



BUHLE POWER

Capacity expansion and energy storage equipment





Overview

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 do capacity expansion models work?

Capacity expansion models operate over the long run to evaluate the future available capacity of power sector technologies, according to the scenario under analysis by performing a constrained economic optimization analysis [20, 23].

Can short-term energy storage technologies be integrated into capacity-expansion-oriented esoms?

This study presented an innovative methodology for integrating short-term energy storage technologies into capacity-expansion-oriented ESOMs. The approach allows enhancing the time scale refinement of integrated ESOMs, incorporating higher granularity in time slice structure, renewable CFs, and specific demand distribution.

What is the optimal storage capacity for electricity storage?

The optimal deployed storage capacity when considering new electricity storage options is $\approx 250\text{GWh}$ and $\approx 40\text{GW}$, corresponding to an average storage duration of ≈ 6 h. This research could be extended by applying it to a power sector model or considering a soft coupling with operational dispatching models.



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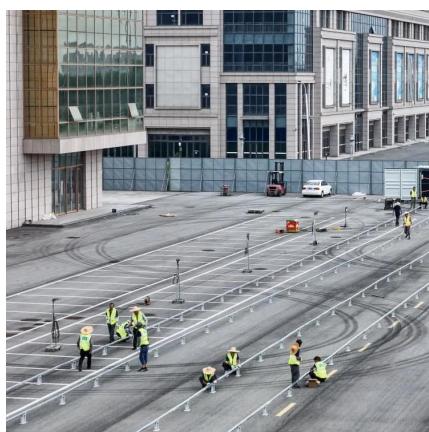


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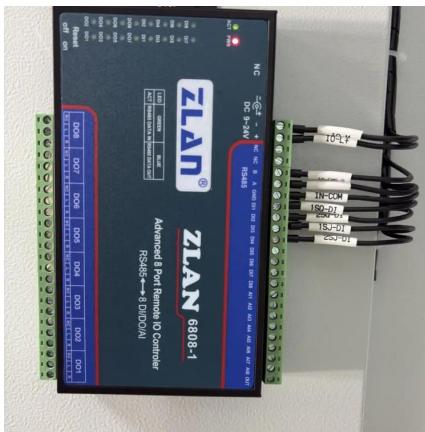


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