

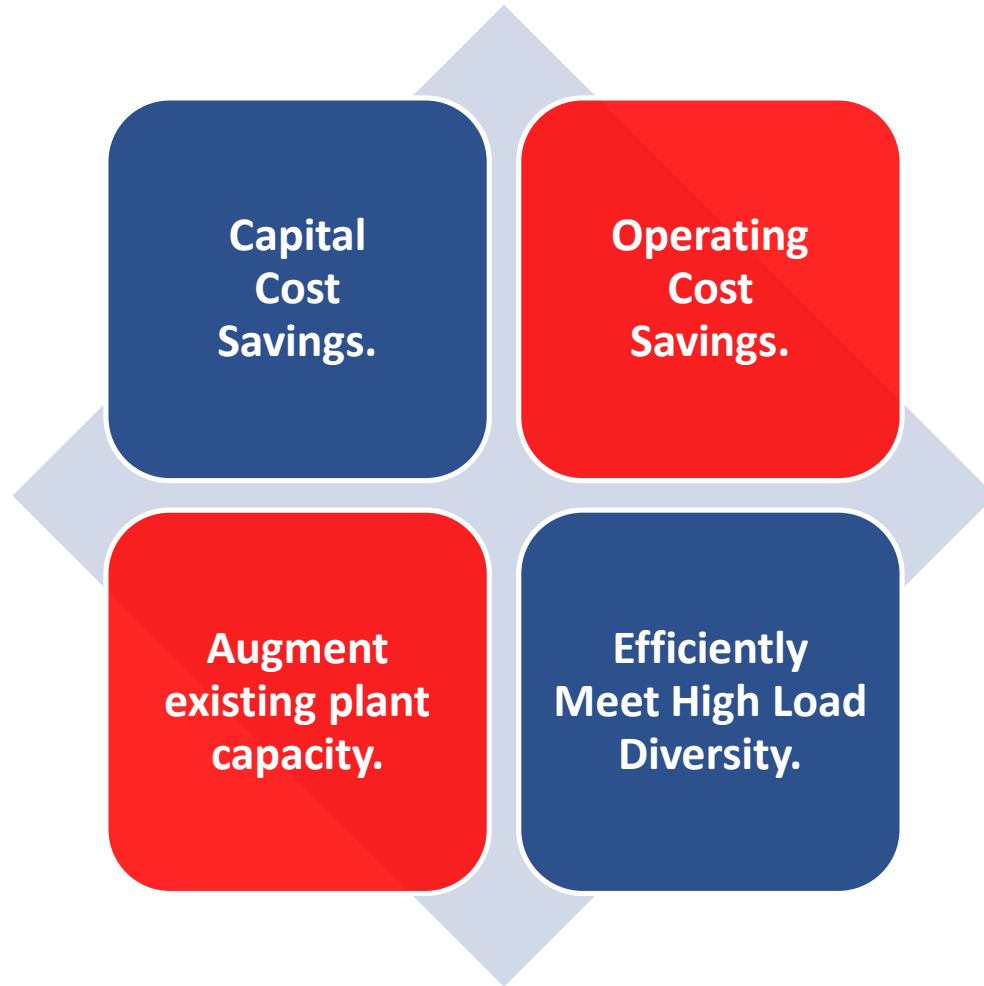
The logo features the word "PLUSS" in a bold, red, sans-serif font. A registered trademark symbol (®) is positioned at the top right of the "S". The text is centered within a white diamond-shaped area that is part of a larger geometric composition of overlapping triangles in light gray, red, and blue.

PLUSS[®]

