Indian Institute of Technology Hyderabad's Policy

to become a

Net Zero Campus by 2040

(NZP)

INDIAN INSTITUTE OF TECHNOLOGY HYDERABAD

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1. Preamble

Climate change poses an urgent and complex challenge that demands leadership, innovation, and decisive institutional action. As a national hub for knowledge and technology, **IIT Hyderabad (IITH)** is committed to addressing this global crisis through a bold vision of sustainability.

This **Net-Zero Policy** affirms IITH's commitment to transforming its campus into a **Net-Zero Campus by 2040**. The initiative seeks to embed environmental responsibility across all domains—**academic programs, research, infrastructure, operations, and community involvement**—creating a resilient and resource-efficient living laboratory.

The policy outlines a comprehensive framework for emissions reduction, resource optimization, and long-term climate accountability. It addresses critical impact areas, including **energy, carbon, water, waste, and sustainable mobility**, in accordance with national goals and global best practices.

Aligned with the **UN Sustainable Development Goals (SDGs)**, the **Paris Agreement**, and **India's Net-Zero Target for 2070**, IITH's vision is to accelerate climate action by innovating and adopting sustainable technologies and **achieving Net Zero by 2040.**

Through this policy, IITH not only reinforces its environmental commitments but also positions itself as a leading force in shaping sustainable campuses and responsible innovation in higher education.

2. Vision Statement

"To establish IITH as a national and global benchmark for climate-resilient campuses by 2040—achieving Net-Zero emissions through innovation in clean energy, circular resource systems, and integrated sustainability across education, research, and operations."

3. Net-Zero Objectives

IITH sets forth the following strategic objectives to guide its transition into a Net-Zero campus by 2040:

- **Achieve Net-Zero greenhouse gas (GHG) emissions**, encompassing Scope 1, Scope 2, and selected Scope 3 categories, through targeted reduction, replacement, and offsetting strategies.
- **Transition to a fully renewable energy-powered campus**, with over 95% of energy needs met by solar and other clean sources, supported by storage and energy optimization systems.
- **Eliminate the use of fossil fuels** across all campus functions, replacing diesel and LPG in kitchens, generators, and transport with electric and sustainable alternatives.
- **Attain water neutrality** by ensuring 100% wastewater is treated and reused, complemented by rainwater harvesting and advanced metering for conservation.
- **Achieve zero waste-to-landfill** by implementing robust composting, biogas generation, material recovery, and circular procurement practices.
- **Decarbonize campus mobility** by fully electrifying the vehicle fleet and promoting non-motorized and shared transport solutions.
- **Enhance the campus carbon sink capacity** by planting over 100,000 native and adaptive trees, integrating green infrastructure such as rooftop gardens and agroforestry.
- **Embed sustainability into institutional culture** by integrating Net-Zero principles into teaching, research, innovation, and stakeholder engagement.
- **Adopt and maintain compliance** with internationally recognized standards, including ISO 14001 (Environmental Management), ISO 14064 (GHG Accounting), ISO 50001 (Energy Management), and IWA 42:2022 (Net-Zero Framework for Institutions).

- **Establish a transparent and accountable monitoring system**, using science-based targets, public reporting, and continuous third-party validation in line with frameworks such as GRI, CDP, and ESG indices.

4. Scope

This policy encompasses the entire operational, academic, and infrastructural ecosystem of **IITH**, ensuring a holistic transition toward Net-Zero emissions by 2040.
It applies to:

- **All physical infrastructure** on campus, including academic blocks, research laboratories, hostels, administrative buildings, canteens, and open spaces.
- **Operational activities** such as teaching, research, construction, utilities, maintenance, procurement, transport, and food services.
- **All categories of greenhouse gas emissions**, including:
  - **Scope 1**: Direct emissions from on-site fuel use and institutional activities.
  - **Scope 2**: Indirect emissions from purchased electricity.
  - **Scope 3**: Selected indirect emissions from commuting, supply chains, and embodied carbon in construction.

