

What is advanced adiabatic compressed air energy storage (AA-CAES)?

The paper establishes a dynamic model of advanced adiabatic compressed air energy storage (AA-CAES) considering multi-timescale dynamic characteristics, interaction of variable operating conditions and multivariate coordinated control.

What is the performance constant of a dynamic expander?

The performance constant ($m_e 1, m_e 2, m_e 3, m_e 4$) can be (1.19, 0.03, 25, 0.009). Combining the above-mentioned dynamic control, the dynamic characteristics of the expander mainly consider the volume effects between each stage of the expander, as well as the dynamic response characteristics of the control elements.

Does capacity expansion modelling account for energy storage in energy-system decarbonization?

Capacity expansion modelling (CEM) approaches need to account for the value of energy storage in energy-system decarbonization. A new Review considers the representation of energy storage in the CEM literature and identifies approaches to overcome the challenges such approaches face when it comes to better informing policy and investment decisions.

What are the dynamic models of adiabatic air storage chamber and heat storage tank?

The dynamic models of the air storage chamber and the heat storage tank were established using the dynamic modeling method proposed in reference. The dynamic models of the equal capacity adiabatic air storage chamber and the regenerative dual tank liquid heat storage tank were established separately.

What is a model for expansion power generation process?

A model for the expansion power generation process considering inlet throttle control, nozzle angle control, and speed control has been established. The model has the characteristics of multiple time scales, coupling of multiple variable operating conditions, and coordinated control of multiple variables.

What is a dynamic model for heat exchangers?

3) In terms of heat exchangers, a dynamic model for the cold and hot fluids and the heat exchanger wall has been established in the literature, which describes the thermal inertia by the heat transfer delay between the heat exchanger wall and the fluid.



Dynamic expansion of energy storage system

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