Annual Report
on SDG 7 Affordable and Clean Energy

7.2 University measures towards affordable and clean energy

7.2.5 Does your university as a body undergo energy reviews to identify areas where energy wastage is highest?

Thaksin University (TSU) carries out formal energy reviews every year to find the areas, buildings and systems where energy use and energy waste are highest. These reviews are required by Thai law for designated controlled buildings. They are carried out by the energy management units of both campuses and checked by DEDE-registered auditors, and their findings feed directly into each year's energy conservation targets and plans.

1. Legal and procedural framework

- TSU follows the energy management system set out in the Ministerial Regulation on Standards, Criteria and Methods for Energy Management in Factories and Controlled Buildings B.E. 2552 (2009), issued under the Energy Conservation Promotion Act B.E. 2535 (amended B.E. 2550). The system has eight steps, two of which are energy reviews:

  (1) an initial energy management review, which assesses current energy use and management practice in each building;
  (2) an assessment of energy conservation potential, which identifies the significant energy users and the points of highest energy loss in each building and system.

- The other steps are setting targets and plans, carrying them out, internal audit and management review. This makes the energy review a recurring yearly cycle rather than a one-off exercise.

2. Annual energy review process

- Songkhla Campus. The Energy Conservation Unit of the Infrastructure Development Division carries out the yearly review and publishes the results in the Annual Energy Management Report, issued every year since 2015. The reports cover energy use by building and by system, the Specific Energy Consumption (SEC) index per year and per academic year, and the improvement measures chosen for the next year. Management review meetings consider the findings and approve corrective actions.

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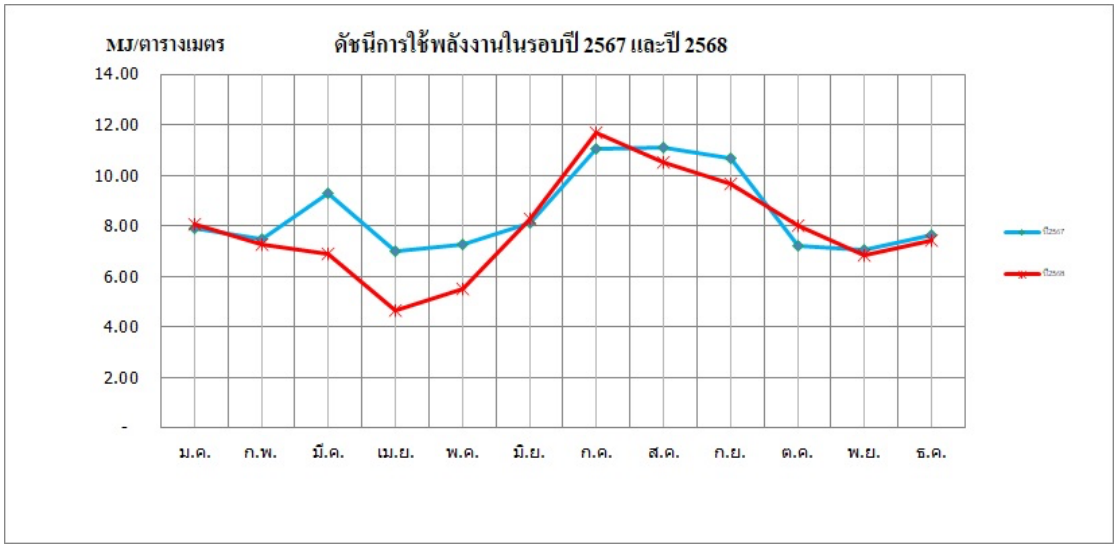


- Phatthalung Campus. The Energy Management Project of the Phatthalung Campus Administration Office reviews floor area, electricity use (kWh), electricity cost, peak demand (kW) and solar generation each year, along with monthly electricity data. The FY2025 energy management report was digitally signed on 25 February 2026 and submitted through the DEDE e-service system. An appointed Audit, Monitoring and Evaluation Committee (order renewed January 2026) completed the FY2025 energy management audit in March 2026.

- Both campuses' energy management reports are certified by DEDE-registered energy auditors, as the 2009 Ministerial Regulation requires.

• University-wide, TSU tracks yearly electricity use (2018–2025), monthly electricity use and its total carbon footprint, which are also reported to the UI GreenMetric World University Rankings.

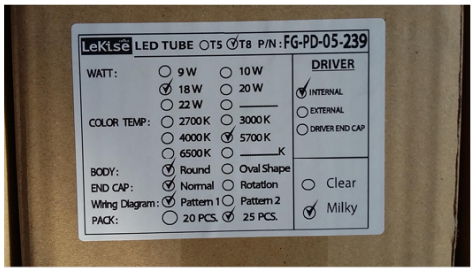
Energy efficient appliances usage are replacing conventional appliances



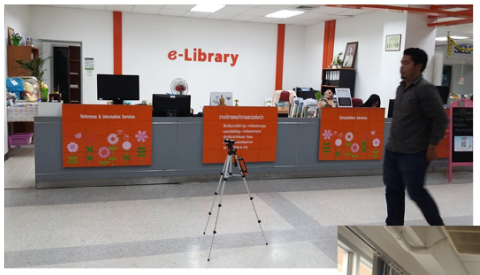
Thaksin University has replacing conventional appliances with energy efficient appliances that have a 5-star energy rating or ENERGY STAR for electronic devices and using LED light bulbs as follows

Appliance	Total Number	Total number energy Efficient appliances
LED Lamp (18W)	22,922	13,789
LED Lamp (36W)	8937	8672
Air Conditioner	2050	1998
Computer	3873	3349
Refrigerator	103	95
Electric kettle	44	44
Total	37,929	28,447
Average percent (%)	**75**	

"From the above, we found that 75% of these appliances are energy efficient appliances."











