

## Low-Carbon Energy Tracking and Measurement System

Centurion University has established a robust framework to measure and track low-carbon energy use across all campuses, thereby ensuring accountability and alignment with climate action goals under SDG 13.

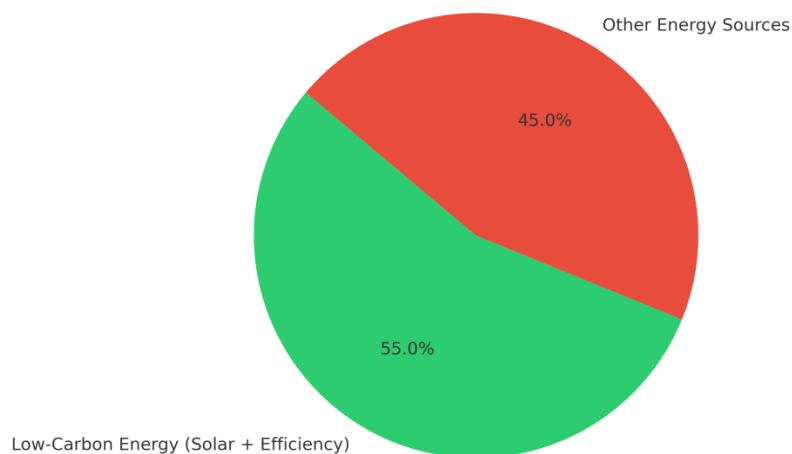
### Measurement Approach

1. Smart Meters & Dashboards – All rooftop solar plants (total 150 kW commissioned till 2024) are connected with smart meters to track real-time generation in kWh.
2. Energy Audits & Campus Records – Annual energy audits record total grid electricity consumption vs renewable (solar) contribution, with data consolidated at the university level.
3. Aurassure Integration – While Aurassure primarily tracks air quality, weather, and environmental conditions, it is also integrated with campus energy dashboards to correlate energy generation/usage with climate parameters, improving efficiency planning.

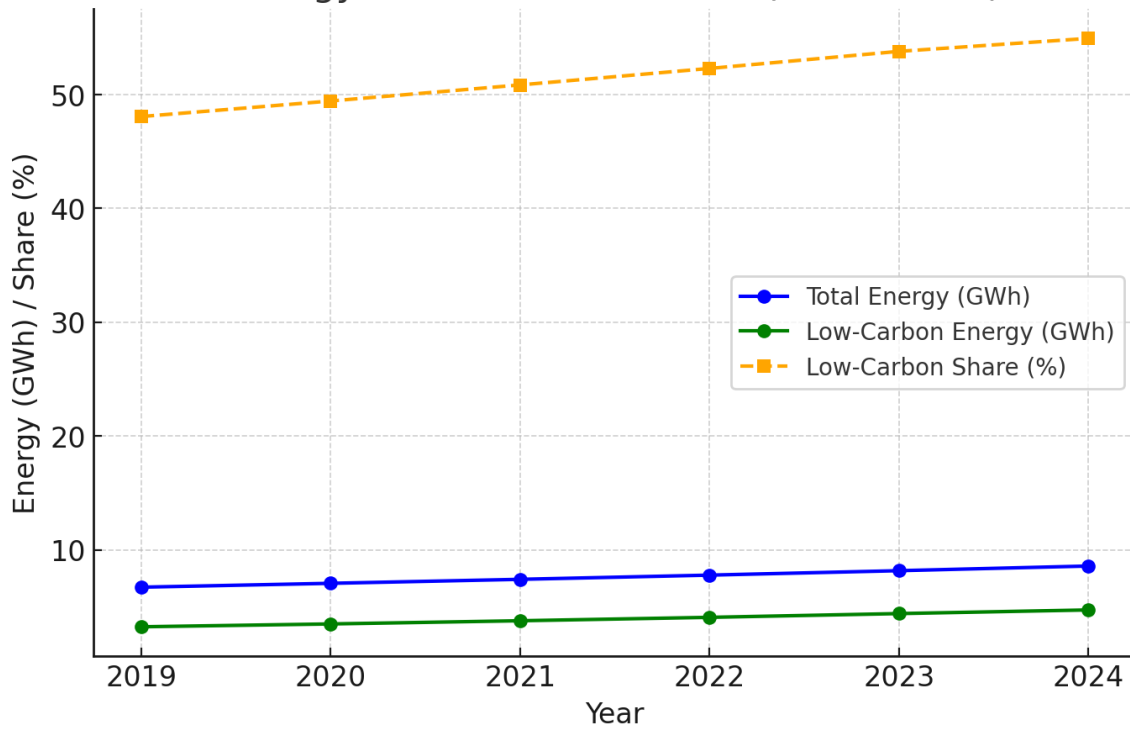
### 2024 Progress:

- Total Electricity Consumption: ~8.57 GWh (30852 GJ)
- Low-Carbon Energy (Solar + efficiency savings): ~4.71 GWh (16956GJ)
- Low-Carbon Share: 54.94% of total consumption
- Verified through energy audit (2024) and reported in the Annual Sustainability Report, shared with local Panchayats and DISCOM authorities.

