SDG 7

AFFORDABLE AND CLEAN ENERGY

INTRODUCTION

SDG 7 calls for universal access to affordable, reliable, sustainable and modern energy, and for a decisive shift toward renewable sources, improved energy efficiency and cleaner technologies. For a growing residential university campus, this goal translates into concrete choices — how buildings are powered, how waste is turned into energy rather than discarded, how people move around campus, and how research and teaching prepare students to build the clean-energy systems of tomorrow.

SRM University–AP has approached SDG 7 as a campus-wide commitment rather than a single initiative. Rooftop solar installations across academic and residential blocks now meet a measurable share of campus electricity demand; a dedicated biogas plant converts kitchen and organic waste into clean cooking energy; an electric-vehicle fleet supports sustainable mobility within the campus; and large-scale LED and sensor-based retrofits continue to drive down energy intensity per square metre. These efforts are reinforced by academic programmes, invited lectures, workshops and industry visits that build student and faculty capability in renewable energy, power electronics and sustainable transport, and by a growing body of peer-reviewed research spanning green hydrogen, solar photovoltaics, battery technologies and energy policy.

This section presents SRM University–AP's verified SDG 7 performance for the 2025–26 reporting cycle — campus energy and renewable-energy facilities, outreach and awareness activities, events and initiatives, and research and publications — drawing exclusively on the University's own reported data, photographic records and bibliometric exports.

CLEAN ENERGY & CAMPUS FACILITIES

Campus energy performance is tracked annually across consumption, renewable generation and efficiency infrastructure. The figures below are drawn directly from SRM University–AP's FY 2025–26 Annual Report data submission.

Energy at a glance

2.07 Cr
Total annual energy consumption
kWh / year (20,666,400)

89.6
Energy use per floor area
kWh / m² / year

56,620
Average daily energy consumption
kWh / day

₹1.68 Cr
Average monthly energy cost
₹16,781,672.75 / month

Renewable energy

959
Installed solar capacity
kWp

10.12 L
Solar energy generated / consumed
kWh / year (1,012,430.44)

4.8%
Share of campus energy met by solar
of total consumption

3
New renewable-energy projects
initiated in FY 2025–26

Efficiency & e-mobility infrastructure

17	27,783	1,303	8
Buildings with energy monitoring systems installed	*LED fixtures installed campus-wide* energy-efficient lighting	*Sensor-based equipment units* occupancy / demand-linked	*Electric vehicles in operation* combined capacity: 89

Source: SRM University–AP Annual Report data submission, FY 2025–26 (SDG_7_related_data.xlsx).

● Rooftop Solar Power Plants

SRM University–AP has installed rooftop solar photovoltaic systems across multiple hostel blocks and academic buildings, together contributing to the campus's 959 kWp installed solar capacity. The aerial views below show dense rooftop solar coverage across residential blocks, generating renewable electricity that is fed into the campus grid alongside dedicated inverter and monitoring units.









● Solar Grid-Interface & Monitoring Units

Grid-tied inverter and monitoring units (Geesys) installed alongside the rooftop arrays manage the conversion and integration of solar-generated electricity into the campus power network, supporting the tracking of renewable output as part of the University's 17 building-level energy monitoring systems.



● Solar Initiatives — Official Campus Summary

The University's sustainability communications highlight rooftop solar as a flagship clean-energy and climate initiative, spanning academic and residential blocks — reflecting its dual contribution to SDG 7 (Clean Energy) and SDG 13 (Climate Action).

● Biogas Plant — Organic Waste to Clean Energy

The campus biogas plant converts kitchen and organic waste into biogas, closing the loop between waste management and clean energy generation. Segregated food waste is collected daily, processed through composting and digestion, and the resulting biogas is piped directly to a kitchen stove for use as cooking fuel — a working demonstration of decentralised, waste-derived clean energy on campus.









● Organic Waste Composting Unit (OWC-60)

An organic waste composting machine processes food and green waste collected from campus kitchens and dining facilities, producing compost as a by-product alongside the biogas stream — reducing organic waste sent to landfill while supporting on-campus clean-energy generation.