The policy is binding on **all individuals and entities associated with the campus**, including students, faculty, staff, researchers, service providers, vendors, contractors, and visitors. Through this comprehensive scope, the policy ensures that **every aspect of campus life and operations contributes meaningfully to the Net-Zero vision**

5. Strategic Pillars of the Policy

IITH's journey toward Net-Zero by 2040 is guided by seven strategic pillars. These pillars reflect a systems-based approach that integrates decarbonization, resource efficiency, stakeholder participation, and technological innovation into the fabric of campus life. These strategic pillars ensure that the transition to a Net-Zero campus is **data-driven, inclusive, scalable**, and **aligned with both national mandates and global climate goals**.

5.1 Clean and Renewable Energy Transition

- Expand renewable energy capacity, targeting over **18 MW of solar generation** and **5 MWh of battery storage**, reducing reliance on fossil fuels by 2030 and further enhance the capacity as the need arises in the future.
- Electrify all energy-consuming systems, including kitchens, laboratories, and thermal utilities, phasing out diesel generators and LPG use.
- Work toward complete grid independence through hybrid and distributed energy systems.

5.2 Energy Efficiency and Smart Infrastructure

- Retrofit buildings with **LED lighting, BLDC fans, and high-efficiency HVAC systems**.
- Implement **IoT-based metering**, smart dashboards, and **Building Management Systems (BMS)** for real-time energy optimization.
- Adopt **passive design strategies** and low-embodied carbon materials in construction aligned with **GRIHA/LEED** standards.

5.3 Water Conservation and Reuse

- Attain **100% rainwater harvesting coverage** and maximize groundwater recharge.
- Reuse all treated wastewater in landscaping, flushing, and utilities.

- Deploy **smart metering, leak detection, and AI-based water management tools** to monitor usage and efficiency.

5.4 Circular Waste Management

- Achieve **zero waste-to-landfill by 2030** through comprehensive segregation, composting, biogas production, and recycling systems.
- Establish **Material Recovery Facilities (MRFs)** and safe disposal protocols for biomedical, e-waste, and hazardous waste.
- Integrate **life cycle assessment and circular procurement** into campus planning and procurement processes.

5.5 Sustainable Mobility and Transportation

- Electrify 100% of the institute's internal vehicle fleet by 2030.
- Develop infrastructure for **solar-powered EV charging**, and improve accessibility through **cycling lanes, shaded walkways**, and pedestrian zones.
- Promote **shared mobility solutions** and reduce commuting-related emissions.

5.6 Nature-Based Solutions and Carbon Sequestration

- Enhance green cover through the planting of **100,000 native and adaptive trees** using dense plantation methods like Miyawaki.
- Implement **green roofs, vertical gardens**, and agro-photovoltaic installations to increase carbon absorption and microclimatic resilience.
- Explore verified **carbon offset mechanisms** for residual emissions, including forest-based and soil carbon projects.

5.7 Governance, Monitoring, and Standards Compliance

- Establish a **Net-Zero Steering Committee**, chaired by the Director, to oversee strategic planning, implementation, and reviews.
- Monitor emissions and sustainability performance through **science-based targets**, annual reporting, and **third-party audits**.
- Align all efforts with globally recognized standards such as **ISO 14001 (Environmental Management)**, **ISO 14064 (GHG Accounting)**, **ISO 50001 (Energy Management)**, and **IWA 42:2022 (Net-Zero Framework)**.

6. Governance and Responsibility

Effective governance is essential for translating IITH's Net-Zero vision into measurable outcomes. The implementation of this policy will be driven by a structured, multi-level framework that clearly defines roles, responsibilities, and accountability across the institute. This structured governance approach ensures that Net-Zero implementation is **institutionalized, participatory, and performance-oriented**, enabling a unified campus-wide transformation toward environmental excellence.

