



EXCELLENCE IN ENERGY MANAGEMENT



About Singapore Management University

Singapore Management University (SMU) is a public funded University established in 2000. SMU's mission is to generate leading edge research with global impact and produce broad-based, creative and entrepreneurial leaders for the knowledge-based economy.

Energy Management in Singapore Management University

SMU's Energy Policy is to practise 'responsible energy management' in all University activities of faculty, staff and students, and to continually seek new and better ways to improve energy efficiency (EE) and to adapt to new stakeholder requirements.

Practical planning and implementation follows the framework of the ISO 50001 Energy Management System and the S5564 Green Data Centre management standards. More than 200 power meters are installed in SMU to monitor energy consumption in each building and the important energy consuming systems.



1) Power Meter On-line Monitoring



2) Chiller system on-line monitoring

SMU has established a dedicated team, trained in the various aspects of EE, to drive the Campus' energy management system effectively. SMU currently has 2 Singapore Certified Energy Managers (SCEMs) and 2 certified data centre professionals/specialists.

New and better ways to improve EE in both their building facilities and in the data centres are continually being explored and piloted, for deployment if found suitable. The present initiatives relate to the introduction and deployment of passive displacement ventilation on Campus, and the refinements in developing smart building solutions in facilities utilisation and smart LED solutions.

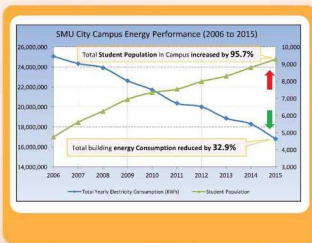
Achievements

SMU had significantly improved the EE performance of their data centre, lighting system and chilled water plant. In 2015, a centralised data centre designed by the in-house technical team, was built and the data centre is currently running at a PUE of 1.4.

SMU Campus remains the only public funded tertiary institution to be certified for:

- ISO 50001 (Energy Management Systems) Standards
- S5564 (Green Data Centre) Standards
- BCA Green Mark (Platinum) accreditation

- Continued 9-year downward trend of SMU's total energy use, from 25 GWh in 2006 to 16.8 GWh in 2015 – reduction of 33% in 9 years or average productivity gain of 3.6 % per year
- Energy intensity in terms of energy use per student is reduced from 5.284 MWh/year to 1.811 MWh/year – reduction of 65% in 9 years



S/N	Action Items	Completion Time (Year)	Estimate Energy Savings (kWh/annum)
1	Replacement of all TS with energy efficient TS lights	2010	75,600
2	Motion sensors for air-con control in all 400 faculty rooms	2011-2012	28,723
3	Replace MH lights with TS lights at level 5 of school buildings	2012	3,202
4	Re-wiring of lighting circuits for corridor lights at school buildings level 4&5 (to reduce light level to 10% at mid-nights/weekends)	2012	5,292
5	Re-wiring of lighting circuits for corridor lights at school buildings level 1, 2&3 and the concourse (to reduce light level to 10% at mid-nights/weekends)	2012	15,120
6	Motion sensors for air-con control in all meeting rooms	2012-2013	6,048
7	Removal of excessive TS tube from Car park	2013	3,780
8	Design review for the air-con system in CCA at SS 81 (change from constant speed AHU to VSD AHU control system)	2013	2,310
9	Local switches (Thermostats) for VAV boxes in all teaching rooms (i.e. Seminar rooms and class rooms)	2012-2014	10,500
10	Data Centre/IT equipment rooms air-con system upgrading works (replace the air-cooled air-con system with chilled water cooling units)	2013-2014	31,680
11	Review the installation of lights c/w motion sensors in the staircase at all school buildings (e.g. 80% light off during nighttime)	2014	2,160