● Biogas Plant — Official Campus Summary

The University's own sustainability communications summarise the biogas plant as converting organic waste into clean energy — reinforcing the facility's dual contribution to SDG 7 (Clean Energy) and SDG 13 (Climate Action).

● Electric Vehicles & Sustainable Mobility

SRM University–AP operates a fleet of 8 electric vehicles (combined capacity: 89) for on-campus transport, replacing fossil-fuel-based shuttles for short-distance and last-mile mobility across the campus and supporting SDG 7's sustainable-transport dimension alongside SDG 11 and SDG 13 co-benefits.





OUTREACH

● Environmental Sustainability Exhibition (ESE–3.0)

Sept 2025 | APJ Abdul Kalam Auditorium, SRM University-AP | 342 participants recorded

A public-facing exhibition showcasing undergraduate-led sustainability initiatives, run for the third consecutive year to build awareness of pressing environmental and energy challenges among students, faculty and visiting institutions from Andhra Pradesh and Telangana. The event was organised by the Department of Environmental Science and Engineering under the Office of the Dean, SEAS.

Outcome: Reported response of over 150 registrations from partner institutions, with ₹80,000 distributed in prizes to encourage sustainability-driven problem solving; reinforced the event's role as a regional platform for sustainability awareness and inter-institutional collaboration.

● Industrial & Experiential Learning Visits

Oct–Dec 2025 | Partners: APGENCO (NTTPS Thermal Power Station), Jindal Urban Waste Management Ltd., BPCL public hearing | 25–39 participants per visit

Students from the Department of Environmental Science and Engineering undertook field visits to a thermal power generation station, an integrated municipal waste-to-energy facility, and a statutory public hearing for an industrial project, connecting classroom learning on energy conservation, emissions and pollution control with real-world industrial practice.

Outcome: Improved student understanding of energy conservation, pollution-control technologies and regulatory frameworks in large-scale energy and waste-management operations, and exposure to public participation processes in industrial decision-making.

EVENTS AND INITIATIVES

SRM University–AP's verified SDG 7 events register records 20 unique SDG 7–aligned events for the reporting cycle, spanning technical workshops, invited lectures, faculty development programmes, industry co-teaching sessions and a national-level summit, drawn together here as a single institutional record (multi-SDG events are counted once, per the verified register).

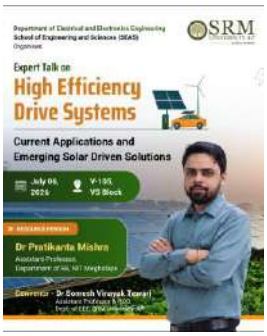
Featured events

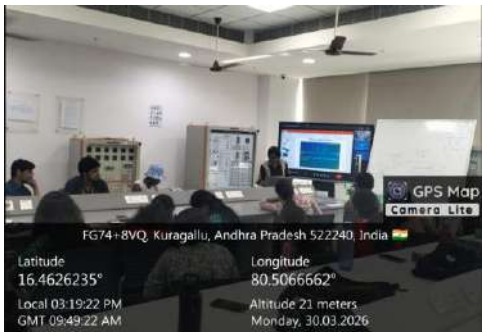
● High-Efficiency Drive Systems: Current Applications & Emerging Solar-Driven Solutions

6 July 2026 | V-105, VS Block | Speaker: Dr Pratikanta Mishra, NIT Meghalaya | 15 participants

A technical session on high-efficiency electric drive systems and their integration with solar photovoltaic technology for industrial and transportation applications, covering power electronics, motor control and energy-efficient drive design.

Outcome: Strengthened participant understanding of solar-driven drive systems and their role in reducing energy consumption and emissions in industrial and transport applications.





● Co-Teaching on Renewable Energy Sources

30 Mar – 1 Apr 2026 | S310 & S502 | Partner: IIT Guwahati | 19 participants

A collaborative co-teaching programme on Wind Energy Conversion Systems and Fuel Cell technologies, combining SRM AP faculty instruction with research perspectives from an IIT Guwahati academic to strengthen system design and performance-evaluation skills.

