

# China Reflections

## Year-end Reflections and Outlook on China's Power Sector

18 January 2024

2023 is done and dusted, and the new year is already off to a roaring start! To mark the occasion, we asked a few of our China team members to contribute reflections on the reforms in China's power sector over 2023, and what they are now looking out for in 2024 and beyond.

### Point of Contact:

**David Fishman**  
Senior Manager  
dfishman@lantaugroup.com  
+86 185 1619 4400

### Anna - TLG Consultant, Hong Kong



2023 was an important year for green certificate reform in China. Throughout the year, in my discussions with generators and power end-users, I discovered an interesting market phenomenon: a mismatch between the certificates that renewable generators wanted to sell, and what end-user customers wanted to buy. Utility-scale solar and wind generators preferred to issue GECs, which commanded a higher market price, while C&I power end-users wanted to buy I-RECs to enjoy their lower price and higher degree of international recognition. When the sides were unable to secure a compromise and instead chose to "wait and see", sales opportunities were lost, and companies fell behind on their decarbonisation goals.

A few years ago, I thought it was probably impossible to have a well-recognised green certificate that was also cheap, since the best way to raise a certificate's credibility is an independent audit, which raises the costs. For I-RECs, this might still be true. However, the GEC reforms in 2023 addressed many of the issues limiting the GEC's attractiveness to buyers. The NDRC formally specified the GEC is the only certificate recognised in China for proof of renewable power generation and consumption, while expanding the scope of technologies covered by the GEC to cover offshore wind, distributed solar, and hydropower, among others. Meanwhile, expanding the supply of GECs should help to reduce their price, while eliminating the potential for power buyers to claim green consumption without holding a green certificate should increase their credibility. These measures will help with their attractiveness for corporate buyers.

The 2023 GEC policy reform still has a loophole though: it states GECs are recognized as the only 'renewable power' consumption proof, but it does not explicitly clarify whether a renewable project can issue a carbon credit for the same MWh of renewable energy. This potential double-counting issue between the carbon market and power market is yet to be resolved. Thus, I still agree with a comment in RE100's August 2023 Q&A paper, in which they advised their members to purchase all environmental attributes (i.e. both renewable certificates and carbon credits). I hope more policies will be available in 2024 that can dispel doubts over the quality of renewable attributes in China.

Anna Leung has a diverse background in business and law. Her experience in the energy sector includes renewable energy and sustainability policy, renewable energy sector analysis, and power market development and trading rules. She has worked across the region with a particular recent focus on power trading and green power purchase agreement transactions and structures for commercial and industrial customers in Mainland China and Taiwan.

*“2023 will still go down in the books as a pivotal year for the sector as it should mark the coal consumption peak for electricity generation”*

## David - TLG Senior Manager, Shanghai



2023 was a fascinating and important year for the Chinese power sector. In contrast to 2021 and 2022, which gave us flashy policy adjustments following high-profile power shortages, 2023 may have appeared to be a quiet year – at least if you follow the sector by reading the newspapers. In reality, however, 2023 brought the sector a slew of new reforms and policy adjustments, mostly incremental changes, but packing an impactful punch, nonetheless. While the pace will never be rapid enough for some, I was satisfied with the content and direction of the 2023 reforms, representing a return to the measured and intentional “one step at a time” reform approach, which has generally been normal for China’s reforms across many economic sectors.

Putting aside the pace of the policy reforms, 2023 will still go down in the books as a pivotal year for the sector as it should mark the coal consumption peak for electricity generation. Despite the strong growth in power consumption all year, the massive capacity additions for renewables have been of such a scale that they’re now very close to covering 100% of the new demand, which would cap the consumption of coal, while could be realised as early as next year. In fact, were it not for the relatively weak hydropower performance earlier this year, there was a good chance that 2023 would have been flat for coal consumption (and 2022 would have been the peak).

