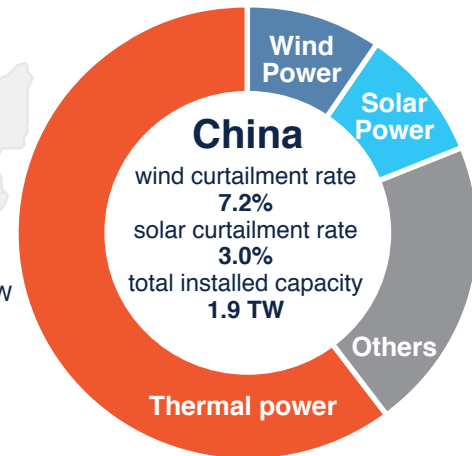
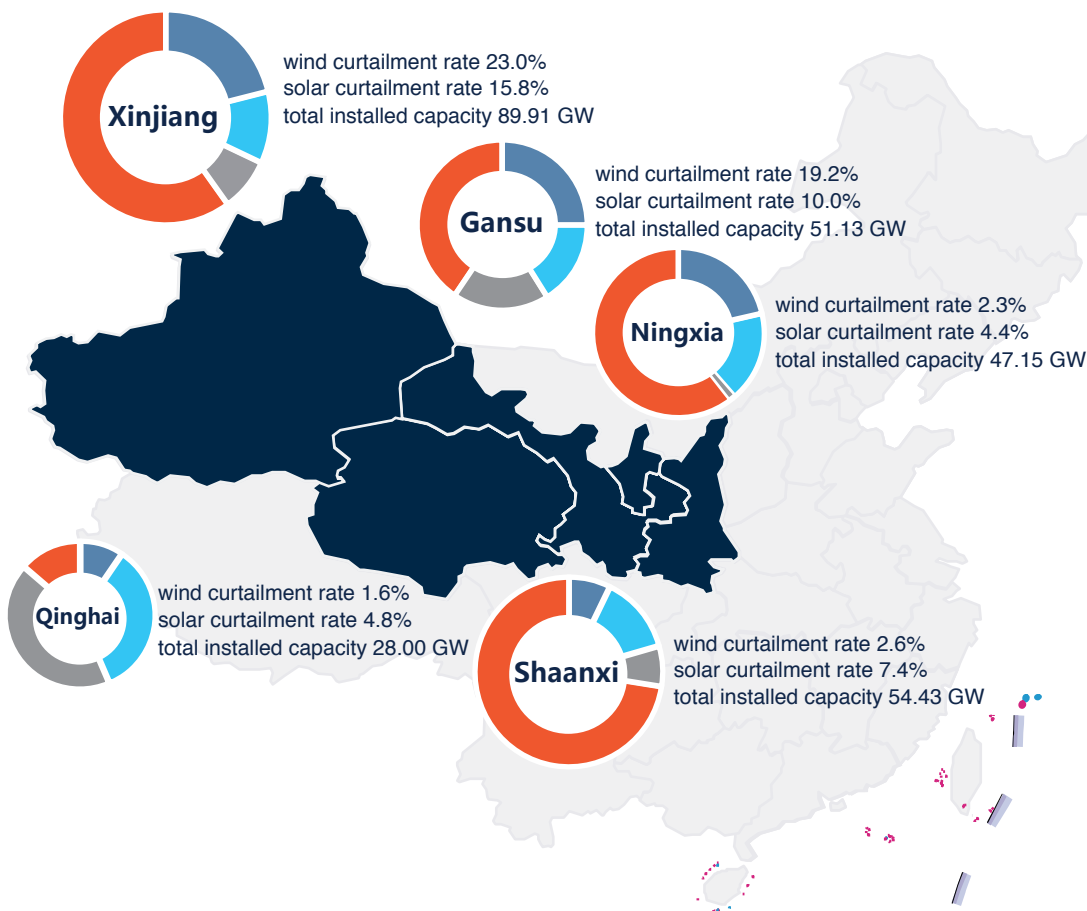


Regional Electricity Spot Market Development and Regulation in Northwest China

Power Sector Roundtable Serial Reports

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Installation and Utilization of New Energy



Data sources: Northwest China Power Grid, National Energy Administration 2018



Constraints on New Energy Uptake

- o The power market planning is **disordered** and **uncoordinated**, with **planning conflicts between national and local level, new and conventional energy, and power generation and power grid**.
- o Installation of new energy **exceeds the maximum load** of the system and **the problem of wind and solar curtailment** is severe.
- o **Local electricity demand** is inadequate compared with power generation. **The potential development of inter-regional power transmission and the full utilization of the well-constructed power transmission lines** need to be exploited.
- o Electricity consumption mix is dominated by **heavy industry**. The decline of the proportion of conventional energy leads to the prominent problems of **peak-shaving and frequency-regulation** in the system. **More flexibility is acquired on the demand side**.
- o The electricity trading is “province-based”, and new and conventional energy have conflicting interests. **The inter-provincial barriers hamper the optimal allocation of resources** within the region.

A Regional Electricity Spot Market Should be Established in Northwest China to Promote New Energy Uptake

Model of the Spot Market in Northwest China

Concepts Phasing Establishment; Orderly Development; Promoting Uptake; Regulating Supervision

Principles Central Dispatch; Hierarchical Management; Regional Level as Dominant and Provincial Level as Subsidiary



Research Findings and Policy Recommendations

Research Findings

- Spot market has the function of **optimizing resource allocation and correctly guiding investment**.
- Establishing a regional spot electricity market is essential to solve the problem of **wind and solar curtailment**.
- Northwest China possesses **excellent conditions** to establish a regional spot electricity market.
- The establishment of spot market in Northwest China needs to go through **a step by step process**.

Policy Recommendations

- The establishment of spot market should include two phases, gradually transiting **from Decentralized to Centralized**.
- The spot electricity market in Northwest China should be established **under the National Unified Electricity Market** to realize the effective **coordination between spot market and ancillary services market**.
- A unique trading transaction operation mechanism with new energy's participation should be built, to promote new energy uptake in terms of **transaction products, market composition, pricing mechanism and market clearing mechanism**.
- The **improved supervision and supporting mechanisms** for the market should be established.



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