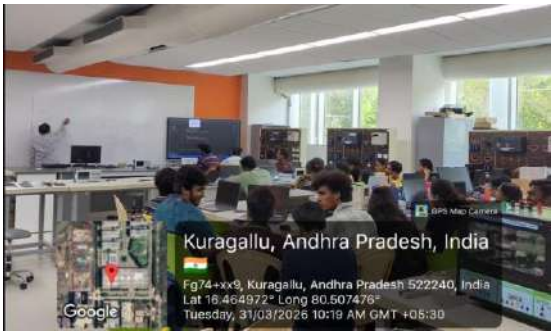
Outcome: Deepened student understanding of wind and fuel-cell system design, modelling and performance evaluation, and improved research orientation through interdisciplinary, cross-institution teaching.

● Workshop on DSP Controllers for Electric Vehicle Applications

30–31 March 2026 | V-105 | Partner: Solidpro Engineering Support Pvt. Ltd. | 75 participants

A hands-on workshop covering DSP controllers, real-time control systems, motor drives and EV system integration, giving participants practical exposure to programming, interfacing and battery management systems used in electric mobility.

Outcome: Participants gained practical skills in DSP-based EV control, motor drives and battery management systems, and exposure to current industry practice in electric mobility.



● Guest Lecture: A Journey Towards the Development of Sustainable Energy Materials

10 April 2026 | ALC-1, Homi J. Bhabha Block | Speaker: Prof. Bhaskar Biswas, University of North Bengal | 59 participants

An invited lecture on bioinspired strategies and hierarchical coordination molecules for sustainable energy materials, covering applications in catalysis, energy conversion and energy storage.

Outcome: Strengthened understanding of advanced material design for energy conversion and storage, and encouraged interdisciplinary collaboration among students and researchers.



● Green Hydrogen Summit 2025

18–19 July 2025 | APJ Abdul Kalam Auditorium, SRM University-AP | National summit with NREDCAP, Government of AP, Greenko, AM Green, BPCL, NTPC, IIT Tirupati and other industry/government partners

A national-level summit convening academic, government and industry stakeholders to advance research, policy and commercialisation of green hydrogen — covering production, storage and applications, and creating a platform for partnerships and investment in clean-hydrogen technologies.

Outcome: The summit led to the AP State Green Hydrogen Valley Declaration; SRM University–AP was recognised as the nodal agency for Green Hydrogen projects in Andhra Pradesh, and a Government of AP Advisory Council was formed to guide clean-energy projects.





● OPAL-RT Workshop: From Simulation to Implementation — Rapid Control Prototyping

14–18 March 2026 | CV 402 & X112 | Partner: OPAL-RT Technologies | 60 participants

A technical workshop introducing Real-Time Hardware-in-the-Loop (HIL) testing for power and energy systems, enabling participants to transition from offline simulation (MATLAB/Simulink, PSIM) to real-time validation relevant to power electronics, smart grids, renewable energy and EV systems.

Outcome: Participants gained hands-on experience in model validation, controller testing and real-time system integration applicable to renewable energy and electric-vehicle system development.





Additional events

• Industry Co-Teaching, ENV 250 — Resource Recovery, Circular Economy & Waste Management Hierarchy (Jan–Feb 2026, 62 participants).

• Co-Teaching, ESE 532 — Renewable energy integration in grid systems and Solar PV design for grid-connected, hybrid and stand-alone systems (Feb–Apr 2026, 9–10 participants per session).

• Co-Teaching, PHY 272 — Solid State Ionic Devices, including supercapacitor principles and applications (Dec 2025, 10 participants).

• Environment and Me: Scholars Talk Series 3.0 — interdisciplinary research-sharing platform for Master's and PhD scholars in environmental science and engineering (Nov 2025, 33 participants).

• FDP on VLSI Devices and Circuits with Current Trends — included coverage of solar-cell technology integration for sustainable electronic systems (Oct 2025, 71 participants).

• Environmental Sustainability Exhibition (ESE–3.0) and industrial/experiential-learning visits to APGENCO, Jindal Urban Waste Management and a BPCL public hearing are featured in the Outreach section above.

Source: Events-sdg_7.xlsx ("Events-org.-Intranet", "Events org.-Not intranet" and "Sheet3" — verified unique SDG 7 event total: 20) and SDG_7_Most_Relevant_Activities_Photo_Space.docx for photographs and activity descriptions.