So where do we go from here? Clearly demand for electricity will continue to rise. This means that even after the coal consumption peak milestone is reached, the growth in renewables can’t slow down at all; it must be able to meet the incremental power demand growth in 2025, and 2026, and every year thereafter for a long time to come. Most of these renewables will be coming online in the West and Northwest of the country, for instance those huge renewables bases in the Gobi Desert. The next step will be to establish a robust cross-provincial power trading mechanism allowing buyers on the industrialised coasts to access this renewable energy generated in the inland regions, if there is to be any chance for power consumption to grow while coal consumption stays capped. Additionally, power prices must be further liberalised for this whole system to work well. Pricing reform is a tricky subject to get right in any power sector, and an especially fraught topic in Chinese economic reform debates, but getting it right is paramount to balancing energy availability and affordability. There’s a lot to look forward to in the Chinese power sector, and 2024 will surely be a year to watch.

David Fishman has 10 years of experience in the Chinese power sector, covering nuclear, coal, solar, wind storage, and grid infrastructure. At TLG, he focuses on our transactional and commercial due diligence work for energy developers, lenders, and financiers looking to buy, sell, or invest in Mainland China energy assets. His work in China also involves supporting MNCs with their evaluation and execution of their long-term power strategies, including evaluation and procurement of low-carbon power and renewable energy certificates. David is based out of the TLG office in Shanghai, serving the needs of our customers across Mainland China.

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## Ian - TLG Manager, Shanghai



official operations (versus their pilot phase).

In 2023, we saw the deepening of reforms in the electricity market, with improved market rules allowing higher renewables penetration. 23 provinces/regions now have trial operations in their spot markets, while mid/long term trading and ancillary markets have nationwide coverage. This was a major step forward for power sector reforms. Since January 2024, the spot markets of Shanxi and Guangdong have formally transitioned to

Shanxi and Guangdong spot markets experienced many challenges during their pilot phase, including power oversupply, power shortages, and soaring coal prices, etc, and have gradually revised their rules to effectively deal with complex market environments, making the “graduation” from the pilot phase even more impressive. I believe in the next two years more provincial spot markets will transition to official operations. Looking forward, wind and solar developers will face greater opportunities and challenges in the spot market with greater exposure to fluctuation of spot electricity prices.

Due to the still underdeveloped mechanism for spot trading and the rapid development of wind and solar, some provinces have seen significant lag for investment recovery of coal projects, damaging profitability and posing a threat to system stability. The coal capacity payment mechanism in 2023 was a good strategic measure to mitigate system reliability risk. There are concerns about the impact of this mechanism on the coal phase-out process, but I believe the mechanism is a transitional step aligning with the target of a unified national electricity market, while laying the foundation for a true market-based mechanism of capacity cost recovery (a capacity market). Such a market will eventually allow cost recovery for other types of capacity as well, such as storage, which can only be good.

Ian Yao analyses the key drivers of electricity and gas prices throughout Asia and works closely on Mainland China’s power and gas markets. Ian supports multiple due-diligence studies on transactions of wind, solar and thermal projects for international investors. He researches on market fundamentals, policy development, reform of Mainland China power and gas sectors, development of power and gas infrastructure, including power generation projects (coal, gas, hydro, nuclear, wind and solar), ultra-high voltage transmission lines and LNG terminals.

*“I’d want to see...even more aggressive policy reforms for storage on the end-user side to allow its huge potential to be realised”*

## Miaosu - TLG Consultant, Shanghai



The lower-hanging fruits for RE development have now mostly been taken, with the best remaining opportunities now in desert renewable bases and distributed renewables. Soon, another period of slower installations could appear, potentially recalling the curtailment crisis from 5-8 years ago, as distribution constraints lead to grid-connection congestion.. For a decade, the RE buildout has moved at dazzling speed – starting with utility-scale wind and solar, and then including more distributed energy in the past few years, thanks to new incentive policies and programmes, but available sites are surely getting scarce. The increased need for system flexibility created by new renewables is also becoming a challenge in many provinces. On land, RE development has been so aggressive that much of the suitable land in Eastern China is gone. Now we look to the sea; offshore wind and floating solar will be sources of bulk increase of RE supply in coastal provinces in the coming decade.

