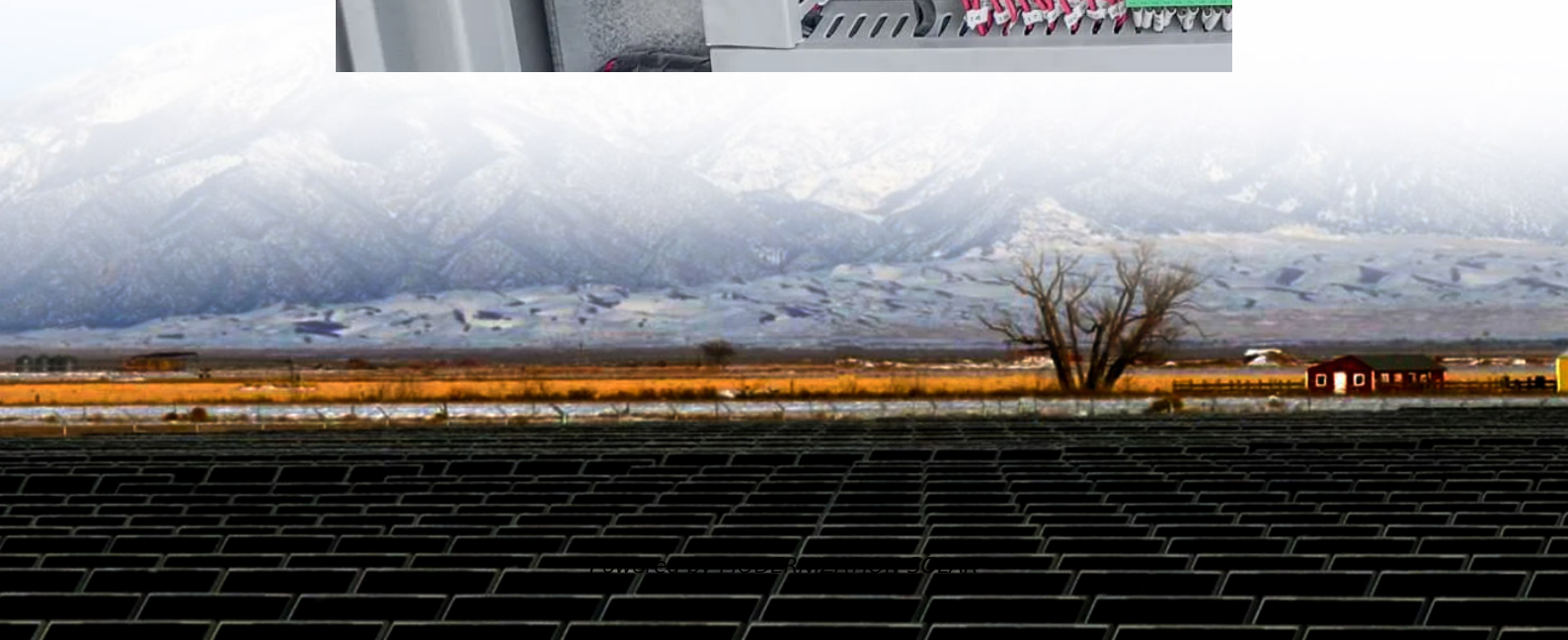


# Wind-solar-storage capacity ratio





## Overview

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What is the maximum wind and solar installed capacity?

The results indicate that a wind-solar ratio of around 1.25:1, with wind power installed capacity of 2350 MW and photovoltaic installed capacity of 1898 MW, results in maximum wind and solar installed capacity. Furthermore, installed capacity increases with increasing wind and solar curtailment rates and loss-of-load probabilities.

What is the maximum integration capacity of wind and solar power?

At this ratio, the maximum wind-solar integration capacity reaches 3938.63 MW, with a curtailment rate of wind and solar power kept below 3 % and a loss of load probability maintained at 0 %. Furthermore, under varying loss of load probabilities, the total integration capacity of wind and solar power increases significantly.

How to optimize wind and solar energy integration?

The optimization uses a particle swarm algorithm to obtain wind and solar energy integration's optimal ratio and capacity configuration. The results indicate that a wind-solar ratio of around 1.25:1, with wind power installed capacity of 2350 MW and photovoltaic installed capacity of 1898 MW, results in maximum wind and solar installed capacity.

What is the maximum ratio of pumped storage and wind-solar capacity?

When the wind-solar portion is 0.4 and the wind-solar uncertainty is 10%, the maximum ratio of the installed capacity for pumped storage and wind-solar capacity is 1:2.65. When the wind-solar portion is 0.4, and the wind-wind uncertainty is 15%, the ratio of the installed capacity for pumped storage and wind-solar capacity is 1:2.61.



## Wind-solar-storage capacity ratio

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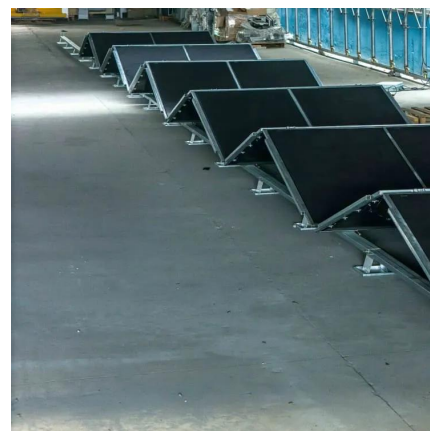
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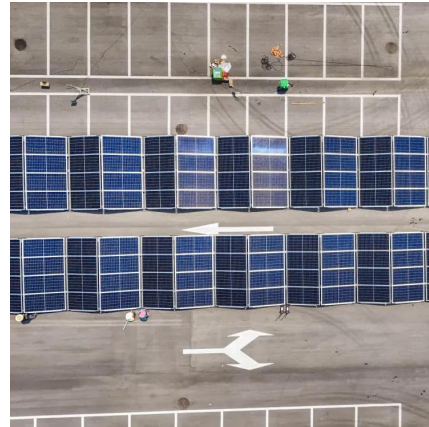
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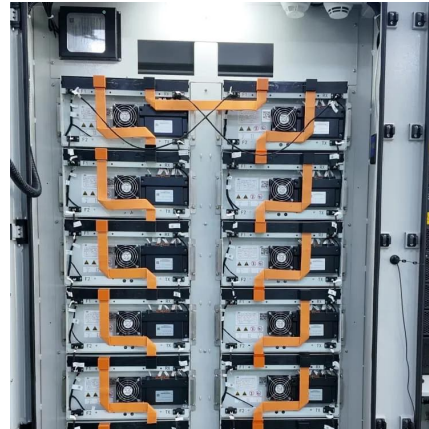
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