TECHNOLOGY FOR
A BETTER WORLD

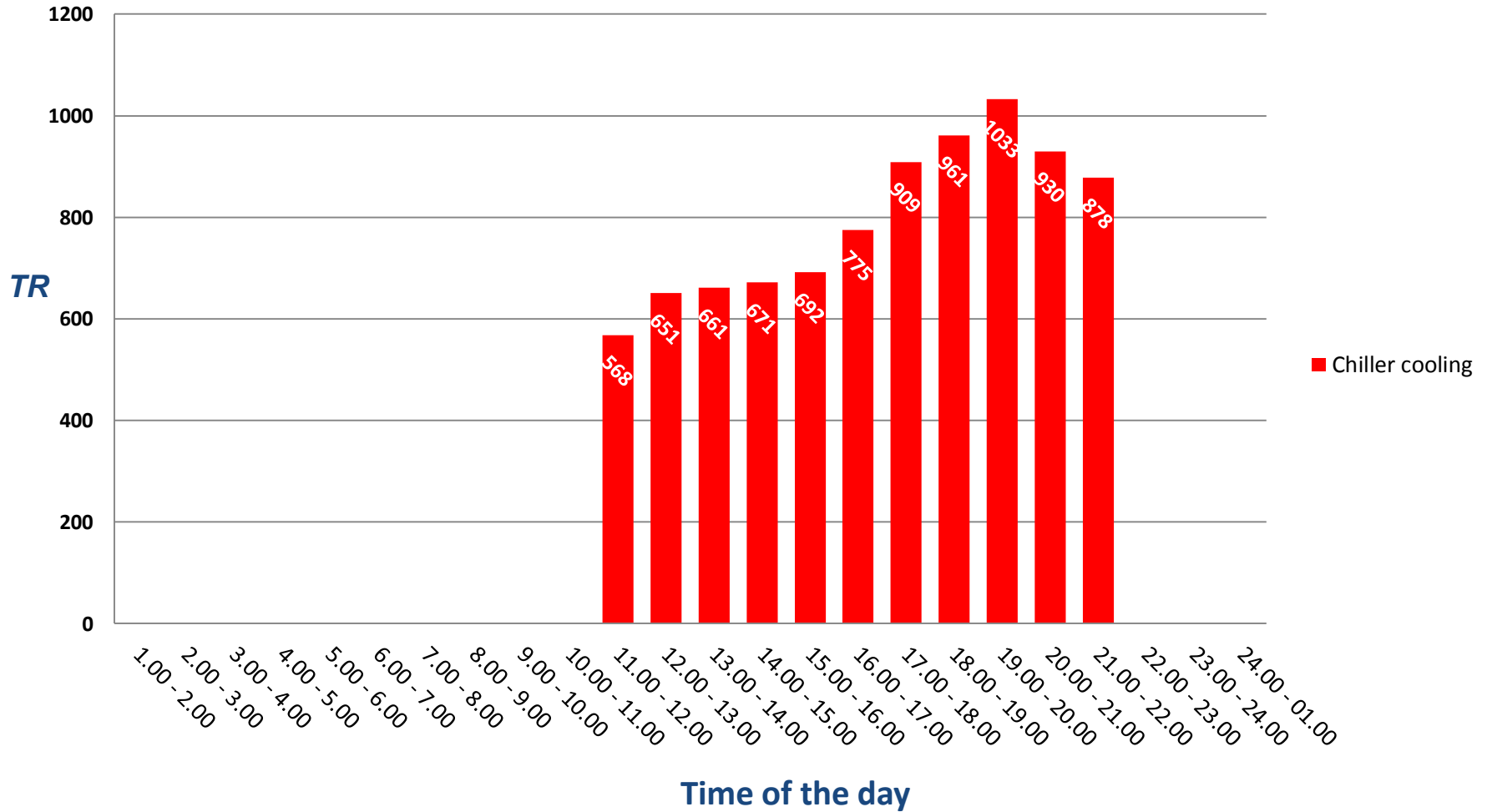
Thermal Energy Storage System
For Building Air-conditioning

