SDG - 7 Affordable and Clean Energy
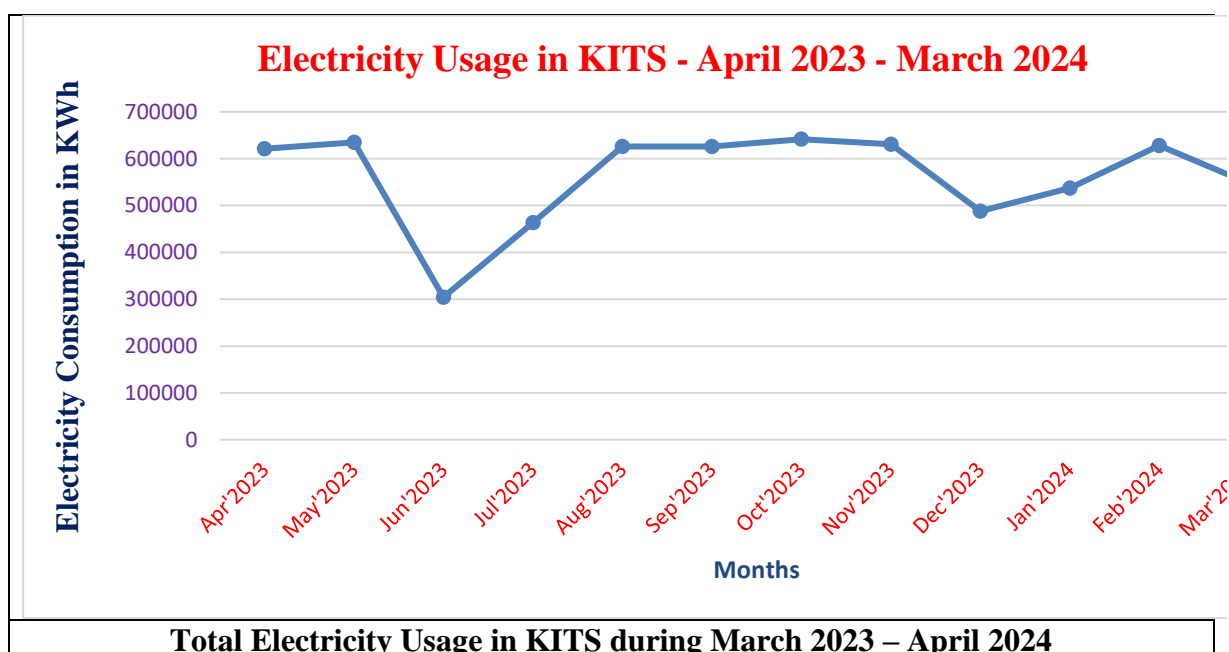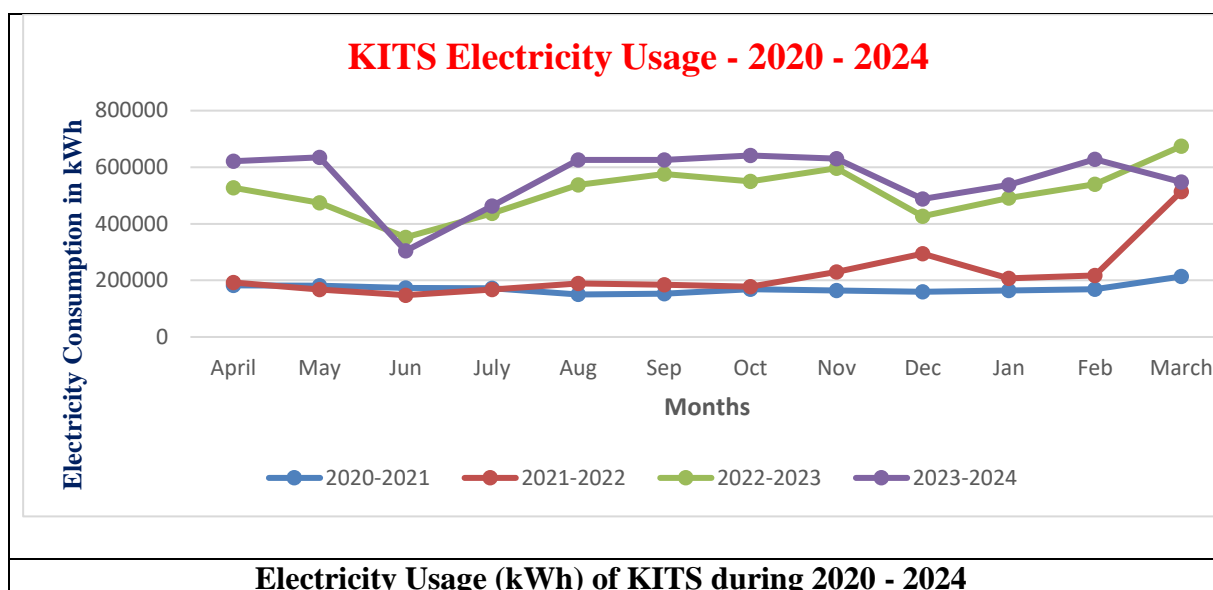
7.2.4 Plan to reduce energy consumption. Have an energy efficiency plan in place to reduce overall energy consumption

