
Capacity expansion and energy storage equipment

Can energy storage be represented in capacity expansion modelling?

Here we conduct an extensive review of literature on the representation of energy storage in capacity expansion modelling. We identify challenges related to enhancing modelling capabilities to inform decarbonization policies and electricity system investments, and to improve societal outcomes throughout the clean energy transition.

Why is capacity expansion modelling important in energy-system decarbonization?

As grid planners, non-profit organizations, non-governmental organizations, policy makers, regulators and other key stakeholders commonly use capacity expansion modelling to inform energy policy and investment decisions, it is crucial that these processes capture the value of energy storage in energy-system decarbonization.

Do storage technologies influence power sector dynamics in capacity expansion models?

The findings reveal the crucial role of storage technologies in power sector dynamics within capacity expansion models. The results emphasize the sensitivity of these models to both time scale and the inclusion of diverse available technologies.

How big is China's energy storage capacity?

The China Energy Storage Alliance said in the first half of 2025, newly commissioned novel energy storage projects in China reached 23.03 gigawatts, representing a year-on-year increase of 68 percent in power capacity.

A technician monitors energy storage equipment in Yibin, Sichuan province, in December. Zhuang Geer / for China Daily Leveraging its dominant position in electric vehicles, ...

This paper proposes a mid-to-long-term capacity expansion model for hydrogen energy storage in urban-scale power systems, using Shanghai as a case study. The model ...

This standalone battery storage facility is strategically positioned within the Tokyo area to provide crucial support to one of the world's most demanding energy markets. Grid ...

C& I users can achieve cost arbitrage by leveraging the price difference between peak and off-peak hours, reducing electricity costs. Our commercial battery storage systems utilize demand ...

Storage technologies are essential components of high variable renewable energy (VRE) grids as they allow for shifting variable ...

This paper provides a user side power dynamic capacity expansion system and its control method. The control method includes: uninterruptedly monitoring the power of AC ...

China's new energy storage sector has seen a rapid growth in 2024, with installed capacity surpassing 70 million kilowatts, said an official with the National Energy ...

KPMG China and the Electric Transportation & Energy Storage Association of the China Electricity Council ('CEC') released the New Energy Storage Technologies Empower ...

Capacity expansion modelling (CEM) approaches need to account for the value of energy storage in energy-system decarbonization. A new Review considers the representation ...

This paper presents a framework to represent short-term operational phenomena associated with renewables capacity factors and final service demand distributions in a ...

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