BENEFITS OF THERMAL STORAGE SYSTEM



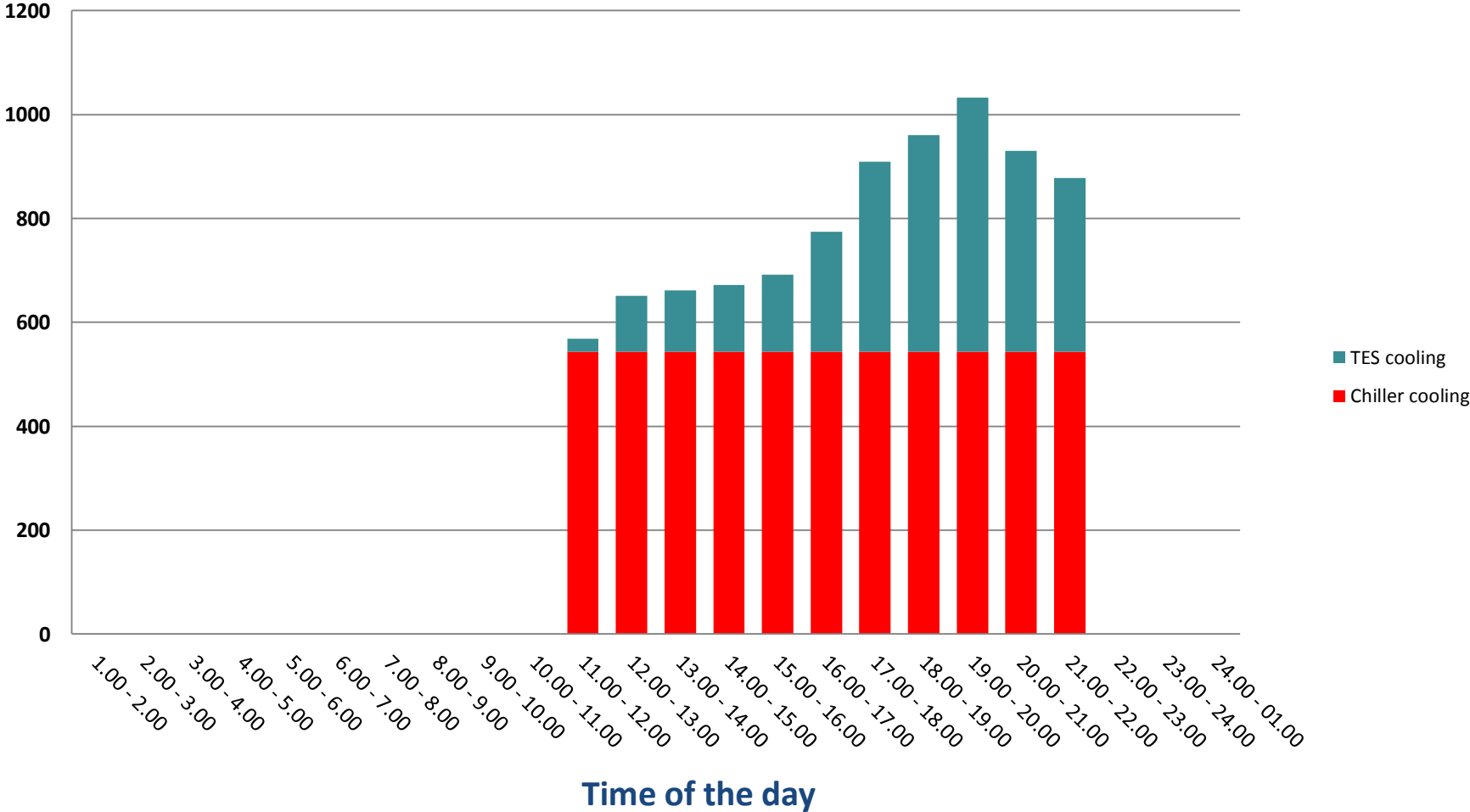
BUILDING LOAD PROFILE (12 HR OPERATION)

