# Annual Report

# on SDG 7 Affordable and Clean Energy

## 7.2 University measures towards affordable and clean energy

### 7.2.2 Does your university as a body have plans to upgrade existing buildings to higher energy efficiency?

Thaksin University (TSU) has formal plans for upgrading its existing buildings to higher energy efficiency. The plans are set by the Guidelines for Energy and Environmental Conservation of Thaksin University (15 June 2022) and the energy management policies of both campuses. Each campus has a dedicated energy management unit that prepares yearly upgrade plans, carries them out and reports the results. To date, 82.81% of the university's lighting and air-conditioning equipment has been upgraded to energy-efficient models.

1. **Planning framework**
   - Songkhla Campus. The campus is a designated controlled building under the Energy Conservation Promotion Act B.E. 2535 (amended B.E. 2550) and the Ministerial Regulation on Standards, Criteria and Methods for Energy Management in Factories and Controlled Buildings B.E. 2552 (2009). The Energy Conservation Unit of the Infrastructure Development Division therefore sets energy-saving targets and an improvement plan for existing buildings every year. The plan is carried out through the yearly Energy Conservation and Controlled Building Management Project. Results are published in the Annual Energy Management Report, issued every year since 2015, and are certified by DEDE-approved energy auditors.
   - Phatthalung Campus. The Energy Management Project of the Phatthalung Campus Administration Office works under the campus Energy Conservation Policy (2023). An appointed Energy Management Working Group carries out each plan.

Evidence:
https://adminpt.tsu.ac.th/energy/index.php.
https://adminpt.tsu.ac.th/energy/upload/menu/doc_20240627_144921.pdf

2. **Energy-efficient equipment replacement**

TSU is replacing conventional lighting and air-conditioning in its existing buildings with energy-efficient equipment, building by building. Current status:

- Lighting, 18 W class: 18,411 of 22,491 fixtures are LED (81.86%).
- Lighting, 36 W class: 7,102 of 8,762 fixtures are LED (81.05%).
- Air conditioners: all 2,145 units are energy-efficient models (100%).
- Total: 27,658 of 33,398 appliances are energy-efficient (82.81%).

The remaining 5,740 lighting fixtures (4,080 in the 18 W class and 1,660 in the 36 W class) are the next upgrade target and will be converted to LED under the yearly energy conservation plans. LED street lighting, including solar-powered streetlamps, has also been installed across the campuses.

**3. Building upgrades carried out under the plans**

- Rooftop solar on existing buildings. Solar PV systems totaling 983.4 kW were installed on six existing buildings at Phatthalung Campus: the Basic Engineering Building, Specialized Buildings 1 and 2, and Inthanin Buildings 3, 6 and 7. They have supplied electricity to campus operations since 1 November 2024. In May 2025 another solar PV system was installed at the Academic Service Promotion Institute, Phanang Tung, Phatthalung.
- Building envelope improvement. All curtains in the multi-function 1 (MF 1) building at Songkhla Campus were replaced with heat-blocking curtains at a cost of 349,500 THB. The change lowers indoor temperatures and air-conditioning energy use.
- Major renovation. On 15 July 2024 the university signed a design contract with 350 Architects Co., Ltd. for the renovation of Building 4 (College of International Studies).
- Passive design. University buildings are designed and adapted to use daylight and natural ventilation, which reduces lighting and cooling loads. Features include skylit central atriums, large openable windows, courtyard gardens under translucent roofing, and planted corridors.

**4. Maintenance, monitoring and verification**

- Electrical equipment is maintained on a regular schedule so that it keeps running at its rated efficiency. This includes cleaning and servicing air-conditioners, measuring load at distribution boards, and servicing hall and street lighting.
- At Songkhla, energy performance is tracked with AMR smart metering and the Specific Energy Consumption (SEC) index, both per year and per academic year. Results are reviewed in energy management review meetings.
- At Phatthalung, floor area, electricity use (kWh), electricity cost, peak demand (kW) and solar generation are recorded every year to measure each upgrade's effect.

**5. National recognition**

The Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy has recognized TSU's buildings for energy conservation. This includes the Energy-Conserving Building Design Award 2019 (B.E. 2562), "Very Good" level, together with several DEDE energy-saving building awards.

**Evidence**

- Energy-efficient appliance inventory and photos (UI GreenMetric evidence 2.1 Energy Efficient Appliances Usage)
- Songkhla Campus Energy Conservation Unit: https://skenergy.tsu.ac.th/page.php?menu=8&mid=20
- Songkhla Annual Energy Management Report 2024: https://skenergy.tsu.ac.th/upload/menu/doc_20251009_134757.pdf
- The Energy Management Project of the Phatthalung Campus Administration Office: https://adminpt.tsu.ac.th/energy/upload/menu/doc_20240627_144921.pdf
- Phatthalung Energy Conservation Policy: https://adminpt.tsu.ac.th/energy/upload/menu/doc_20230309_101532.pdf
- Phatthalung Training and Energy Conservation Plan 2025: https://adminpt.tsu.ac.th/energy/upload/menu/doc_20260109_153014_1a25b2b5e0f408c0.pdf
- Solar PV installation news (13 May 2025): https://www.tsu.ac.th/home/details.php?id=5147



**Template for Evidence(s)**

**UI GreenMetric Questionnaire**

University : Thaksin University
Country : Thailand
Web Address : http://www.tsu.ac.th

**[2] Energy and Climate Change (EC)**

**[2.1] Energy Efficient Appliances Usage**