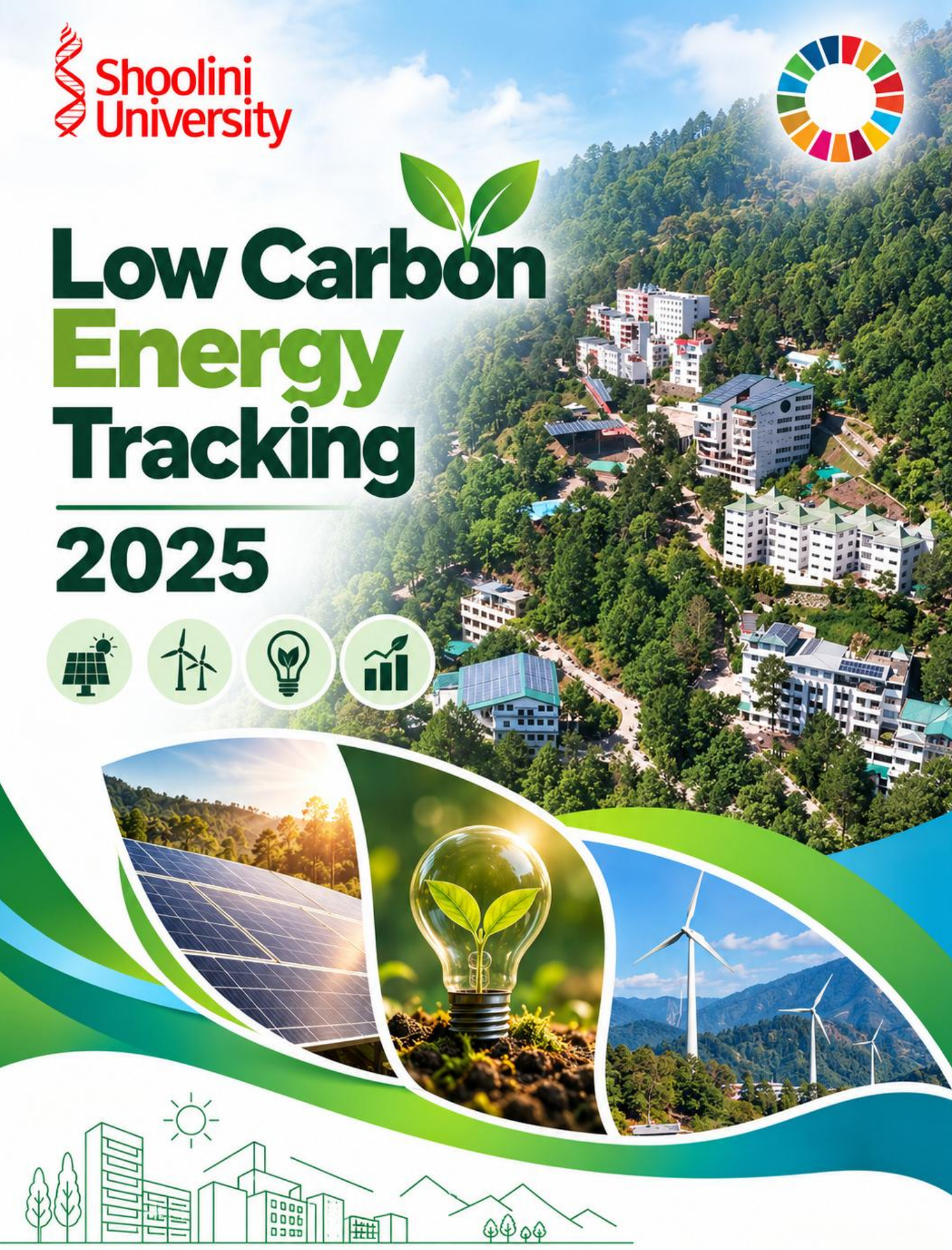
Shoolini University

Low Carbon Energy Tracking 2025



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13.2.1 Low carbon energy tracking

Shoolini University has established a systematic approach to **tracking energy consumption, renewable energy generation, and greenhouse gas emissions** as part of its commitment to climate action and sustainable campus operations. The **Low-Carbon Energy Tracking** initiative monitors;

- **Scope 1 Emissions:** Monitoring direct greenhouse gas emissions from fuel combustion.
- **Scope 2 Emissions:** Tracking indirect emissions associated with purchased electricity consumption.
- **Reporting Standards:** Following the Greenhouse Gas (GHG) Protocol, IPCC guidelines, and Central Electricity Authority (CEA) guidelines.

The University actively invests;

- **Renewable Energy Investment:** Investing in solar infrastructure to increase renewable energy generation.
- **Energy Efficiency:** Promoting energy-efficient systems and green buildings to reduce energy consumption.
- **Emission Reduction:** Reducing dependence on fossil fuels and minimizing indirect (Scope 2) emissions from grid electricity.
- **Performance Monitoring:** Tracking energy efficiency, renewable energy contributions, and carbon offsets.
- **Emission Reduction Targets:** Using energy and emissions data to establish realistic targets and monitor progress toward the University's long-term net-zero emissions goal.