Air-conditioning load profile – variable ambient and occupancy load



LOAD PROFILE W. THERMAL STORAGE

Thermal energy storage system = Chiller + PCM storage

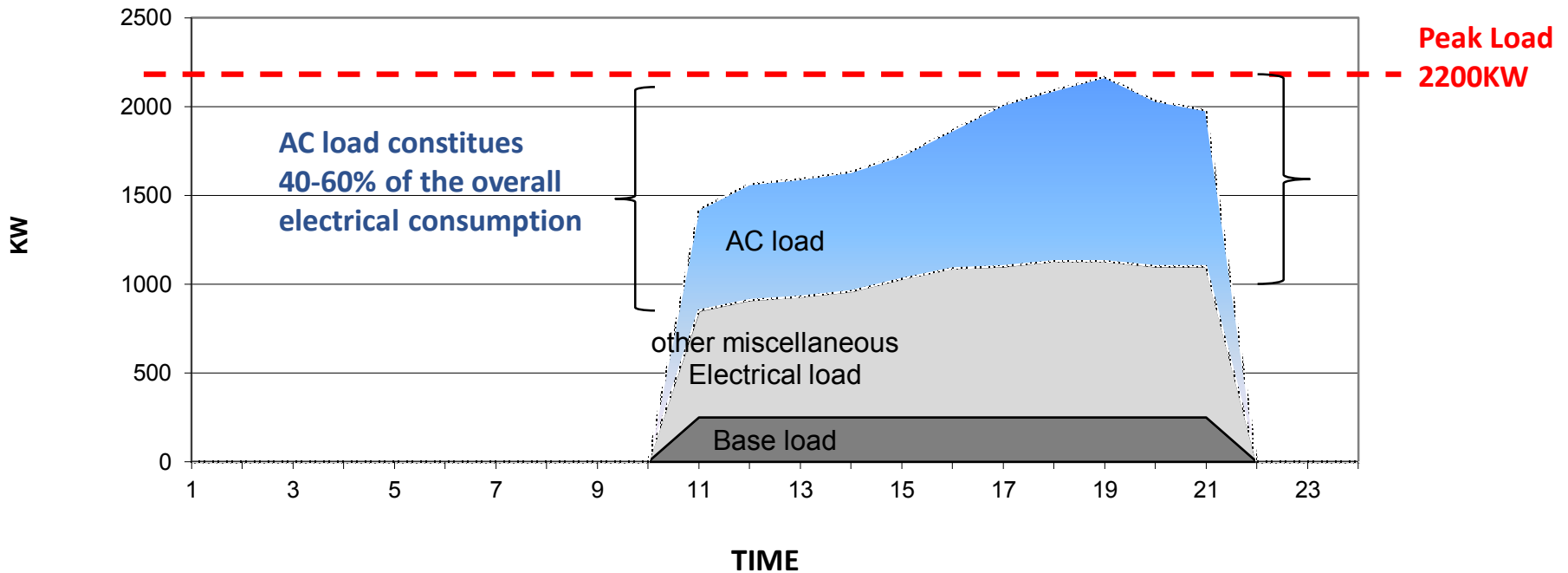


COMPARISON – HVAC ELECTRICAL LOAD

	Conventional system(kVA)	System with Thermal storage(kVA)
Chillers	963	489
Primary pumps	56	69
secondary pumps	111	109
condenser pumps	123	61
cooling tower	41	20
Total power (kVA)	1294	748

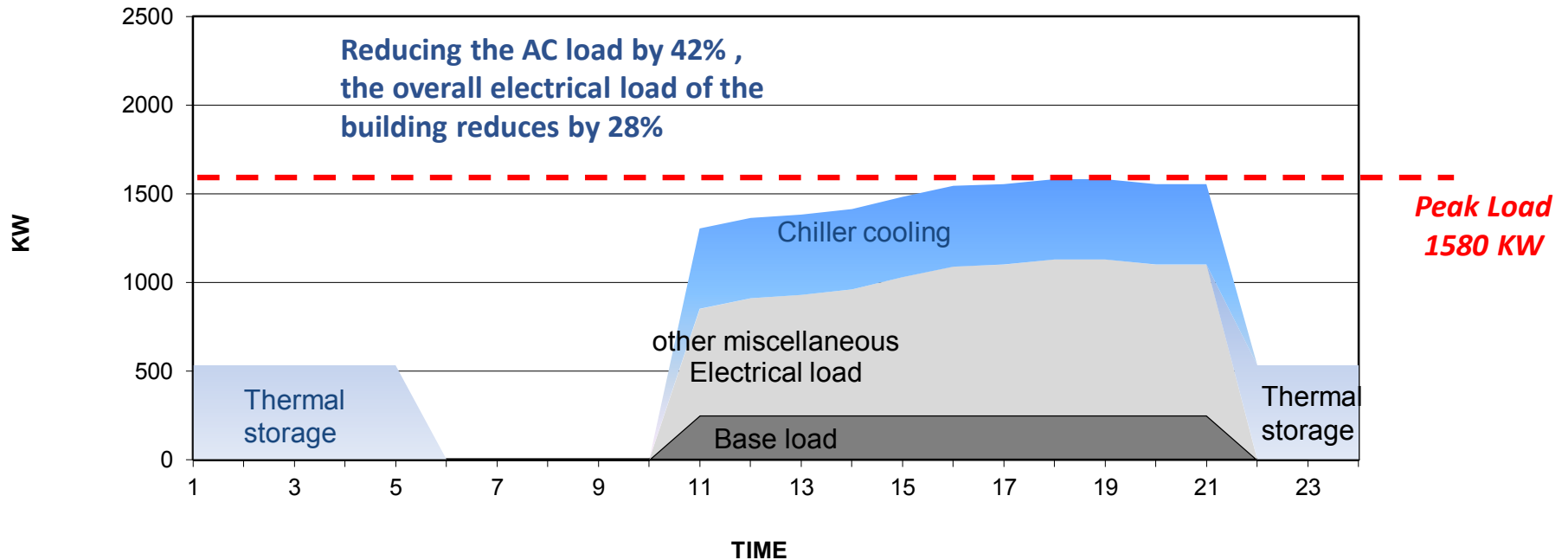
- Reduction in the HVAC electrical load for system with thermal storage is 42%
- 42% lesser electrical demand for HVAC ➤ 42% lesser DG backup for HVAC
- lesser chiller, condenser pumps, cooling tower for HVAC