Conclusion

Thaksin University's energy efficient appliances usage of 75% towards total appliances

- https://adminpt.tsu.ac.th/greenheart/page_detial.php?ids=1067&menu=2&mid=783

3. Continuous monitoring to locate energy waste

- AMR (Automatic Meter Reading) smart meters at Songkhla Campus log electricity use continuously, so abnormal consumption can be traced to specific buildings and times of day.
- Peak demand (kW) is tracked to find the load periods that drive up cost and waste.
- Electrical equipment is inspected routinely, including load measurement at distribution boards and performance checks of air-conditioners and lighting, to find faulty or inefficient equipment.

Public evidence:

https://skenergy.tsu.ac.th/page.php?menu=8&mid=20

https://skenergy.tsu.ac.th/upload/menu/doc_20251009_134757.pdf

https://skenergy.tsu.ac.th/page.php?menu=9&mid=38

4. Key findings of the 2025 energy review

- Electricity is the largest source of emissions. TSU used 8,149,687.43 kWh of grid electricity in the last 12 months, which produced 6,845.74 tCO2, or 85.9% of the university's total carbon footprint of 7,964.97 tCO2. Transport made up the remainder: motorcycles 664.22 t, cars 448.62 t and shuttle buses 6.39 t.
- Building cooling and lighting are the main energy users. Electricity is used mainly for lighting, air-conditioning, teaching activities and laboratory equipment.
- Consumption peaks in July–September, at about 1.07–1.2 million kWh per month, when teaching is in full session. It is lowest in April, at about 0.52 million kWh, during the semester break. This shows that building occupancy, and the air-conditioning and lighting load that comes with it, drives energy use, so these systems are the main targets for savings.

- Eight-year trend (2018–2025): grid electricity use fell from about 11.0 million kWh in 2024 to 8.15 million kWh in 2025, the lowest level since 2021, when campus activity was reduced by COVID-19.
- Government energy reporting. Every month, TSU reports its electricity use to the Ministry of Energy's government-sector energy-saving reporting system (e-report.energy.go.th). The ministry compares each month's use with the university's baseline, so periods and areas of excess consumption are flagged quickly for corrective action. [FY2025 result: X kWh, Y% change compared with baseline]

Public evidence:

https://skenergy.tsu.ac.th/page.php?menu=8&mid=20

https://skenergy.tsu.ac.th/page.php?menu=1&mid=18

https://skenergy.tsu.ac.th/menu.php?menu=3

5. Actions taken on the review findings

- Air-conditioning and lighting: 82.81% of lighting and air-conditioning equipment (27,658 of 33,398 appliances) has been upgraded to energy-efficient models, including all 2,145 air-conditioning units. The remaining 5,740 lighting fixtures are the next priority for LED replacement.
- Daytime grid demand: solar rooftop systems at both campuses generated 2,594,003.13 kWh in the last 12 months (Songkhla 1,383,673.03 kWh; Phatthalung 1,210,330.10 kWh). This is about 24% of the university's total electricity supply and is the main reason grid purchases fell in 2025.
- Building envelope: all curtains in the Multi-Function 1 building at Songkhla Campus were replaced with heat-blocking curtains (349,500 THB) to reduce cooling load.
- Transport emissions: EV charging stations, an on-campus shuttle bus service, bicycle lanes and covered walkways have been introduced to cut private vehicle use.
- Result: the university's total carbon footprint fell to 7,964.97 tCO2, a reduction of [1,533.05 / 1,327.98] tCO2 compared with the previous year.

Public evidence:

- UI GreenMetric evidence 2.6 Electricity Usage per Year, 2.8 Renewable Energy Ratio and 2.11 Total Carbon Footprint (attached)
- Phatthalung FY2025 Energy Management Report (submitted via DEDE e-service, signed 25 February 2026): https://adminpt.tsu.ac.th/energy/upload/news/doc_20260309_151452_765ab1f1750e3dfe.pdf
- Phatthalung Campus Energy Management Project: https://adminpt.tsu.ac.th/energy/
- Songkhla Campus Energy Conservation Unit (annual energy management reports 2015–2024, SEC, AMR data): 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
- TSU GreenHeart – Efficient use of electrical appliances: https://adminpt.tsu.ac.th/greenheart/page_detial.php?ids=1067&menu=2&mid=783
- Monthly electricity use report to the Ministry of Energy, FY2025: https://e-report.energy.go.th/cpr68/elec.php?dept=75109