KITS has installed solar PV systems, solar water heaters and waste to energy conversion plants. Energy efficiency criteria have been followed for lighting and other appliances. Green audit is carried out regularly. With the support of this policy, efforts will be taken to reduce greenhouse gas emission and support the environment to improve the climate. The Institution is committed to zero emission from the Campus to be achieved by 2060.

Sl.No	Energy Efficient Appliances	
1	Conversion of conventional Tube lights & Street lights to LED Tube lights & LED Street lights	97%
2	Star Rated Air conditioners	65%
3	Energy Efficient Computers	55%
3	Passenger & Goods Lifts	65%
4	Motors & Pumps controlled through wireless water level controller & Capacitors for Energy savings	95%
	Average in Total	**75.4 %**

Total Electricity Usage in KITS during March 2023 – April 2024

Electricity Usage (kWh) of KITS during 2020 - 2024

The total electricity usage of Karunya Institute of Technology and Sciences (KITS) during **April 2023 to March 2024 is 67,48,167 kWh**. It include the power consumption through Electricity Board (EB) and GenSet. On the main campus area, electricity is used for lighting, cooling, heating and laboratory purposes.

Energy Consumption during March 2023 - April 2024

Sl.No	Month	Electricity Consumption in kWh
1	Apr'2023	620978
2	May'2023	634642
3	Jun'2023	304255
4	Jul'2023	463100
5	Aug'2023	626315
6	Sep'2023	626004
7	Oct'2023	641491
8	Nov'2023	630763
9	Dec'2023	487955
10	Jan'2024	537387
11	Feb'2024	627956
12	Mar'2024	547321
Total		**67,48,167**

Energy and Carbon Management Policy

PREAMBLE

Karunya Institute of Technology and Sciences (KITS) recognizes energy efficiency and carbon management as fundamental responsibilities in the pursuit of sustainable development. In line with its Vision and Mission, the Institute is committed to achieve carbon neutrality, conserving energy resources and aligns with India's Nationally Determined Contributions (NDCs) under the Paris Climate Agreement.

KITS seeks to integrate sustainable practices into academic, research and operational processes

while ensuring compliance with UGC, AICTE, ABET, ISO 50001 (Energy Management Systems), ISO 14001 (Environmental Management Systems), and UN Sustainable Development Goals (SDG 7: Affordable and Clean Energy, SDG 12: Responsible Consumption, and SDG 13: Climate Action).

RATIONALE

The rapid pace of climate change and the growing energy demands of higher education institutions necessitate a structured and accountable approach to energy and carbon management. KITS recognizes this responsibility to:

- **National & International Mandates**: Align with UGC's Green Campus initiatives, AICTE's sustainability guidelines, ISO 50001, ISO 14001 and ABET's environmental sustainability outcomes.
- **Climate Responsibility**: Support India's National Action Plan on Climate Change (NAPCC) and NDCs by reducing campus-based carbon emissions.
- **Resource Efficiency**: Optimize energy use across academic, administrative, and residential facilities.
- **Innovation & Leadership**: Foster research and innovation in renewable energy, green technologies, and energy-efficient infrastructure.
- **Equity & Inclusion**: Ensure sustainable practices that benefit not only the campus but also surrounding communities.
- **Infrastructure:** All new buildings and major renovations to adhere to national energy efficiency standards (ECBC/GRIHA/IGBC) ensuring sustainable design and reduced carbon footprint.
- **Alignment with India's NDCs**: KITS commits to contributing to India's nationally determined climate goals under the Paris Agreement by:
  i. Reducing KITS carbon emissions per student, staff, and research output in a structured manner, contributing proportionally toward India's national target of a 45% reduction in emissions intensity by 2030 (from 2005 levels)
  ii. Increasing its reliance on renewable energy sources to support India's target of 50% non-fossil fuel capacity by 2030.
  iii. Undertaking large-scale tree plantation and green cover expansion projects that contribute to India's pledge of creating 2.5–3 billion tonnes of CO_2 equivalent carbon sink by 2030.
  iv. Progressively moving towards net-zero emissions by 2070, in alignment with India's long-term climate strategy announced at COP26, Glasgow.

This rationale ensures that the policy is not only aspirational but also grounded in national and global climate frameworks, thereby reinforcing KITS's commitment to inclusive growth, sustainable development, and responsible citizenship.

EXECUTIVE SUMMARY

This policy establishes KITS's commitment to energy conservation and carbon neutrality through structured programs, performance monitoring and awareness campaigns.

The salient features of this policy are summarized as follows:

1. Alignment with UGC Green Campus Guidelines, AICTE Sustainability Framework, ISO standards, UN SDGs (7, 12, and 13), and India's NDCs.
2. Achievement of a zero fossil fuel target on campus by 2040 through progressive adoption of renewable energy.
3. Annual reviews by Energy and SDG Teams to ensure accountability and compliance.

4. Integration of sustainable practices into teaching, research, operations and outreach.
5. Establishment of transparent monitoring, grievance redressal, and continuous improvement mechanisms.
6. Comprehensive financial planning and resource allocation, including mobilization of external funding for sustainability projects.
7. Direct contribution to India's Updated NDC (2022), including non-fossil energy adoption, emission intensity reduction, and carbon sink enhancement.
8. Implementation of green infrastructure standards such as GRIHA (Green Rating for Integrated Habitat Assessment), LEED (Leadership in Energy and Environmental Design), and ECBC (Energy Conservation Building Code) in all new construction and renovation projects.
9. Engagement of stakeholders through curriculum integration, staff training, and student-led sustainability initiatives.
10. Data transparency through publication of annual sustainability reports benchmarked against global indices.
11. Promotion of research and innovation in energy efficiency technologies.
12. Integration of green procurement, waste-to-energy systems, and lifecycle sustainability practices across operations.

PURPOSE AND SCOPE

The purpose of this policy is to:

1. Ensure energy efficiency and carbon reduction across all institutional activities.
2. Promote awareness of energy conservation among stakeholders.
3. Align with national and international energy and environmental standards.
4. Support India's climate goals and UN SDG targets.
5. Foster a sustainable institutional ecosystem.

This policy applies to:

- All KITS students, staff, faculty, and community participants.
- On-campus and off-campus facilities, including hostels, laboratories, and administrative units.
- All contractors, vendors, and partners working with the Institute.

DOCUMENT CONTROL & REVISION HISTORY

Policy Title	Energy and Carbon Management Policy
Reference Number	KITS/ECMP/2025/01
Version	1.0
Issue	02
Policy Created on	July 2022
Revision History	Revised on 29th August 2025 (28th IQAC Meeting).
Responsible Executives	Vice-Chancellor and Director (Quality Assurance & Accreditation)
Responsible Office	Internal Quality Assurance Cell (IQAC)
Policy Review Frequency	Policy shall be reviewed every three years, or earlier if required by UGC, AICTE, ISO or other regulatory authorities.

The policy is described in the following articles

ARTICLE 1

STATEMENT OF POLICY

KITS is committed to integrate sustainability into all academic, administrative, and community practices. KITS recognizes that energy conservation and carbon reduction are not only compliance requirements but also moral and social responsibilities.

