



Affordable and Clean Energy



Sustainable Development Goals Report 2023

“After water and food, energy is one of the key enablers of human life. Energy is central to nearly every major challenge and opportunity the world faces today, and access to energy for all is essential. But energy needs to be available and affordable to all to allow future development, and it needs to be clean in order to ensure that the development can be sustainable.”

THE Impact Rankings





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STATISTICS

51,992.97 GJ

Total energy used

362,577 m²

University floor space

949

Number of publications
2019 - 2023



ITS Advances Clean Energy Policy Through Energy-Efficient Street Lighting

ITS has been implementing a comprehensive clean energy policy through smart LED street lighting technology, partnering with PT Panasonic Gobel Life Solutions Manufacturing. This initiative marks a significant shift in institutional energy management and policy development. The policy framework centres on three key elements: energy transition strategy, smart monitoring implementation, and industry collaboration.

The initiative combines technological innovation with practical energy management solutions through the Innovation and Science Technology Area (DIKST) ITS. The smart monitoring system enables real-time tracking of energy consumption and operational costs, providing valuable data for policy optimization. The integration of a smart system by Panasonic Indonesia creates a sustainable framework for long-term energy management. This collaboration extends beyond technology implementation to include knowledge transfer and ongoing system optimization. As the project progresses toward campus-wide implementation, it establishes a model for sustainable energy management in academic institutions, setting new standards for clean energy policy development in educational settings.



ITS Advances Integrated Community Energy Solutions Through Education and Innovation

ITS has been demonstrating how academic institutions can effectively merge technological advancement with community development through two groundbreaking renewable energy initiatives. These projects, located in Gresik and Batu City, showcase a comprehensive approach that combines technical expertise with community empowerment. The foundation of both initiatives lies in knowledge transfer and sustainable implementation.

In Daun Village, Gresik, ITS' Electrical Engineering team has installed a 550-watt on-grid photovoltaic system at Baitul Mu'minin Mosque, operating at 21.3% efficiency and providing crucial backup power. Simultaneously, in Pandanrejo Village, Batu City, the Physics Department has developed an Archimedes screw turbine-based micro-hydro power plant (PLTMH) that generates 360 watts of continuous power for smart greenhouse operations.

The economic and infrastructural benefits of these initiatives are already evident. Daun Village now benefits from both reliable solar power and enhanced digital connectivity through WiFi installation, supporting village digitalization efforts. In Pandanrejo, the PLTMH system powers an advanced greenhouse monitoring system for strawberry farming, enabling 24-hour control of crucial growing conditions and boosting agricultural productivity.

Looking forward, these successful implementations are paving the way for wider adoption. The PLTMH design is being refined to enhance flood resistance, with plans for expansion to other electricity-deficient areas. The collaborative approach, involving faculty members, students, and local communities from both the Electrical Engineering and Physics Departments, has created a replicable model for sustainable energy development.





Society of Renewable Energy ITS: Empowering Student-Led Sustainability

ITS' powerful student initiative has taken root in response to growing environmental challenges. The Society of Renewable Energy (SRE-ITS) emerged from students' shared commitment to bridging the gap between academic knowledge and practical applications in renewable energy development. SRE-ITS operates through four core programs: Introduction to Renewable Energy (Kenal EBT), Expert Seminars, Collaborative Studies, and Industry Visits. These activities create a comprehensive learning ecosystem where theoretical knowledge meets practical application. The organization's student-driven approach, supported by ITS' institutional framework, ensures sustainable knowledge transfer and community building.

What sets SRE-ITS apart is its dual impact: while developing future renewable energy leaders, it simultaneously contributes to Indonesia's sustainable development goals. The organization's success demonstrates how student initiatives when properly supported, can transform environmental consciousness into concrete action. Through SRE-ITS, ITS exemplifies how educational institutions can empower students to address global environmental challenges while preparing them for careers in the expanding renewable energy sector. SRE-ITS stands as a testament to how student passion, when coupled with institutional support, can create a lasting impact in renewable energy education and environmental sustainability.



Energy Efficiency Initiatives at ITS Utilizing Solar, Biodiesel, and Clean Biomass

ITS has established a formal commitment to environmental sustainability through Rector's Circular Letter No. T/95007/IT2/TU.00.08/2019, issued on November 18, 2019, which designates ITS as a "Sustainable and Environmentally-Conscious Campus." This policy framework specifically emphasizes technology-driven energy efficiency. It mandates the adoption of renewable energy across campus facilities, ensuring that all renovations and new construction projects adhere to high energy efficiency standards.

The implementation of this policy has yielded significant results in addressing climate change and sustainable resource utilization through building improvements. A key demonstration of this commitment is the successful integration of renewable energy sources, which collectively generate 216,605 kWh annually, distributed across:

- 1. Solar Power: 215,165 kWh/year (serving as the primary energy source)*
- 2. Clean Biomass: 240 kWh/year (through biogas and gasification)*
- 3. Biodiesel: 1,200 kWh/year*

These energy efficiency initiatives in building upgrades and renovations have proven effective in reducing energy consumption, resulting in decreased greenhouse gas emissions and more responsible resource utilization. The policy not only supports environmental sustainability goals but also generates substantial cost savings for the university while ensuring all campus development aligns with modern energy efficiency standards.

