# Selection criteria for energy storage system air conditioners

What are the criteria for evaluating energy systems?
Five criteria were defined to evaluate the systems. These criteria were energy consumption, system durability, practical installation difficulties, insurance cost and total cost which include investment and operation costs. To perform a formal multiple criteria decision-making process, the ELECTRE III method (Roy 1996) was adopted.

Are solar air conditioning systems a viable option?
There is a growing interest in the solar air conditioning systems due to the increasing demand for space cooling in solar abundant areas . However,the intermittency characteristic of solar energy presents a challenge to downstream applications that require a steady energy supply.

Which HVAC &R systems should be selected for envelope-dominated buildings?
Shapiro and Umit (2011) conducted a study into HVAC&R systems selection for envelope-dominated buildings. In this study, four different HVAC&R systems were considered including; air source heat pump, ground source heat pump, boiler and water source heat pump with cooling tower and finally, a boiler with an associated chiller.

Are control strategies a criterion for HVAC &R systems selection?
In addition,despite vast developments on control strategies for HVAC&R systems in the last decade (Dounis and Caraiscos 2009; Oancea and Caluianu 2013; Mirakhorli and Dong 2016),the way in which systems are controlled has not been seriously consideredas a criterion for systems selection in the reviewed studies.

Is the LCC a reliable criterion for HVAC&R systems selection?
In the KBCD model developed for HVAC&R systems selection,the LCC was the only criterion to evaluate the performance of HVAC&R systems. The lack of consideration of the environmental impact and the influence of HVAC&R systems on indoor environment raises concerns over the robustness of results produced by this model.

What is cool thermal energy storage based air-conditioning system?
Cool thermal energy storage-based air-conditioning system is one among the most effective methods of reducing energy consumption in buildings. Such system uses sensible heat,latent heat,and the combination of both for various cooling applications.

The application of phase-change materials (PCMs) in a thermal storage system is a way to address temporary power problems of solar air-conditioning systems. This paper reviews the ...

2.2.1 Selection Criteria for PCMs and PCM Slurries. Requirements for the common solid-liquid PCMs or

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PCM slurries for cold storage applications are summarized as follows: (1) Proper phase change temperature ...

Omara AAM, Abuelnour AAA. Improving the performance of air conditioning systems by using phase change materials: a review. Int J Energy Res. 2019;43(10):5175-5198. Moreno P, Solé ...

Table 4 shows the comparison matrix of the criteria for selecting phase change materials (PCMs) for cold storage in air-conditioning systems. The criteria from row by row are phase change temperature, material ...

This study proposes an integral performance indicator for the selection of air conditioning systems (ACPI), based on the multicriteria method of the Analytic Hierarchy Process (AHP), in order to ...

studied. Those included gas and oil fire boilers, split room air conditioners, hot water radiators, air-cooled chillers and variable volume air distribution system with reheat coils. (2) In practice, ...

2 · Table 14 Best optimized values for different sub-system sizes and overall thermo-economic performance criteria of system as objective functions. ... thermal energy storage ...

As a summary, there are two major disadvantages of the previous studies. For one thing, most of the previous studies related to multi-criteria selection for energy storage ...

Transitioning to environment-friendly refrigerants is essential for achieving sustainable refrigeration and air conditioning systems, mitigating climate change, and ensuring ...

3 Penerbit Journal of Advanced Research in Fluid Mechanics and Thermal Sciences Volume 31, Issue 1 (2017) 1-10 Akademia Baru 3.2 AC-ITS System Components Selection A modular internal melt ice-on-coil storage tank and ...

In today"s world, the energy requirement has full attention in the development of any country for which it requires an effective and sustainable potential to meet the country"s ...

The selection of Phase change materials (PCMs) is crucial in the design of Latent Heat Thermal Energy Storage (LHTES) system in solar air conditioning applications. This study performs a ...

Selection of a phase change material for energy storage by multi-criteria decision method regarding the thermal comfort in a vehicle. ... and improving the energy efficiency of ...

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