

THE SUSTAINABILITY REPORT



SDG 7 — AFFORDABLE & CLEAN ENERGY

2025 / 2026



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1. Overview — SDG 7: Affordable and Clean Energy

Gulf University's contribution to SDG 7 (Affordable and Clean Energy) during AY 2025–2026 centres on the Sustainability & Development Makers Center (SDM-C)— specifically the Energy and Climate Change. This substantially strengthens the evidence base beyond SDM-C's flagship Carbon-free Campus Initiative and GUSW2025/ICSDI 2025 research contribution.

Gulf University Sustainability Week (GUSW2025) featured SDG 7 across 7 of 35 analysed activities (20.0%), while ICSDI 2025 recorded SDG 7 as the joint-largest research theme of the conference at 12.6% of accepted papers. Operationally, the University reports 98% average energy-efficient appliance coverage, 100% smart-building automation coverage, a three-year rising renewable energy share (3.88% → 4.24% → 5.61%), and a declining campus carbon footprint (629.57 → 619.25 → 613.13 t CO₂) over the same period.

2. Key Highlights for Academic Year 2025–2026

- GUSW2025: SDG 7 addressed through 7 of 35 activities (20.0%); ICSDI 2025: SDG 7 was the joint-largest research theme, representing 12.6% of accepted conference papers.
- Carbon-free Campus Initiative ('Zero Car in the Parking,' with the Ministry of Transportation & Telecommunications): explicitly mapped to SDG 7 — promoting energy-efficient, sustainable transport.
- Renewable energy: solar output rose from 27,684 kWh (2023–24) to 29,750 kWh (2024–25) to 38,657 kWh (2025–26) — a renewable share of total electricity consumption rising from 3.88% to 4.24% to 5.61%.
- Energy-efficient appliances: 98% average efficiency across LED lighting (100%), LED sensor lighting (100%), inverter air conditioners (90%), computers (100%), smart displays (100%), and projectors (100%).
- Smart Building Implementation (UI GreenMetric indicator 2.3, EC.2): all three campus buildings — Administrative, Academic, and Main Campus — each meet a minimum of five smart-building requirements, covering 100% of the University's 15,154 m² total building area.
- Campus carbon footprint declined for two consecutive years: 629.57 t CO₂ (2023–24) → 619.25 t CO₂ (2024–25) → 613.13 t CO₂ (2025–26) — a cumulative reduction of 16.44 t CO₂ (2.61%).
- Total electricity consumption fell 1.76% year-over-year (701,547 → 689,204 kWh) despite a growing campus population (1,710 students + 149 staff = 1,859 total).
- Zero-Emission Vehicles (ZEV, UI GreenMetric indicator 5.9, TR.3): EV-charging infrastructure is identified under the Future Sustainability Roadmap — currently at the planning stage — complementing the active Carbon-free Campus Initiative.

3. Renewable Energy Generation & Consumption Performance

Solar PV panels are Gulf University's primary renewable energy source, installed across rooftops, parking sheds, and courtyards, supplemented by solar-powered pathway lighting, a pilot solar water heating system, and a hybrid smart inverter system.

Academic Year	Solar Output (kWh)	Total Electricity Consumption (kWh)	Renewable Share (%)
2023–24	27,684	713,837	3.88%
2024–25	29,750	701,547	4.24%
2025–26	38,657	689,204	5.61%



Additional renewable infrastructure includes a Solar Water Heating pilot in the Engineering block (1,250 kWh capacity, 90% complete), supplying warm water for maintenance and lab use, and a Hybrid Smart Inverter System (1,000 kWh capacity) at the ICT & Sustainability office, commissioned July 2026, which automatically switches to solar during daytime and tracks energy flow via Power BI. Gulf University's stated target is to shift 70% of campus energy to solar within the next reporting cycle.