RESEARCH & PUBLICATIONS

SRM University–AP's SDG 7–aligned research spans green hydrogen, solar photovoltaics and solar-thermal systems, battery and energy-storage technologies, sustainable transport and low-carbon policy. The bibliometric snapshot below is drawn from the University's SciVal activity summary and Scopus-based publication export for 2025–2026.

393 *Scholarly output* SciVal, 2025–2026	**1.23** *Field-Weighted Citation Impact* FWCI	**162** *International collaboration* co-authored publications	**1,529** *Citation count* SciVal, 2025–2026
41.2% *International collaboration* share of co-authored output	**8,121** *Views count* SciVal, 2025–2026	**1.5%** *Academic–corporate collaboration* share of co-authored output	**397** *Publications on record* Scopus export, 6 Sept 2026

Selected research highlights

The following publications, selected from the verified 2025–2026 dataset for their direct relevance to renewable energy, energy storage, sustainable mobility and energy policy, illustrate the range and impact of SDG 7–aligned research at SRM University–AP:

Green hydrogen pathways for a net-zero future: technologies, circular economy integration, life-cycle performance and safety dimensions Review | FWCI 5.78. A comprehensive review of green-hydrogen production technologies, circular-economy integration and safety considerations, directly supporting the University's green-hydrogen research and policy engagement.

Fuelling the low-carbon transportation sector in emerging economies: role of institutional quality, environmental tax, green technology innovation and biofuel Article | FWCI 12.44 · CiteScore 10.3. Examines the policy, institutional and technological levers — including biofuel adoption — that support low-carbon transport transitions in emerging economies.

State-of-Health Prediction of Lithium-Ion Batteries Using Physics-Informed Inverted Attention Transformer Conference Paper | FWCI 10.35. A physics-informed deep-learning approach to predicting lithium-ion battery degradation, relevant to electric-vehicle battery management and lifetime optimisation.

Dual- and triple-absorber solar cell architecture achieves significant efficiency improvements Article | FWCI 5.92 · CiteScore 4.9. Proposes multi-absorber solar-cell architectures that improve photovoltaic conversion efficiency, contributing to next-generation solar technology.

Development of Advanced Heat Transfer Fluids for High-Temperature Solar Thermal Systems Chapter | FWCI 5.76 · CiteScore 0.9. Develops improved heat-transfer fluid formulations for high-temperature concentrated solar thermal power applications.

An equity-based approach for addressing inequality in electric vehicle charging infrastructure: leaving no one behind in transport electrification Article | FWCI 4.87 · CiteScore 9.9. Proposes an equity-focused framework for EV charging-infrastructure planning, supporting inclusive access to sustainable transport electrification.

Refining offshore wind energy potential estimates through the integration of technological evolution and climate change projections Article | FWCI 4.62. Improves offshore wind resource-potential estimation methods by integrating technology evolution and climate-change projections.

Source: SDG_7-publications-_2025-2026_.xlsx (Scopus/SciVal export) and sdg_7_Research.docx (SciVal Activity Summary for SRM University-AP, SDG 7: Affordable and Clean Energy, 2025). Publications selected for direct thematic relevance to SDG 7; the dataset contains additional titles not shown here.

CONCLUSION

Taken together, SRM University–AP's SDG 7 performance for 2025–26 tells a single, connected story: 959 kWp of rooftop solar and a working biogas-to-cooking-fuel loop reduce the campus's reliance on grid and fossil energy; 27,783 LEDs, 1,303 sensor-based systems and monitoring across 17 buildings drive down energy intensity; an 8-vehicle electric fleet supports cleaner on-campus mobility; and 20 verified events, an active outreach programme and 393–397 SDG 7–aligned publications — anchored by the AP State Green Hydrogen Valley Declaration and SRM AP's recognition as the state's nodal agency for green hydrogen — extend this commitment from campus operations into research, policy and public engagement.

Continued investment in renewable capacity, efficiency retrofits, sustainable mobility, and research translation will remain central to SRM University–AP's contribution to SDG 7 in the years ahead.