ELECTRICAL LOAD PROFILE – CONVENTIONAL HVAC SYSTEM



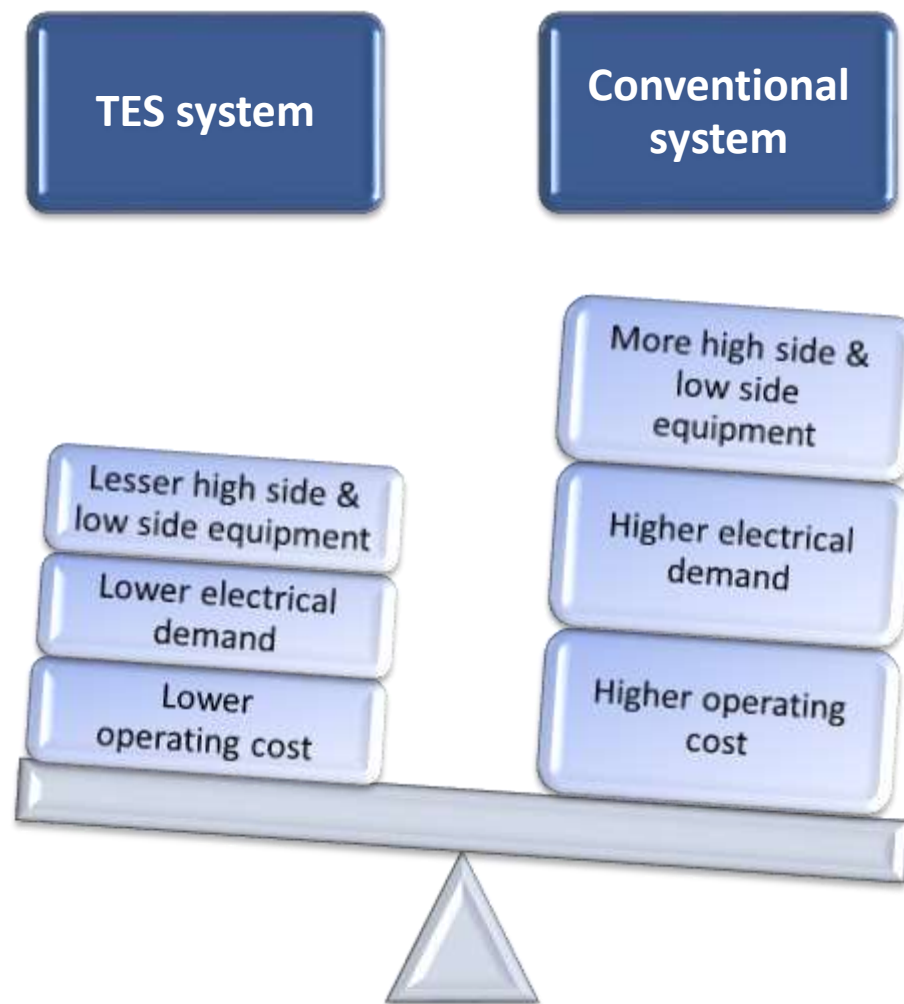
- Max. Electrical demand or mall = $2200 \text{ KW} / 0.8 = 2750 \text{ kVA}$
- Transformer size for mall = $2200 \text{ kW} / (0.8 \times 0.9) = 3055 \text{ kVA}$

