

# Progress on the spot power market development in China

September 2022

Since 2017, China has established 14 provincial spot power market pilots, of which five pilots in the South Region (i.e., Guangdong), Shanxi, Shandong, Sichuan, and Gansu have achieved continuous settlement throughout the year. In August 2022, the South Region took the lead in launching a regional power market, that is, spot trading has been expanded from trading within Guangdong Province to inter-provincial trading in the five provinces covered by China Southern Power Grid. Currently, coal power generation enterprises and industrial and commercial users are mainly involved in spot power trading.

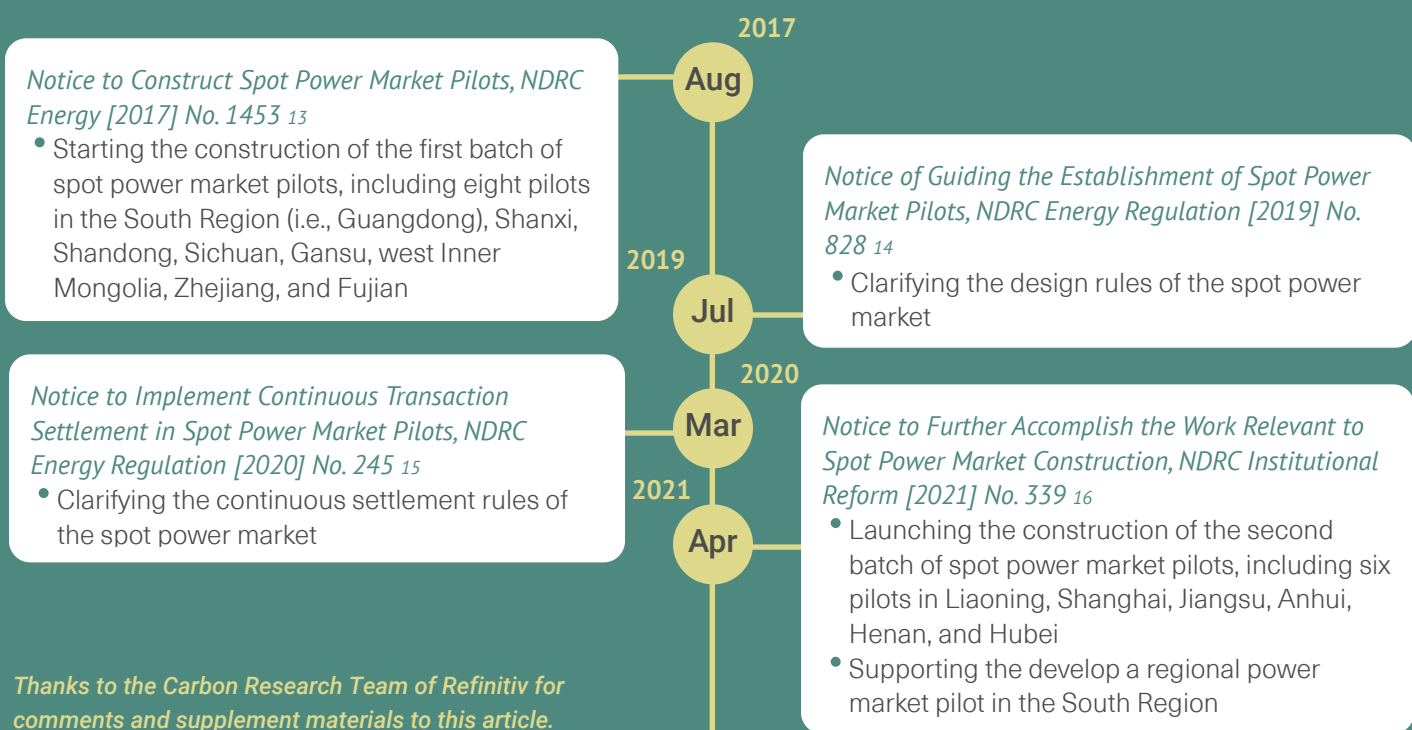
Due to the different power source and load characteristics, the spot power market presents different characteristics in various places. For example, Inner Mongolia has better wind and solar irradiance resources, thus the average price of the spot market in western Mongolia is relatively low, which can attract more production enterprises to settle down. Solar PV power generation accounts for a large proportion in Shandong, and its spot power market sees a period of negative electricity price during the day. The peak-and-valley price difference widens, fully reflecting that the supply and demand of the spot market determine the electricity price.

