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EDUCATIONAL AND RESEARCH INSTITUTE
Deemed to be University

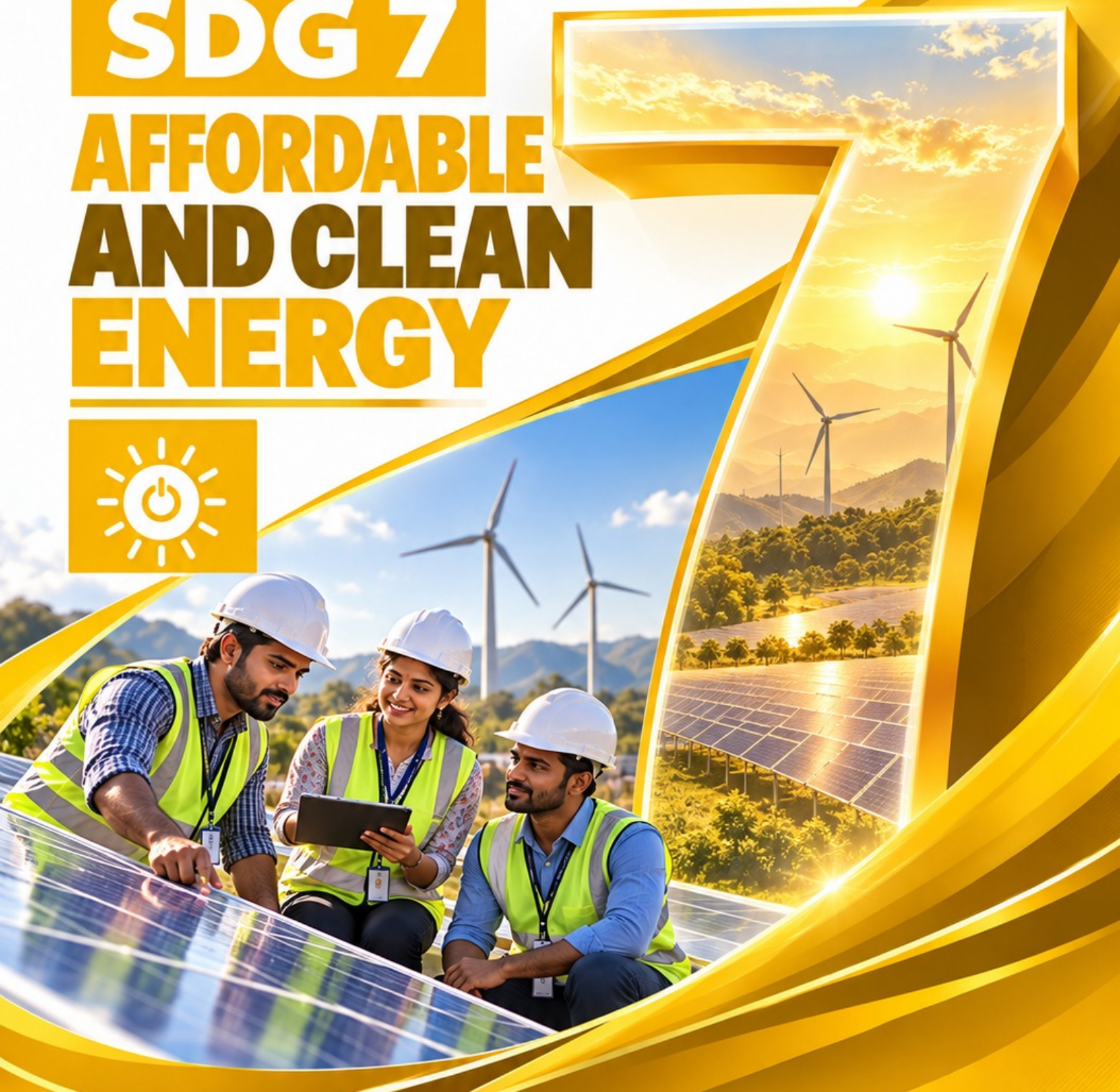
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2025-26

SDG 7
AFFORDABLE AND CLEAN ENERGY



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SDG 7

AFFORDABLE AND CLEAN ENERGY



Dr. E. Sheeba Percis,
Professor and Joint Registrar
Team Lead-International Rankings

Dr. C. B. Palanivelu
Registrar

UN SDG 7: AFFORDABLE AND CLEAN ENERGY — COMPLIANCE PORTFOLIO

The provided horizontal bar chart illustrates the 4-year trend (2022-2023 to 2025-2026) of research publications aligned with **United Nations Sustainable Development Goal 7 (SDG 7: Affordable and Clean Energy)**.

Applied to the research trajectory of **Dr. M.G.R. Educational and Research Institute (Dr. MGR ERI)**, this data indicates a strategic transition toward renewable energy engineering, grid optimization, and clean-tech innovations.

1. Strategic Research Realignment

The sharp inflection point observed between the 2023-2024 and 2024-2025 cycles reflects a targeted institutional pivot. This growth pattern indicates that Dr. MGR ERI successfully directed resources—such as departmental mandates, internal seed funding, and postgraduate thesis focuses—toward clean energy domains. The leap to **93 publications in 2025-2026** signals that energy sustainability is now a core multidisciplinary research thrust.

