CO₂ emissions = Total distance travelled by all buses * CO₂ emissions per km

Total CO₂ emissions = 4155 km * 120g CO₂/km = 498600g CO₂

So, the total CO₂ emissions would be approximately 498.6 kg or 0.4986 metric tons.

Notes: 277 is the number of working days per year

c. Transportation per year (Car)

The average petrol car produces about 164 grams of CO₂e per km

Number of cars = 9

Average distance travelled per car inside the university = 2 km



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Total emissions = Number of cars * Average distance travelled per car * Average emissions per km per car = 9 cars * 1 km/car * 164 g/km = 1476 grams

Since 1 metric ton is equal to 1,000,000 grams, we can convert the total emissions to metric tons:

Total emissions in metric tons = Total emissions in grams / 1,000,000 = 26,568 g / 1,000,000 = 0.001476 metric tons

Total emissions for 277 days = Daily total emissions * Number of days = 0.001476 metric tons/day * 277 days = 0.408852 metric tons

e. LPG consumption per Year

LPG (Liquefied Petroleum Gas) produces around 1.51 kg of CO₂ per litre

Total weight of LPG used = 55 kg/day * 277 days = 15235 kg

Total CO₂ emissions = Total weight of LPG used * CO₂ emissions per kg of LPG

Total CO₂ emissions = 15235 kg * 1.51 kg CO₂/kg LPG = **22995.85 kg CO₂**

So, the total CO₂ emissions would be approximately 22.99585 metric tons.

Total Emission per Year: 1210.46 + 0.4986 + 0.408852 + 22.99585 = 1234.36 metric ton