## Progress of construction of 14 provincial spot power market pilots

	Province	The share of thermal power generation in 2021	Current development status
The first batch of the pilot (Started in August 2017)	Southern (Guangdong)	76%	The continuous settlement of spot transactions throughout the year (trial operation); among which the South Region has launched a regional spot power market, covering cross-provincial spot transactions in Guangdong, Guangxi, Yunnan, Guizhou, and Hainan
	Shanxi	86%	
	Shandong	90%	
	Sichuan	15%	
	Gansu	58%	
	Western Inner Mongolia (Inner Mongolia)	82%	The continuous settlement of spot transactions (trial)
	Zhejiang	76%	Rules of the spot market are updated, and the simulation and settlement of spot transactions (trial) will be carried out after the approval
	Fujian	61%	
The second batch of the pilot (Started in March 2021)	Jiangsu	84%	Spot transaction simulation and settlement (trial)
	Liaoning	69%	Spot transaction simulation (trial)
	Anhui	92%	
	Henan	87%	
	Shanghai	98%	
	Hubei	47%	

Source: National Bureau of Statistics (NBS) <sup>10</sup>, Sichuan Energy Internet Research Institute Tsinghua University <sup>11</sup>, shoudian.bjx.com <sup>12</sup>, accessed in August 2022

## Policy dynamics of spot power market construction



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*Notice on Accelerating the Construction of Spot Power Market, NDRC General Office Institutional Reform [2022] No. 129*<sup>18</sup>

- By the end of June 2022, to start the trial operation of inter-provincial spot trading, to launch the South regional spot power market, to carry out the preparation of regional spot power market construction plans for the Beijing-Tianjin-Hebei and Yangtze River Delta regions
- By the end of 2022, the first batch of eight provincial spot power market pilots should achieve long-term continuous settlement of spot transactions (trial operation)

*Notice on Further Deepening the Marketization Reform of Coal Power Feed-in Tariff Mechanism, NDRC Pricing [2021] No. 1439*<sup>17</sup>

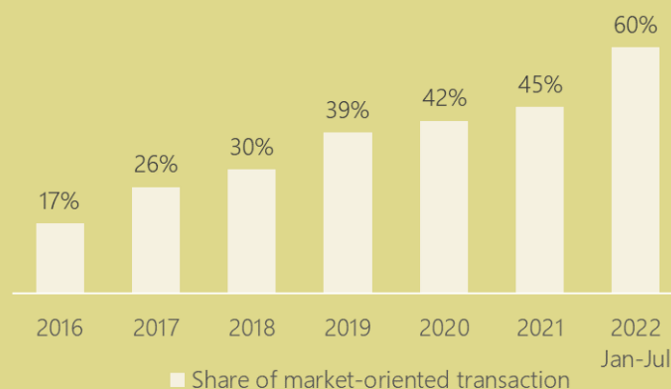
- 100% coal power generation and all industrial and commercial users above 10kV must participate in market-based transactions
- No upper or lower limit on the price formed by the spot power market

## The performance of market-oriented transactions

**As the government mandates that all coal power generation and industrial and commercial users participate in market-oriented transactions, the number of participants in market-oriented transactions and its scale continue to expand.**