Centurion University - Low-Carbon Energy Share (2024)



## Energy & Low-Carbon Share (2019–2024)



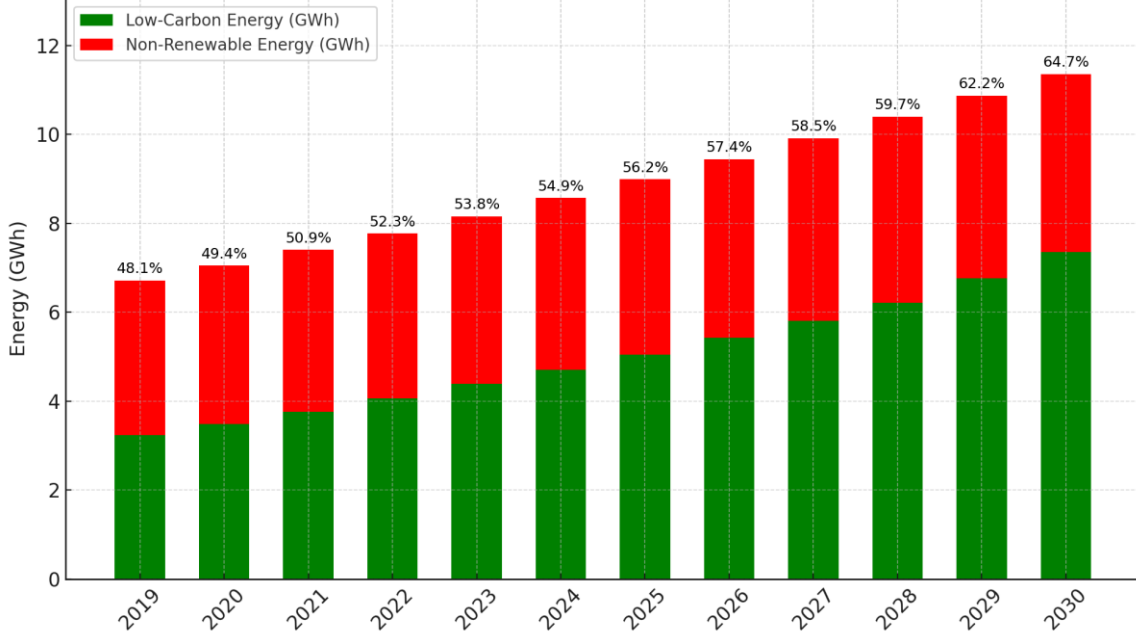
**Table: Energy & Low-Carbon Share (2019–2024)**

Year	Total Energy (GWh)	Total Energy (GJ)	Low-Carbon Energy (GWh)	Low-Carbon Energy (GJ)	Low-Carbon Share (%)
2019	6.71	24156	3.23	11628	48.07%
2020	7.05	25380	3.48	12528	49.44%
2021	7.4	14400	3.76	13536	50.85%
2022	7.77	27972	4.06	14616	52.30%
2023	8.16	29376	4.39	15804	53.80%
2024	8.57	30852	4.71	16956	54.94%