6.1 Governance Framework

The Net-Zero Governance Model consists of three core tiers:

Entity	Key Roles and Responsibilities
Director and Board of Governors	Provide strategic oversight, approve institutional policies, and allocate resources to support Net-Zero initiatives.

Net-Zero Steering Committee	Lead the development and execution of the Net-Zero roadmap, coordinate cross-departmental actions, and conduct performance reviews.
Sustainability Office (GSS)	Facilitate policy execution, collect and analyze environmental data, manage internal training and awareness programs, and support research-led innovation.

6.2 Operational Roles

Each administrative and academic unit plays a critical role in localizing and operationalizing Net-Zero actions.

Stakeholder Group	Responsibilities
Facilities & Engineering Dept.	Execute energy retrofits, maintain water and waste systems, and ensure infrastructure aligns with Net-Zero goals.
Academic and Administrative Heads	Appoint departmental Sustainability Leads, embed sustainability in curricula, and oversee local compliance with Net-Zero protocols.
Students, Faculty, and Staff	Participate in behavioral change initiatives, energy conservation practices, and sustainability awareness campaigns.
Contractors and Vendors	Adhere to green procurement policies and support IITH's sustainability standards during project execution and service delivery.

6.3 Departmental Sustainability Leads

- Each department and unit shall designate a **Sustainability Lead** responsible for:
- Coordinating Net-Zero-related activities at the department level.
- Monitoring compliance with operational procedures and reporting key metrics.
- Acting as a liaison between the Sustainability Office and local stakeholders.

7. Integration with Education, Research & Innovation

At IITH, the transition to a Net-Zero campus is envisioned not only as an operational goal but also as a transformative academic mission. The institute recognizes that true sustainability leadership must be cultivated through knowledge generation, capacity building, and community engagement. By embedding sustainability across education, research, and innovation, IITH aims to create a **generation of thought leaders and practitioners** who can drive climate solutions at scale—within and beyond academia.

7.1 Academic Integration

- Embed sustainability and climate literacy into core and elective courses across engineering, sciences, liberal arts, and design disciplines.
- Promote interdisciplinary learning by introducing modules on energy transition, carbon neutrality, circular economy, and sustainable development.

7.2 Research and Development

- Prioritize **funded research and doctoral theses** that support decarbonization, clean technologies, circular economy, and energy innovation.
- Host annual **Net-Zero Research Symposia** to present student and faculty-led breakthroughs.
- Establish **climate innovation labs** within research centers to prototype, test, and scale green solutions.
- Encourage publications and patents that contribute to national and global Net-Zero research literature.

7.3 Research and Innovation for Net-Zero

- Support faculty and student research focused on **clean energy, climate modeling, water optimization, low-carbon materials, smart systems, and policy innovation**.
- Encourage the incubation of green start-ups and climate-tech ventures through collaboration with innovation canters and industry partners.
- Utilize the campus as a **living laboratory**, allowing students and researchers to test and scale sustainable technologies in real-world conditions.

7.4 Capstone Projects, Fellowships & Hackathons

- Launch **Net-Zero capstone projects** to encourage students to co-develop solutions in energy, water, waste, and emissions management.
- Offer interdisciplinary **fellowships and internships** that integrate sustainability with technical and social innovation.
- Organize **sustainability hackathons, ideathons, and design challenges** that engage the campus community and external stakeholders.

7.5 Campus Engagement and Capacity Building

- Conduct regular **workshops, awareness campaigns, and training sessions** to enhance environmental responsibility among students, staff, and faculty.
- Develop educational resources such as **case studies, field guides, and dashboards** that showcase IITH's sustainability journey.
- Promote community outreach and school engagement programs that extend Net-Zero awareness beyond the campus.

8. Monitoring, Reporting & Review

To ensure accountability, transparency, and continuous improvement, IITH will establish a robust framework for tracking progress toward Net-Zero goals. Monitoring systems will be aligned with global standards and designed to enable data-driven decision-making across all strategic pillars. Through this structured approach to monitoring and evaluation, IITH commits to **maintaining credibility, fostering continuous improvement, and remaining accountable to its Net-Zero pledge**.