According to the requirements of the *NDRC [2021] No. 1439* document, from October 2021, all industrial and commercial users must purchase electricity from the market directly or through the agency of power grid enterprises, the number of market participants has increased rapidly afterwards. The main participants in the power market include direct trading users, retail users without electricity retailing companies, and electricity retailing companies. Within half a year after the issuance of the policy, the number of market players in the State Grid's operating area increased by 50%, of which 12% were direct trading users, and 88% were retail users without electricity retailing companies, mainly general industrial and commercial users and small and micro businesses. Still, the number of new users was lower than expected. This is because there are less than 100 newly registered electricity retailing companies, which means that private capital is still taking a wait-and-see attitude towards the construction of the power market.<sup>19</sup> At the same time, the monthly traded electricity in each province increased by leaps and bounds. From January to July 2022, the cumulative electricity transacted nationwide exceeded 2,900 TWh, a year-on-year increase of 44%, accounting for 60% of the electricity consumption of the whole society.<sup>20</sup>

### The proportion of market-oriented transactions in the national total electricity consumption from 2016 to July 2022



Source: China Electricity Council (CEC), accessed in August 2022

## The performance of spot power markets

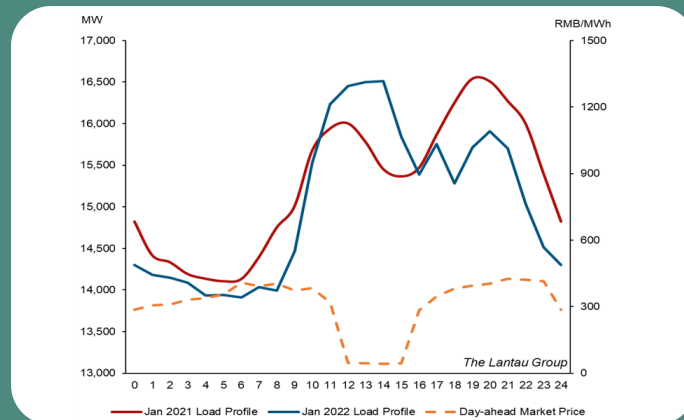
**The spot power market reflects the relationship between power supply and demands more realistically and in real-time, and initially realizes the transmission of primary and secondary energy prices.**

### Reflect real-time power supply and demand changes

Also, by the requirements of the *NDRC [2021] No.1439* document, the government imposes no upper or lower limit on the price formed through the spot power market. Spot transactions reflect the power supply and demand relationship in a timelier manner, and different time-of-use and regional prices are formed through market competition. Taking the spot power market in Gansu as an example, from May to December 2021, its monthly average spot price increased by 87%, providing a significant reference for subsequent medium and long-term contract transactions. At the same time, affected

by market-oriented price fluctuations, more users have changed from "demand-based electricity consumption" to "price-based electricity consumption", and the new user-side peak shaving capacity reaches nearly 2 GW, accounting for about 12% of the peak load in January 2022. Comparing the load curves of the Gansu Power Grid on a particular day in January 2021 and 2022, its peak load is shifted from 18:00 to 11:00, which not only reduces the pressure of the evening peak load hours but also increases the consumption capacity of renewable energy.<sup>21</sup>

### The load curve and day-ahead power price of the Gansu Power Grid on a particular day in January 2022, and the load curve of the same day in 2021



Source: The Lantau Group, the State Grid, accessed in August 2022

### Initial realization of energy cost transmission

According to the requirements of the *NDRC [2021] No. 1439* document, starting from October 2021, all coal power generation will be priced through market-oriented transactions, to more flexibly and truly reflect changes in the cost of coal power generation. In the winter of last year, affected by the tight coal supply, the medium and long-term coal prices in the State Grid's operating areas rose sharply, and the spot prices of electricity in Shanxi and Gansu rose accordingly, with the maximum increases of the monthly average day-ahead and intraday prices exceeded 60%, preliminarily realized the primary and secondary energy price transmission.<sup>22</sup> This summer, the spot power price in many places has risen due to factors such as high temperature and increased demand for electricity. For example, the real-time clearing price of the Shanxi spot power market once reached 1,600 RMB/MWh on August 26th, which truly reflected the cost of local gas power units participating in peak shaving when the power supply was tight.<sup>23</sup>

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