



हरकोर्ट बटलर प्राविधिक विश्वविद्यालय

नवाबगंज, कानपुर - 208002, उ.प्र., भारत

HARCOURT BUTLER TECHNICAL UNIVERSITY

NAWABGANJ, KANPUR - 208002, U.P., INDIA

(Formerly Harcourt Butler Technological Institute, Kanpur)

Phone : +91-0512-2534001-5, 2533812, website : <http://www.hbtu.ac.in>, Email : vc@hbtu.ac.in

100+
YEARS
1921 - 2021



SDG 7: Affordable and Clean Energy

(Ensuring Access to Affordable, Reliable, Sustainable & Modern Energy)

1. Introduction

Harcourt Butler Technical University (HBTU), Kanpur, reaffirms its commitment to sustainable development through targeted actions aligned with the United Nations Sustainable Development Goal 7 (SDG 7) — **to ensure access to affordable, reliable, sustainable, and modern energy for all**. This report elaborates on the university's initiatives contributing to specific SDG 7 targets and indicators, demonstrating a holistic approach to creating a sustainable and energy-efficient campus. It also proposes further steps to broaden the impact.

2. Current Actions and Initiatives Aligned with SDG 7 Indicators

Target 1: Ensure universal access to affordable, reliable and modern energy services by 2030

Initiatives at HBTU

- **100% Campus Electrification with LED:** All lighting fixtures on campus have been converted to LED technology, significantly reducing energy consumption.
- **Energy-Efficient Appliances:** Systematic replacement of energy-intensive devices with BEE STAR-rated equipment in hostels, laboratories, offices, and residences.
- **Uninterrupted Power Supply:** Power backup systems in critical labs and administrative blocks.

Indicators Addressed

- Proportion of population with access to electricity (100% coverage at institutional level).
- Proportion relying on clean energy for lighting and basic energy needs (LEDs, energy-efficient systems).

Target 2: Increase the share of renewable energy in the energy mix

Initiatives at HBTU



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- **On-Grid Solar Rooftop Systems:** Solar panels installed on various campus buildings including academic blocks, hostels, and guest houses. [Installed capacity to be specified]
- **Annual Renewable Energy Output:** Solar panels generate a significant share of the campus's energy requirements, reducing dependence on grid electricity and fossil fuels.
- **Renewable Energy Awareness:** Students participate in solar energy research, design challenges, and innovation competitions.

Indicators Addressed

- Renewable energy share in total final energy consumption (campus-level).

Target 3: Double the global rate of improvement in energy efficiency

Initiatives at HBTU

- **LED Conversion:** LED lighting has reduced energy use for lighting by approximately [Insert % reduction].
- **Sensor-Based Automation:** Occupancy and motion sensors installed in classrooms, labs, and offices.
- **Smart Timers for Street Lights:** Reduction in wastage of electricity in public areas.
- **Regular Energy Audits:** Conducted to identify areas for improving efficiency.

Indicators Addressed

- Energy intensity measured by energy consumption per student/area/building.

Target 4: Enhance international cooperation and access to clean energy technology and research

Initiatives at HBTU

- **Encouragement of Research and Innovation:** Research projects focusing on renewable energy and smart grid technologies in collaboration with agencies like DST, MNRE.



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- **Student Projects:** Final year and postgraduate students are encouraged to take up solar and bio-energy-based projects.
- **Workshops and Seminars:** Conducted with national and international experts in clean energy.

Indicators Addressed

- Institutional-level cooperation in clean energy technology (research papers, seminars, funded projects).

Target 5: Expand infrastructure and upgrade technology for sustainable energy services

Initiatives at HBTU

- **Green Infrastructure Planning:** New buildings are designed to meet green building norms (GRIHA/IGBC).
- **Retrofitting of Buildings:** Insulated roofing, low-power HVAC systems, reflective window glazing.
- **Battery Storage Systems:** Proposed for seamless integration with solar power.
- **EV Charging Stations:** Planned for future installation with incentives for staff/students to adopt electric vehicles.
- **Daylight Harvesting:** Maximization of natural light in new buildings.

Indicators Addressed

- Installed renewable energy capacity and sustainable energy infrastructure (campus level).

3. Proposed Initiatives for Strengthening SDG 7 Implementation at University Level

Proposed Initiative	Suggested Indicator
Campus-wide real-time energy monitoring dashboards	Energy consumption per block, hourly monitoring



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Solar-powered water heating in hostels	Reduced LPG/electricity use for water heating
Pilot biogas plant using hostel food waste	Biogas output (m ³ /day), reduced organic waste volume
Solar cookers for mess kitchens	% of meals cooked using solar energy
Energy efficiency awards for departments	Annual department-wise reduction in energy consumption
Partnership with energy tech startups	No. of MoUs, collaborative prototypes developed
Student-led Energy Conservation Club	No. of campaigns/events, student participation
Mandatory green orientation module for all new students	% students trained annually in energy literacy

4. Monitoring and Evaluation Framework

To ensure that progress on SDG 7 goals is measurable, data-driven, and continuous, HBTU proposes a comprehensive Monitoring and Evaluation (M&E) Framework with the following pillars:

- Annual Energy Audits:** Certified assessments to evaluate total and departmental energy usage and identify areas for savings.
- Digital Energy Dashboards:** Real-time monitoring through smart meters installed in key buildings for transparent usage tracking.
- Carbon Emissions Tracking:** Annual reporting of GHG emissions per capita and per building to evaluate sustainability impact.
- Renewable Energy Metrics:** Monitoring daily and annual energy generation from solar systems and calculating performance ratios.
- Energy Efficiency KPIs:** Benchmarks such as kWh per student, energy cost savings, and intensity per building area.
- Awareness and Participation:** Tracking involvement in energy literacy programs, student-led initiatives, and workshops.
- Feedback Mechanism:** Institutional review via an Energy Sustainability Committee to revise strategies based on performance.
- Reporting and Transparency:** Publishing an annual SDG 7 report with visual data and insights for stakeholders and audits.

5. Summary



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HBTU Kanpur stands as a beacon of sustainability by integrating clean energy into its operations and culture. Its focused efforts across multiple targets of SDG 7 reflect its strategic vision of becoming a **Net-Zero Energy Campus**. By adopting further innovations and strengthening collaboration, HBTU can contribute meaningfully not only to national energy goals but also to the global agenda for clean and affordable energy.