### Projection of Energy Use (2023–2030)

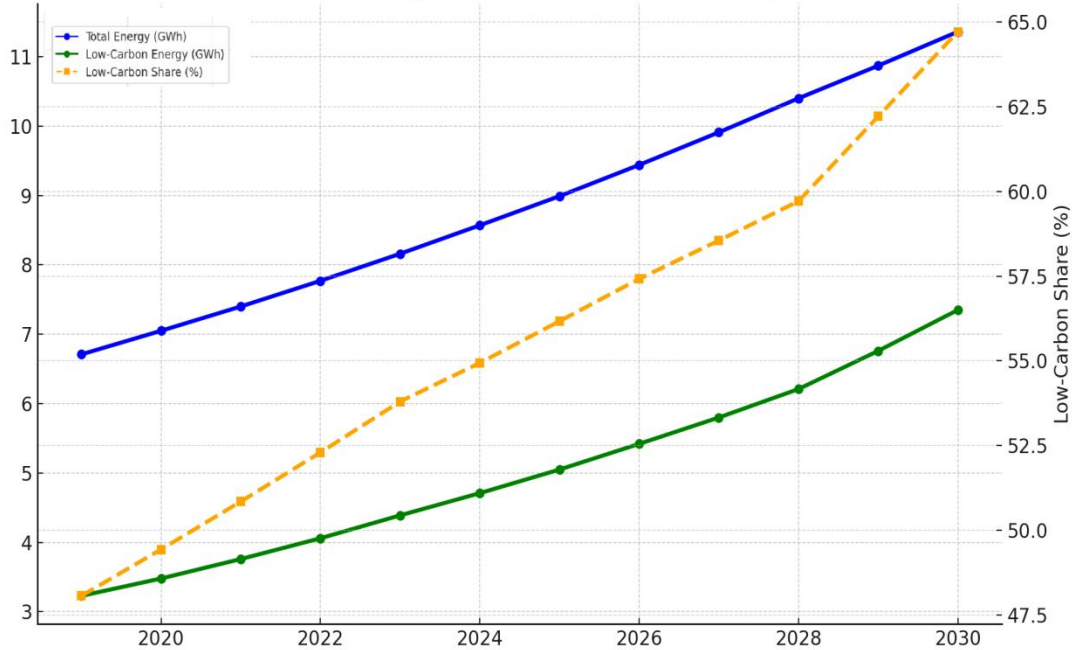
Based on actual values for 2023 and 2024, projections for 2025–2030 have been developed using observed growth rates. This ensures consistency in reporting and provides a reliable estimate of total and low-carbon energy progression.

Energy Consumption Split: Low-Carbon vs Non-Renewable (2019-2030)



Year	Total Energy (GWh)	Total Energy (GJ)	Low-Carbon Energy (GWh)	Low-Carbon Energy (GJ)	Low-Carbon Share (%)
2023	8.16	29376	4.39	15804	53.8
2024	8.57	30852	4.71	16956	54.94
2025	8.99	32364	5.05	18180	56.17
2026	9.44	33984	5.42	19512	57.42
2027	9.91	35676	5.8	20880	58.55
2028	10.4	37440	6.21	22356	59.71
2029	10.87	39132	6.67	24336	62.21
2030	11.86	42696	7.35	26460	64.71

Projected Energy & Low-Carbon Share (2019-2030)



The projection from 2023 to 2030 indicates steady growth in both total and low-carbon energy use. While total energy demand is expected to rise from 8.16 GWh (2023) (**29376 GJ**) to approximately 11.86 GWh (2030) (**42696 GJ**), low-carbon energy is projected to grow from 4.39 GWh (**15804 GJ**) to 7.35 GWh (**26460 GJ**) over the same period. This results in an increase of low-carbon share from 53.80% in 2023 to 64.71% in 2030, demonstrating the University's consistent alignment with SDG 7 targets and its strengthening reliance on clean energy solutions.

### Community & Academic Integration

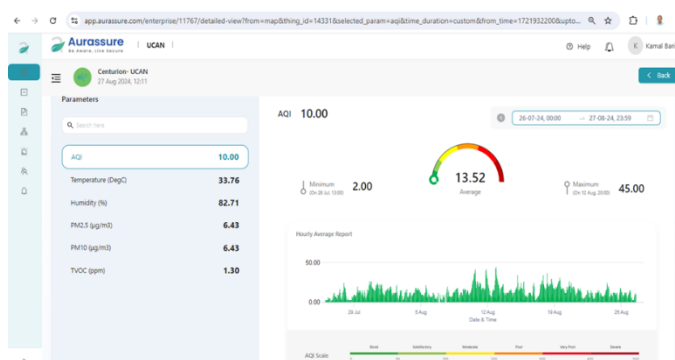
- Data is used in **student projects** and **climate literacy modules** to demonstrate low-carbon transitions.
- Shared with **local government bodies** as part of Centurion University's Climate Action Framework (CUCAF).

The University not only measures its low-carbon energy use but also reports and validates it annually, with 2024 data showing that over half (54.94%) of total campus energy now comes from low-carbon sources. This tracking mechanism underpins both institutional climate targets (carbon neutrality by 2035) and broader SDG 13 commitments.

### Aurassure: Real-Time Environmental Monitoring at Centurion University

The Aurassure environmental monitoring system has been set up within the campus of Centurion University as part of its commitment to climate resilience and sustainability. By leveraging real-time, sensor-based data on air quality, weather, water, and noise levels, the system enables the university to monitor its environmental footprint, support smart infrastructure planning, and provide actionable insights for energy conservation and disaster preparedness. The system continuously monitors and records crucial indicators such as air temperature (°C), humidity (%), particulate matter (PM2.5 and PM10 in  $\mu\text{g}/\text{m}^3$ ), and total volatile organic compounds (TVOC in PPM)—with updates captured every minute.

This on-campus deployment serves not only as a live lab for students and researchers but also as a strategic tool for community outreach, policy advocacy, and collaboration with local authorities and NGOs working on climate action.



Aurassure system installed inside the Campus