

What is solar assisted air source heat pump?

Evolutions require new-generation energy efficiency and green refrigerants. Solar assisted air source heat pump shows great potential as a promising energy-saving heating technology, which integrates solar collector and air source heat pump. It is widely considered for supplying hot water, space heating and/or space cooling in the domestic sector.

Can photovoltaic and air source heat pump be combined?

Combining photovoltaic (PV) with air source heat pump (ASHP) yields a great potential in providing heating and domestic hot water (DHW) supply in non-central heating areas. However, the diurnal and seasonal inconsistencies between solar availability and building heat load can severely affect the efficacy of solar energy systems.

Can a novel solar-air source heat pump system save energy?

The novel system has evident advantages in economy and energy savings. In order to solve the problem that the traditional heat pump system in the cold area of North China cannot supply heat efficiently and stably, a novel solar-air source heat pump system is proposed to meet the needs of building energy consumption.

What is a novel air source heat pump system?

Compared with a conventional air source heat pump system, the novel system has better economy and a dynamic investment payback period of 3.86 years. The proposed system presents a way to meet building energy supply that is worthy of popularization and application in cold areas.

## 1. Introduction

Are solar-assisted air source heat pump systems effective?

Solar-assisted air source heat pump systems have attracted extensive attention for the advantages of high energy efficiency and low carbon emissions. However, the existing reviews on solar-assisted air source heat pump systems mostly focus on technique development.

How does a solar-air source heat pump work?

A novel solar-air source heat pump system utilizes the latent heat of water. The TRNSYS simulation model is established with experimental data. The operation of the system and the size of each component are optimized. An ice tank can provide heat for the heat pump for two days under low irradiation.



# Solar air source heat pump power generation

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