

Solar power generation and heating in Northeast China

Why is solar power more popular in China?

In China, heating load is more significant than cooling load in most regions, whereas PV output peaks in the summer. However, China's solar resources are more seasonally balanced than in other prominent regions of Europe and North America, making heating electrification with solar more attractive.

How can China support future solar energy deployment?

To support future solar energy deployment in China, long-term changes in solar energy resources over China were investigated based on high-resolution dynamical downscaling simulations under three emission scenarios.

What are the economic performance of power generation in North China?

In North China, the systems in Inner Mongolia Autonomous Region and a few areas of Hebei Province, such as Zhangbei, show the excellent economic performance of power generation. The low LCOE values of the systems are mainly due to excellent wind and solar energy resources.

How are solar energy resources distributed in China?

However, solar energy resources are unevenly distributed over different geographical regions of China (e.g., maximum values are located over the Tibetan Plateau, while smaller values exist over the Sichuan Basin; Xiao et al., 2019); plus, they can change and vary substantially in relation to complex climatic factors (Qi et al., 2015).

How can solar and wind power help China's poorest residents?

By increasing the carbon price from \$0 to \$100 per tCO₂, deployment of PV and wind power benefits the poorest residents, with an increase in per-capita income from \$29,000 to \$34,400 in North China and from \$29,100 to \$30,600 in Northwest China.

Does low emission scenario favor the implementation of solar energy in China?

This suggests that the low emission scenario generally favors the implementation of solar energy in China; and therefore, if this can be achieved, the expectation is that the goal of accelerating the development of distributed energy in east and central China can be reached.

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