4. Energy-Efficient Appliances & Smart Building Automation

Appliance Type	Total Units	Energy-Efficient Units	Efficiency (%)
LED Lamps	412	412	100%
LED Sensor Lights	365	365	100%
Air Conditioners	117	105 (Inverter type)	90%
Computers / Laptops	212	212	100%
Smart TVs / Displays	24	24	100%
Projectors / Smart Boards	25	25	100%
Average Efficiency	—	—	98%

Smart building automation now covers 100% of the University's 15,154 m² total building area, with ERP and Power BI dashboards (per the IT Annual Report 2025–26) monitoring electricity consumption and maintenance performance per building and department. The remaining non-inverter air conditioning units are being progressively replaced, each swap delivering an estimated 25% per-unit power saving.

At building level, all three campus buildings are classified as smart buildings under UI GreenMetric indicator 2.3 (EC.2), each meeting well above the minimum of five smart-building requirements across the automation, safety, energy, indoor environment, and lighting categories:

Building	Location	Smart-Building Requirements Met	Building Area (m ²)
Administrative Building	Sanad, Bahrain	10 features — safety (3), energy (1), indoor environment (2), lighting (4)	1,040
Academic Building	Sanad, Bahrain	12 features — automation (1), safety (3), energy (2), indoor environment (2), lighting (4)	840
Main Campus Building	Sanad, Bahrain	12 features — automation (1), safety (3), energy (2), indoor environment (2), lighting (4)	13,274
Total		Smart building implementation = 15,154 m² / 15,154 m² = 100%	15,154

5. Carbon-free Campus Initiative & SDM-C Programming

SDM-C's flagship SDG 7 contribution is the Carbon-free Campus Initiative ('Zero Car in the Parking'), delivered in partnership with the Ministry of Transportation & Telecommunications to promote energy-efficient, sustainable transport and reduce campus carbon emissions. The University's Future Sustainability Roadmap sets out a broader energy-efficiency agenda — energy audits, solar PV retrofitting, LED/high-efficiency appliances, and renewable energy investment (rooftop solar, EV charging).

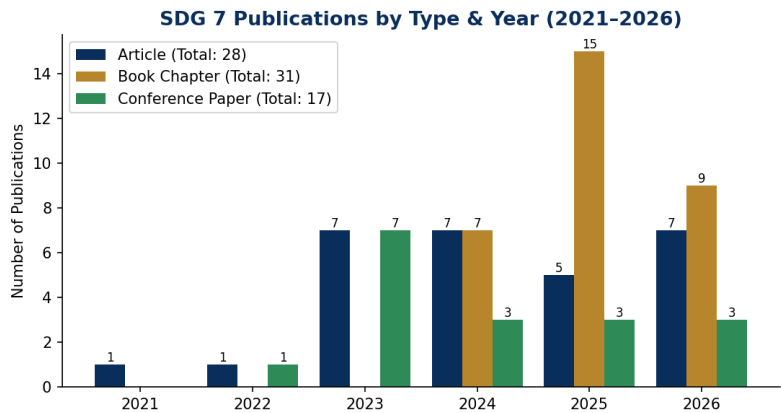
GUSW2025 and the Daily Tree-Planting Campaign (with the Ministry of Municipalities Affairs & Agriculture and stc Bahrain) contributed to climate and energy awareness programming, while the



Sustainable Family Initiative (GU-SFI) extends climate-behaviour programming into household energy practices.

As part of the Future Sustainability Roadmap, the University has identified electric-vehicle (EV) charging infrastructure as a planned component of its renewable-energy investment agenda, alongside rooftop solar expansion, energy audits, and high-efficiency appliance upgrades (UI GreenMetric indicator 5.9, TR.3). EV charging remains at the planning stage and has not yet been budgeted with a confirmed timeline; it is therefore reported as a forward-looking commitment rather than a completed or in-progress infrastructure item.