- **Carbon Neutrality Goal**: KITS shall achieve carbon neutrality by 2040 through a structured roadmap, supported by renewable energy adoption, behavioural transformation and continuous innovation.
- **Integration across functions**: Energy and carbon management shall be embedded across teaching, research, community outreach, and administrative functions.
- **Multi-Stakeholder Responsibility**: Students, faculty, staff, contractors, and community partners shall actively contribute towards energy efficiency and carbon reduction.
- **Alignment with Standards**: KITS shall comply with UGC, AICTE, ISO 50001, ISO 14001, and ABET standards to ensure quality and sustainability in operations.
- **Transparency and Accountability**: Annual performance reviews shall be conducted, published, and benchmarked against global sustainability best practices.
- **Financial Commitment:** KITS shall allocate necessary resources and develop a financial strategy to support renewable energy projects, energy efficiency measures, and sustainable infrastructure, while progressively divesting from carbon-intensive energy industries and promoting green investment opportunities.

- **Fossil Fuel Divestment Policy:** KITS shall adopt a responsible investment approach by progressively divesting institutional funds from carbon-intensive energy industries, especially coal and oil. The institution shall prioritize investments in renewable energy, green technology, and low-carbon sectors, ensuring alignment with India's climate goals, global sustainability frameworks, and ethical financial practices.

ARTICLE 2

POLICY OBJECTIVES

This policy aims to:

- Minimize greenhouse gas emissions and fossil fuel dependence.
- Optimize energy use in infrastructure, laboratories, and hostels.
- Support renewable energy integration (solar, wind, bio-energy).
- Encourage behavioral change among stakeholders through awareness and training.
- Benchmark against global sustainability standards.
- Ensure compliance with India's Nationally Determined Contributions (NDCs) and related national energy policies

ARTICLE 3

POLICY PRINCIPLES

The Institute ensures to implement the following principles for effective Energy and Carbon Management Policy.

3.1 Energy Conservation

KITS shall prioritize energy-efficient practices in lighting, cooling, heating, and equipment usage. Energy audits shall be conducted annually to identify areas of wastage, and corrective measures shall be implemented promptly.

3.2 Renewable Energy Integration

KITS shall maximize the use of renewable energy sources such as solar, wind, and bio-energy. Rooftop solar panels, micro-grids, and hybrid renewable systems shall be progressively installed to meet campus requirements.

3.3 Sustainable Infrastructure

All construction projects shall adhere to green building certification standards (GRIHA/LEED/ECBC). Rainwater harvesting, natural ventilation, and thermal insulation shall be mandated in all new facilities.

3.4 Energy-Efficient Infrastructure

All new constructions, renovations, and retrofits within the KITS campus shall comply with Energy Conservation Building Code or equivalent energy-efficient building standards, ensuring optimal design for lighting, ventilation, insulation, and renewable integration.

3.5 Awareness & Training

Institution-wide campaigns shall be launched to promote energy-saving behavior. Orientation sessions for students and training for staff and contractors shall ensure consistent implementation of sustainability practices.

3.6 Inclusivity & Community Engagement

Local communities shall be involved in awareness programs and benefit from campus-driven renewable projects. Initiatives like solar-powered community lighting and rural electrification pilots shall extend KITS's role beyond its campus.

3.7 Transparency & Accountability

KITS shall publish annual sustainability reports highlighting energy use, carbon emissions, and progress towards neutrality. These reports shall be reviewed by IQAC and shared with stakeholders.

ARTICLE 4
ROLES & RESPONSIBILITIES

To ensure the effective implementation of this Energy and Carbon Management Policy, the following responsibilities are assigned:

1. **Vice-Chancellor**
   - Provides strategic leadership to align the Energy and Carbon Management Policy with the institution's vision and mission.
   - Authorizes major initiatives and chairs annual performance reviews to monitor progress toward carbon neutrality goals.
2. **Registrar**
   - Oversees official policy adoption and ensures institutional compliance with national/international standards.
   - Maintains documentation under controlled records to satisfy audit and accreditation requirements.
3. **Internal Quality Assurance Cell (IQAC)**
   - Sets sustainability benchmarks and integrates them into the institutional quality framework.
   - Conducts periodic reviews and prepares compliance reports for governing bodies, UGC, AICTE, and ISO audits.
4. **Chief Engineer (Construction & Maintenance)**
   - Leads the implementation of renewable energy systems, green construction practices, and infrastructure upgrades.
   - Coordinates with vendors and contractors to ensure energy-efficient project execution.
5. **Finance Officer**
   - Develops and maintains the institutional financial plan to support sustainability initiatives.
   - Allocates budget provisions for renewable energy projects, energy-efficient infrastructure, and carbon reduction programs, ensuring transparent reporting.
6. **Energy & SDG Teams**
   - Conduct carbon footprint studies, track energy consumption patterns, and prepare sustainability dashboards.
   - Design and execute campus-wide campaigns for behavioural transformation in energy use.
7. **Faculty and Students**
   - Faculty embed sustainability modules into curricula and research.
   - Students actively participate in green clubs, energy audits, hackathons, and eco-projects.
8. **External Stakeholders & Contractors**
   - Vendors and contractors must comply with KITS's green procurement policy.
   - Contractors must follow institutional energy efficiency guidelines during construction and maintenance.

ARTICLE 5
MONITORING & EVALUATION

5.1 Identification of Deficiencies

Deficiencies in energy management, such as high consumption zones, equipment

inefficiencies, or poor compliance, shall be identified through audits, IoT-based monitoring, and stakeholder feedback.

5.2 Reporting Mechanism

Divisions must submit quarterly energy consumption reports to the Chief Engineer, who shall consolidate findings for IQAC. Any non-compliance or abnormal usage shall be escalated to the Registrar and Vice-Chancellor.

5.3 Corrective Measures

Issues identified shall be classified as minor (quick fixes), major (requiring infrastructure upgrade), or critical (requiring immediate management action). Corrective timelines and responsibilities shall be assigned.

5.4 Outcomes and Documentation

All corrective actions shall be documented in an institutional Energy & Carbon Register. The outcomes shall be verified in subsequent audits to ensure accountability and continuous improvement.

5.5 Financial Planning

KITS shall develop a detailed financial plan to support the implementation of sustainability initiatives. This plan shall outline funding sources, budget allocations, cost-benefit analyses for energy efficiency and renewable energy projects, and provisions for long-term maintenance of sustainable infrastructure.

5.6 Review & Continuous Improvement

The policy shall be reviewed every three years, or earlier if required by UGC, AICTE, or ISO. The PDCA (Plan–Do–Check–Act) cycle will guide updates, and benchmarking against global sustainability rankings (THE Impact Rankings, UI GreenMetric, QS Sustainability) shall ensure excellence. The review shall also consider recommendations from external stakeholders, regulatory bodies, and accreditation agencies

ARTICLE 5A
APPEALS PROCESS

- **Right to Appeal: If a learner, faculty, or stakeholder is not satisfied with the decision of the Energy & Carbon Policy grievance or corrective action, they may submit a written appeal to the Registrar within 10 working days of receiving the resolution.**
- **Resolution Timeline: The Registrar will review the appeal and provide a written response within 15 working days.**
- **Documentation: All appeals, proceedings, and resolutions will be formally recorded and maintained under institutional records, in alignment with Article 5.4: Outcomes and Documentation.**

- **Non-Retaliation: No individual shall face retaliation, bias, or disadvantage for exercising the right to appeal (see Article 6.5: Non-Retaliation).**

ARTICLE 6
VIOLATIONS

Violations of this policy shall be taken seriously and addressed proportionately:
1. Students: Shall face counseling, warnings, or suspension from activities for non-compliance (e.g., misuse of energy resources).
2. Staff/Faculty: Shall be subject to performance review notes, mandatory retraining, or disciplinary action.
3. Contractors/Vendors: Breaches of sustainability clauses in contracts shall result in penalties, suspension, or blacklisting.
4. Severe Cases: Repeated or intentional violations shall be escalated to statutory bodies (UGC, AICTE, or relevant regulatory authorities).
5. Non-Retaliation: Stakeholders who report violations in good faith are protected from discrimination, intimidation, or adverse action. Retaliation itself shall be treated as a violation of this policy.