The Energy and Emissions Report 2025 provides a comparative assessment of the University's energy use, solar power generation, and carbon emissions against the 2021 baseline. This monitoring framework supports evidence-based decision-making, identifies opportunities to improve energy efficiency and expand renewable energy use, and advances the University's commitment to SDG 13 (Climate Action), SDG 7 (Affordable and Clean Energy), and SDG 12 (Responsible Consumption and Production).

Emissions Report of Shoolini University

Shoolini University monitors its GHG emissions and electricity consumption according to GHG emissions protocol. The calculations are made for direct emissions of CO_2, CH_4 and N_2O emissions from the combustion of fuel in boilers, furnaces and other stationary combustion equipment (Scope-1 emissions) and indirect emissions through electricity consumption (Scope-2 emissions). The emission factors used are according to the IPCC Guidelines for National Greenhouse Gas Inventories as well as issued by Central Electricity Authority Guidelines.

(A) Scope-1 Emissions Calculation for the Year 2025 (Jan 2025-Dec 2025):

GREENHOUSE GAS PROTOCOL

Source ID	Sector	Fuel type (e.g., solid fossil)	Fuel	Total Fuel Consumption	Unit of Measurement (e.g., kg or kWh)	Total Anthropogenic GHG Emissions (metric tonnes CO_2e)
1	Institutional	Liquid fossil	Gas/Diesel oil	7,035	litres (l)	21.30
2	Institutional	Liquid fossil	Gas/Diesel oil	7,682	litres (l)	23.26
3	Institutional	Liquid fossil	Gas/Diesel oil	9,791	litres (l)	29.65
4	Institutional	Liquid fossil	Gas/Diesel oil	10,891	litres (l)	32.98
5	Institutional	Liquid fossil	Gas/Diesel oil	9,269	litres (l)	28.07
6	Institutional	Liquid fossil	Gas/Diesel oil	7,956	litres (l)	24.09
7	Institutional	Liquid fossil	Gas/Diesel oil	8,963	litres (l)	27.14
8	Institutional	Liquid fossil	Gas/Diesel oil	7,927	litres (l)	24.00
10	Institutional	Liquid fossil	Gas/Diesel oil	10,106	litres (l)	30.60
11	Institutional	Liquid fossil	Gas/Diesel oil	5,704	litres (l)	17.27
12	Institutional	Liquid fossil	Gas/Diesel oil	9,065	litres (l)	27.45
Total (mt CO2e)						**307.22**

Scope-1 Total Emissions for the Baseline Year 2021 = 36.62 mt CO_2e

(B) Scope-2 Emissions Calculation for the Year 2021 (Baseline) and 2025:

Year	Energy Consumption (kWh)	Energy Consumption (GJ)	Solar Generation (kWh)	Solar Fraction (%)	Total CO2 Offset (kg)	Total CO2 Emissions (kg)	Total CO2 Emissions after Offset (kg)
2021 (Baseline)	12,34,852	4,445	4,08,942	33%	3,33,288	10,06,404	6,73,116
2025	19,31,579	6,954	3,61,577	19%	2,56,720	13,71,421	11,14,701

(C) Summary:

Summary of Results			
Year	**Scope-1 Emissions (kg CO2e)**	**Scope-2 Emissions (kg CO2e)**	**Total Scope-1 and Scope-2 (kg CO2e)**
2021 (Baseline)	36,616	6,73,116	7,09,732
2025	3,07,220	11,14,701	14,21,921

Observation

Shoolini University systematically monitors its electricity consumption and greenhouse gas emissions in accordance with the GHG Protocol. The Energy and Emissions Report 2025 compares energy consumption, solar energy generation, and Scope 1 and Scope 2 emissions against the 2021 baseline. The report highlights opportunities to strengthen renewable energy generation, improve energy efficiency, and enhance carbon emission management to support the University's long-term sustainability objectives.

Major Analysis

- **Increased Energy Consumption:** Electricity consumption increased from 1,234,852 kWh in 2021 to 1,931,579 kWh in 2025, representing an increase of approximately 56.4%.
- **Renewable Energy Generation:** Solar electricity generation decreased from 408,942 kWh in 2021 to 361,577 kWh in 2025, while the reported solar fraction declined from 33% to 19%.
- **Scope 1 Emissions:** Reported direct emissions increased from 36.62 tonnes CO_2e in 2021 to 307.22 tonnes CO_2e in 2025.
- **Increased Overall Emissions:** Combined Scope 1 and Scope 2 emissions increased from 709.732 tonnes CO_2e in 2021 to 1,421.921 tonnes CO_2e in 2025, representing an increase compared with the 2021 baseline.

Conclusion

Shoolini University demonstrates its commitment to climate action through systematic monitoring of energy consumption, renewable energy generation, and greenhouse gas emissions. The Energy and Emissions Report 2025 provides a comparative assessment of energy performance against the 2021 baseline, supporting informed decision-making and future energy planning. These efforts strengthen the University's focus on renewable energy adoption, energy efficiency, and carbon emission management, contributing to SDG 13 (Climate Action), SDG 7 (Affordable and Clean Energy), and SDG 12 (Responsible Consumption and Production), while supporting its long-term vision of achieving net-zero emissions.