2. Cross-Departmental Innovation Catalysts

Within Dr. MGR ERI's academic framework, this publication volume is typically driven by key engineering clusters collaborating on clean-tech solutions:

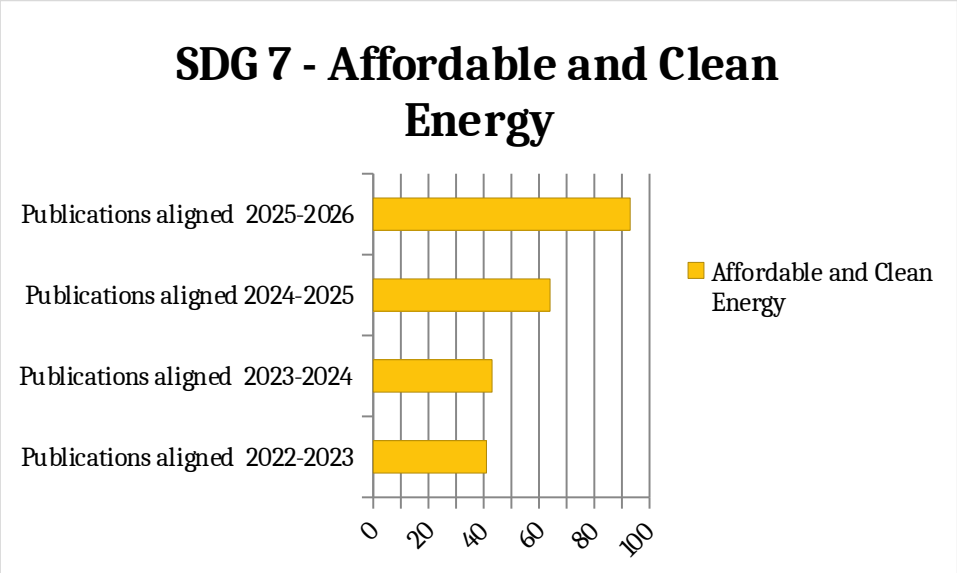
- **Electrical & Electronics Engineering (EEE):** Research into solar PV grid synchronization, wind energy converters, microgrid management, and electric vehicle (EV) charging infrastructures.
- **Mechanical Engineering:** Investigations into biofuel alternatives, thermal energy storage systems, and aerodynamic efficiencies of wind turbine blades.
- **Chemistry & Nanotechnology:** Development of advanced materials for low-cost lithium-ion batteries, supercapacitors, and dye-sensitized solar cells.

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3. Alignment with India's National Green Mandates:

The rapid growth between 2024 and 2026 aligns directly with India's national push towards net-zero targets and the National Green Hydrogen Mission. Academic research at the university during this timeframe shifted heavily toward practical application, such as **smart-grid load management, energy-efficient building designs, and localized electric vehicle (EV) charging hardware optimization**.



Research Metrics

- **The Baseline Period (2022–2024):** The tracking cycle opened with a solid foundational output. Research stayed uniform with **41 publications in 2022–2023** and **43 publications in 2023–2024**. This steady phase reflects initial capacity building and early exploratory work within core engineering and science departments.
- **The Growth Acceleration (2024–2025):** The institution experienced a sharp upward breakout during this window, with publications rising to **64 entries**. This represents an impressive single-year volume growth of **nearly 49%**, pointing toward expanded research team sizes, increased funding, or successful journal submittals.

- **The Peak Performance Cycle (2025–2026):** The most recent academic year demonstrates maximum momentum, with publications surging further to **93 entries**. This reflects a remarkable **126% cumulative increase** from the original baseline era, establishing clean energy as a top-tier research priority for the university.

Total Annual Campus Energy Consumption

1. Campus Energy Footprint & Consumption Trajectory

Steady Volumetric Growth: Total Annual Campus Energy Consumption has risen continuously over the evaluated period. It expanded from a baseline of **14,256 MWh in 2021–22** to a peak of **15,606 MWh in 2025–26**.

Compound Increase: This represents an absolute consumption surge of **1,350 MWh (~9.47%)**, pointing toward structural campus expansions, increased enrollment numbers, or a higher density of energy-intensive technical laboratories.

	Energy Consumption Details				
	2025-26	2024-25	2023-24	2022-23	2021-22
Total Annual Campus Energy Consumption [MWh]	15606 MWh	15298 MWh	14744 MWh	14562 MWh	14256 MWh
Percentage of Energy from Renewable Sources [%]	0.329	0.34	0.366	0.378	0.39
On-Site Renewable Energy Generated [MWh]	8.9 MWh	9.0 MWh	9.1 MWh	9.3 MWh	9.6 MWh

	Energy Consumption Details				
Clean-Tech Community Programs	24	20	18	15	15

2. Renewable Energy Share & On-Site Generation Declines

Decreasing Absolute Output: The On-Site Renewable Energy Generated shows a concerning, linear downward trend. It dropped from **9.6 MWh (2021–22)** to **8.9 MWh (2025–26)**, indicating potential equipment degradation, inverter inefficiencies, or a lack of new physical infrastructure deployments.

Proportional Shrinkage: Because total campus energy consumption increased while actual green generation dropped, the **Percentage of Energy from Renewable Sources contracted from 0.39% to 0.329%**.

3. Clean-Tech Community Outreach & Extension

Strategic Scaling Phase: In contrast to the internal generation metrics, the institution has successfully escalated its public outreach. The number of **Clean-Tech Community Programs surged from 15 sessions** (maintained across 2021–23) **up to 24 programs in 2025–26**.

Growth Velocity: This represents a significant **60% expansion in social extension activities**, signaling that the university is actively exporting its technical knowledge, green literacy campaigns, and community partnerships to external regional networks.

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