As for the remaining chances to build onshore in Eastern or Southern China, private developers may still find opportunities on rooftops. But this search for appropriate rooftops must be conducted at a grassroots level and is as difficult as it sounds. Furthermore, developers must carefully avoid the counties which lack transmission capacity to connect more renewables. In June 2023, the NEA mandated 6 provinces to re-evaluate grid bottleneck risks caused by distributed renewables, causing some counties to halt all distributed projects. Of course, for developers looking for a challenge, the path to deliver projects still exists...you can improve your flexibility with storage facilities or participate in peak regulation programs, for example. Could that mean thinner margins? Probably the answer is yes. But hope still exists for further declines in costs with cheaper modules, improved generation efficiency, and more capable O&M professionals.

To accommodate the rising RE penetration, most provinces have begun mandating utility projects to build energy storage at a fixed ratio of the nameplate capacity. At this point, we see rather low utilisation rates for those affiliated storage systems – they’re not helping the system to run more smoothly, nor decrease costs for RE project owners. Rather, they are just additional capex for developers. Downstream reforms, specifically market mechanisms, will be needed to address this issue. Some provinces now encourage the development of independent BESS by allowing it to trade in the power market. I’d want to see similar or even more aggressive policy reforms for storage on the end-user side to allow its huge potential to be realised.

**Miaosu Li specialises in researching and analysing regional energy markets in mainland China and Taiwan. Her experience includes commercial due diligence of renewable power assets, energy cost analysis and forecasts for large end-users, power market reform analysis, market fundamental analysis, support in PPA, intermediate services, power tariff modelling (Taiwan), as well as civil nuclear certification and market development advisory for western companies (China mainland).**

*“The CCER market still has no trades because no auditing organisations are approved to verify projects – this must be resolved as quickly as possible”*

## Sonia - TLG Analyst, Shanghai



The developments to China's Emissions Trading Scheme in 2023 made me feel optimistic, but also cautious. I was glad to see that the free emissions allowances for the compliance cycle were tightened, but it was disappointing to see that at least for now, surplus allowances from the previous cycle can be banked for future compliance. I see this as using money to reward early movers in the first compliance cycle, regardless of how many emissions they actually reduced, which is unfair to latecomers who may have had larger overall emissions reductions. Soon, the government will include eight emissions-intensive industries in the national ETS, with iron/steel and cement the most likely to be added first. The MEE recently updated the greenhouse gas verification and reporting guidelines for these sectors, which makes it look more likely, but we don't have a clear sign whether these industries will definitely be included in the next compliance cycle or not.

And then of course it was really exciting to see the CCER issuance scheme relaunched at the end of 2023, after a six-year absence of new carbon credits in the market. The relaunch applies stricter regulations to project registration and the procedure for emissions reduction verification, which should improve the additionality of the newly issued CCERs. Right now, the CCER market still has no trades because no auditing organisations are approved to verify projects – this must be resolved as quickly as possible. The next key step for China's carbon market would be for the government to provide further explanation regarding the “uniqueness” of CCERs to demonstrate that they are definitely not double-counted with China's green energy certificates...I'd love to see some policy clarification on that in 2024.

Sonia Tan specialises in researching and analysing policy reforms and their impacts on the Chinese energy sector and regional energy market, as well as the development of the Chinese National Emissions Trading Scheme (ETS). Her other experience includes energy cost analysis and budget forecasts for C&I end-users, market fundamental analysis, power tariff modelling, carbon market research and analysis, and green power market analysis.

## About The Lantau Group

The Lantau Group (TLG) provides strategy and economic consulting services focused on the Asia Pacific's energy, network, and infrastructure sectors.

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Thanks for indulging the TLG China team here by reading our first-ever annual letter. We hope you agreed that these topics from 2023 are as interesting and thought-provoking as we felt they were, and that you're looking forward to the big developments of 2024 with an equal level of anticipation. As always, the TLG China team is ready to receive your questions, comments, and inquiries - we're just an email or phone call away and we'd love to hear from you.

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