8.1 Performance Monitoring

- Deploy **smart sensors and digital dashboards** to monitor energy usage, water consumption, waste generation, and GHG emissions in real time.
- Conduct **periodic assessments and audits** of sustainability indicators, using internationally accepted methodologies such as **ISO 14064**, **ISO 50001**, and **GRI frameworks**.
- Maintain an internal data repository to track progress against defined Key Performance Indicators (KPIs) and science-based targets.

8.2 Reporting and Disclosure

- Publish an **Annual Sustainability Report** detailing achievements, challenges, and corrective actions in line with standards such as **GRI, CDP, and ESG indices**.
- Make sustainability performance data publicly available through an **interactive online dashboard**, promoting transparency and stakeholder engagement.
- Submit performance updates to **national and international academic sustainability rankings**, including **UI Green Metric**, **The Impact Rankings**, and others.

8.3 Internal and Third-Party Reviews

- Conduct **annual internal reviews** of Net-Zero programs by the Net-Zero Steering Committee and Sustainability Office.
- Engage **external experts and certified auditors** to validate GHG inventories, energy reports, and policy compliance every two years.
- Benchmark performance against **peer institutions and global best practices**, ensuring continuous evolution of the campus strategy.

8.4 Continuous Improvement

This policy shall undergo a **formal review every three years, or earlier** if necessitated by:

- Technological advancements
- Regulatory or policy changes
- Institutional restructuring
- Emerging scientific or environmental priorities

9. Compliance Standards

To ensure that the Net-Zero transition is measurable, verifiable, and aligned with global best practices, IITH will implement its policy in conformance with internationally recognized environmental and sustainability standards. By aligning with these standards, IITH ensures that its Net-Zero efforts are **credible, auditable, and globally interoperable**, while also supporting India's broader climate commitments and international cooperation.

The following frameworks will serve as guiding benchmarks for planning, execution, monitoring, and disclosure:

Standard / Framework	Area of Focus
ISO 14001:2015	Environmental Management Systems – for establishing, implementing, and improving environmental policies and practices.
ISO 14064:2018	Greenhouse Gas Accounting – for quantifying, monitoring, and reporting GHG emissions.
ISO 50001:2018	Energy Management Systems – for improving energy efficiency and reducing energy-related emissions.
IWA 42:2022	Net-Zero Guidelines for Organizations – for planning and implementing Net-Zero pathways in institutions.
GRI Standards	Sustainability Reporting – for structured and transparent public disclosure of sustainability performance.
CDP (Carbon Disclosure Project)	Voluntary disclosure of climate data for benchmarking and engagement with global investors and academia.
ESG Metrics (Environmental, Social & Governance)	Integration of Net-Zero efforts into institutional risk, ethics, and governance reporting.

10. Declaration

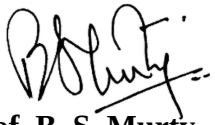
At IITH, we recognize that the climate crisis demands urgent, collective, and sustained action. Through this Net-Zero Policy, we affirm our institutional responsibility to lead by example—pioneering sustainable development within the higher education sector.

We commit to transforming our campus into a **climate-resilient, resource-efficient, and emissions-neutral ecosystem by 2040**. This will be achieved through science-based strategies, inclusive

governance, innovative technologies, and community engagement. Our approach is guided by the values of environmental stewardship, social responsibility, and academic excellence.

This policy is not merely a procedural document—it is a **call to action**. We invite our students, faculty, staff, partners, and alumni to join this shared journey toward a regenerative and just future.

Together, we shall build a **living laboratory of sustainability**, where learning and leadership converge to address the defining challenge of our time.



Prof. B. S. Murty
Director, IIT Hyderabad
Date: 12 April 2025

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Transforming challenges into opportunities, IITH envisions a greener future where innovation meets sustainability. Together, let us lead by example, creating a legacy of environmental responsibility for generation

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