Cope with power cuts under decarbonization in China

Bo Shen
Lawrence Berkeley National Laboratory

https://www.eia.gov/outlooks/ieo/workshops/clean_power/index.php
In Dec 2020 and again in September 2021, power cuts occurred in parts of China.

The events are reported to have multiple causes:

- Thermal coal shortage, high coal prices, and the lack of flexibility of wholesale electricity prices.
- Rapid growth in electricity demand relative to power supply. Financial losses at thermal plants led directly to curtailed output in regions with high coal prices.
- Lack of flexible power generation capacity and peak resource hampered the ability of the power system to deal with short-term power crunch.
- Load management to meet government mandatory dual energy control targets.
Immediate steps to ease restrictions on coal production and coal power generation.

Increase renewable energy consumption.

Address geographical mismatch between supply and demand that leads to difficulty absorbing renewable energy locally.

Enhance the flexibility of the power system.

Further reform of the electricity market.
Important to Make Further Policy and Market Changes

- Speed up the development and enhance harmonization of spot markets.
- Strengthen the connection and coordination of different market systems.
- Continue to reform electricity tariffs in the non-business sector.
- Focus on diversified non-coal resources when increasing power system flexibility.
PV in deserts

100MW solar thermal power plant in northwestern China. AFP/Getty

THANK YOU!

PV over highway

PV + indoor farming

Credit: toutiao.com