ELECTRICAL LOAD PROFILE – HVAC SYSTEM WITH THERMAL STORAGE

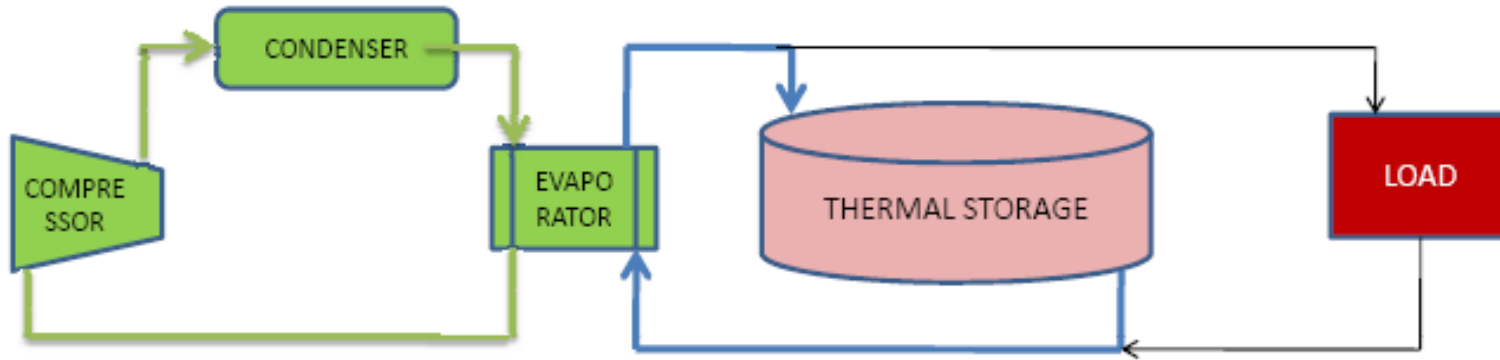


- Max Electrical demand for the mall = $1580\text{KW} / 0.8 = 1975\text{ kVA}$
- Transformer size = $1580 / (0.8 \times 0.9) = 2195\text{ kVA}$
- **28% reduction in the overall electrical demand and transformer size**

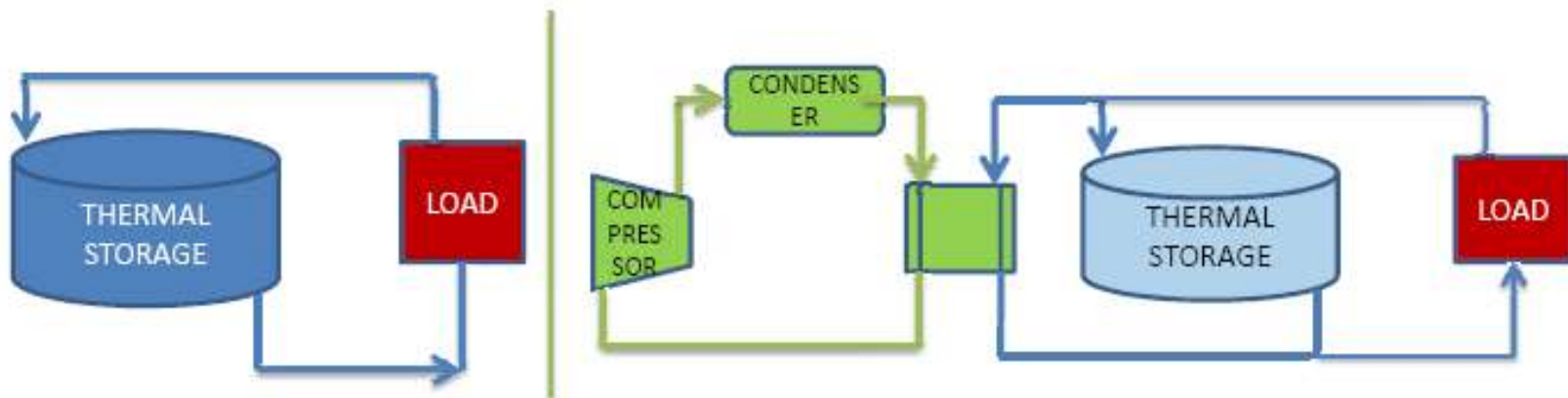
LIFE CYCLE COST



SIMPLIFIED THERMAL STORAGE CONCEPT



CHARGING IN OFF PEAK HOURS



DISCHARGING DURING PEAK TARIFF / LOADS