6. GU Research & Publications Related to SDG 7



Publication Type	2021	2022	2023	2024	2025	2026	Total
Article	1	1	7	7	5	7	28
Book Chapter	0	0	0	7	15	9	31
Conference Paper	0	1	7	3	3	3	17

Gulf University's SDG 7-linked research base totals 76 publications from 2021–2026 (28 articles, 31 book chapters, 17 conference papers) — reflecting ICSDI 2025's identification of SDG 7 as the conference's joint-largest research theme (12.6% of accepted papers, tied with SDG 12).

7. Summary of Impact and Key Performance Indicators (KPIs)

KPI	Indicator Description	2025–2026 Result	Status
KPI 1	Number of clean energy-linked publications	76 publications (28 articles, 31 book chapters, 17 conference papers), 2021–2026	Achieved
KPI 2	Number of energy-focused initiatives/campaigns held	1 flagship initiative (Carbon-free Campus) plus ongoing renewable/efficiency programmes	Achieved
KPI 3	Activities addressing SDG 7 within GUSW2025	7 of 35 activities (20.0%)	Achieved
KPI 4	Renewable energy share of total electricity consumption	5.61% (2025–26), up from 3.88% (2023–24)	Achieved — rising trend
KPI 5	Energy-efficient appliance coverage	98% average efficiency; 100% smart-building automation coverage — all 3 campus buildings meet ≥5 smart-	Achieved



KPI	Indicator Description	2025–2026 Result	Status
		building requirements (UI GreenMetric 2.3)	
KPI 6	Carbon footprint trend	613.13 t CO ₂ (2025–26), down from 629.57 t CO ₂ (2023–24) — cumulative 2.61% reduction	Achieved — declining trend
KPI 7	Zero-Emission Vehicles (EV-charging infrastructure)	Identified under the Future Sustainability Roadmap — planning stage (UI GreenMetric 5.9)	Early stage

8. Conclusion and Future Directions

Gulf University's SDG 7 contribution for AY 2025–2026 is considerably stronger than event programming alone: it now rests on a three-year track record of rising renewable energy share, falling carbon footprint and electricity consumption, near-universal energy-efficient appliance coverage, and full smart-building automation, alongside SDM-C's Carbon-free Campus Initiative and the University's leading ICSDI 2025 research theme.

Future directions:

- Progress toward the stated target of shifting 70% of campus energy to solar, building on the current 5.61% renewable share and the Hybrid Smart Inverter System commissioned in July 2026.
- Move the Future Sustainability Roadmap's energy-efficiency measures (further solar PV retrofitting, energy audits, LED retrofitting) from planning into a funded, phased implementation plan with target completion dates.
- Capitalise on ICSDI 2025's strong SDG 7 research base by launching a dedicated clean-energy research grant or lab track.
- Expand the Carbon-free Campus Initiative beyond mobility into a full campus energy strategy.
- Complete the remaining non-inverter AC replacement (12 of 117 units) and the Solar Water Heating pilot (currently 90% complete) to push appliance efficiency and renewable capacity further.
- Advance the planned EV-charging (Zero-Emission Vehicle) infrastructure from the Future Sustainability Roadmap into a budgeted roll-out plan with a confirmed implementation timeline.

Compiled from:

Innovation & Entrepreneurship Center (IEC) -Annual Report for the year 2025-26

<https://www.gulfuniversity.edu.bh/images/centers/innovation-entrepreneurship-center/annual-report/IEC-Annual-Report-2025-2026.pdf>

Sustainability Development Makers- Center -Annual Report for the year 2025-26

<https://www.gulfuniversity.edu.bh/images/centers/sustainability-and-development-makers-center/SDM-C-Annual-Report-2025-2026.pdf>

Community Engagement & Continuing Education Center (CECEC) -Annual Report for the year 2025-26

<https://www.gulfuniversity.edu.bh/images/centers/community-engagement-and-continuing-education-center/annual-reports/CECEC-Annual-Report-2025-2026.pdf>

Digital Transformation Center (DTC) -Annual Report for the year 2025-26

<https://www.gulfuniversity.edu.bh/images/centers/digital-transformation-center/annual-report/DTC-Annual-Report-2025-2026.pdf>



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