References

1. India's Updated First Nationally Determined Contribution Under Paris Agreement (2021-2030)

https://unfccc.int/sites/default/files/NDC/2022-08/India%20Updated%20First%20Nationally%20Determined%20Contrib.pdf
2. National Action Plan for Climate Change & Human Health, Ministry of Health & Family Welfare, Government of India

https://ncdc.mohfw.gov.in/wp-content/uploads/2024/04/27505481411548674558.pdf
3. ISO 50001:2018 – Energy Management Systems
4. ISO 14001:2015 – Environmental Management Systems
5. UGC Green Campus Guidelines (2023)
6. AICTE Approval Process Handbook (Sustainability Section)
7. ABET Accreditation Criteria – Sustainability Outcomes
8. UN SDG 7, 12, 13 – Affordable and Clean Energy, Responsible Consumption, and Climate Action
9. Energy Conservation Act, 2001 (amended 2022)

Definitions
For the purpose of this policy, the following terms are defined to ensure clarity and consistency in interpretation:
1. Carbon Neutrality: Net-zero carbon emissions achieved through reduction and offset measures.
2. Energy Efficiency: Using less energy to provide the same service.
3. Renewable Energy: Energy derived from natural resources (solar, wind, hydro, biomass) that are replenished sustainably.

4. Carbon Footprint: The total greenhouse gas emissions caused by an individual, institution, or activity.
5. Deficiency: Any gap in achieving energy or carbon reduction goals.
6. Net Zero: A state where greenhouse gas emissions are balanced by removals or offsets, resulting in no net increase in atmospheric concentrations
7. Green Procurement: purchasing policy favouring sustainable goods/services.
8. Lifecycle Assessment (LCA): Evaluation of environmental impact of materials/equipment.
9. Non-Retaliation: Protection provided to any stakeholder who, in good faith, reports a violation without facing discrimination or adverse action.

Abbreviations

Acronym	Full Form
ABET	Accreditation Board for Engineering and Technology
AICTE	All India Council for Technical Education
ECBC	Energy Conservation Building Code
GRIHA	Green Rating for Integrated Habitat Assessment
GDP	Gross Domestic Product
GHG	Greenhouse Gas
ICT	Information and Communication Technology
IQAC	Internal Quality Assurance Cell
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
LEED	Leadership in Energy and Environmental Design
MoHFW	Ministry of Health and Family Welfare
NAPCC	National Action Plan on Climate Change
NCDC	National Centre for Disease Control
NDC	Nationally Determined Contribution
PDCA	Plan–Do–Check–Act
PV	Photovoltaic
QAA	Quality Assurance & Accreditation
SDG	Sustainable Development Goal
UGC	University Grants Commission
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change

ANNEXURE: POLICY ALIGNMENT WITH INDIA'S NDCs (2022 UPDATE)

KITS Policy Action	Corresponding India's NDC Goal (2022 Update)	Institutional Commitment
Adoption of renewable energy (solar PV, wind, bio-energy)	Achieve about 50% cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030	KITS commits to progressively expand renewable energy capacity on campus. Interim milestones (e.g. 50% of campus energy from non-fossil by 2030, 80% by 2035), with the ambition of full reliance by 2040, subject to feasibility.
Reduction of campus energy intensity through audits, smart meters, and efficient infrastructure	Reduce the emissions intensity of its GDP by 45% by 2030, from 2005 level	While GDP-intensity is a national metric, KITS contributes institutionally by reducing its energy use per student/research output through continuous monitoring, audits, and

		adoption of energy-efficient technologies.
Large-scale tree plantation and green cover initiatives on campus	Create an additional carbon sink of 2.5 to 3 billion tonnes of CO_2 equivalent through additional forest and tree cover by 2030	KITS enhances its campus biodiversity and carbon sequestration capacity via afforestation, reforestation, and green landscaping.
Awareness, training, and student-led green clubs	Promote a sustainable lifestyle and climate justice through climate education, citizen participation, and sustainable practices	KITS integrates sustainability into teaching, training, and student activities, creating long-term behavioral change aligned with national climate education goals.
Net Zero target for KITS campus by 2040	India to achieve Net Zero by 2070	KITS shall achieve Net Zero by 2040, three decades ahead of India's 2070 commitment, thus serving as a model campus for higher education climate leadership