

What are ultra-high-voltage direct current (UHVDC) transmission lines?

Ultra-high-voltage direct current (UHVDC) transmission lines, owing to their high capacity and long-distance delivery capabilities, are regarded as a critical means of channeling renewable energy across vast distances.

Why do we need a UHVDC transmission line?

Due to the low local load demand, the energy generated by local WP and PV cannot be fully absorbed locally. Therefore, it is necessary to transmit electricity to other provinces with higher electricity demand through UHVDC transmission lines to ensure better utilization of WP and PV energy.

What is the optimal installed capacity of a solar PV system?

Specifically, as availability changes, the optimal installed capacity of WP gradually increases from 6000 MW to 8000 MW and remains stable after reaching the maximum available capacity. At the same time, the optimal installed capacity of PV decreases from 22,000 MW to 19,000 MW.

Can PHS generate electricity while the energy base is curtailing?

Equations (40), (41) stipulate that PHS cannot generate electricity while the energy base is curtailing power.

When curtailment occurs in period t , $I_{tc} = 1$, otherwise, $I_{tc} = 0$. 2.2.2. Agreed transmission curve mode

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