

## A New Chapter in China's Electricity Market Reform

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### SYNOPSIS

At present, China has the largest installed generating capacity in the world, reaching about 1,490 gigawatts (GW) in 2015. However, its electricity market reform has been lagging behind. In 2015, China started a new chapter in its electricity market reform, which aims to introduce market mechanisms to various areas in the power sector, including the electricity pricing mechanism and retail market, with the aim of building a national electricity market. If successful, these steps are expected to reshape China's power industry.

### KEY POINTS

- China started a new round of electricity market reform in 2015 which covers the electricity trade centre, retail market reform, dispatch plan and several other key areas in its power industry, including electricity pricing reform.
- Under the principle of “cost plus reasonable profit”, transmission and distribution tariff reforms have taken place through seven pilot programmes at the regional level, and they are expected to expand nation-wide.
- The opening up of the retail electricity market is a highlight of this reform, which has attracted various investors, enlarged the market scale for direct electricity purchase, and created a relatively independent electricity trade centre open to all the qualified market participants.
- However, there was no mention of a role for independent system operators in this latest round of reform. Thus, grid companies will still be in charge of developing electricity consumption, generation and dispatch plans, except for direct purchases between large industrial and commercial consumers and power plants.

### INTRODUCTION

After more than a decade of stagnation, China's Central government started a new round of power sector reform in March 2015 following the release of the document, *Further Strengthening the Institutional Reform of the Electric Power Industry* (also called Document No. 9). The major research areas identified in the document are namely, electricity pricing mechanism, electricity trading mechanism, dispatch plans, electricity distribution and the opening up of the retail business.

Meanwhile, Chinese policy-makers are also planning the deregulation of the electric power industry. This reform agenda will change the regulators' roles; although there is

no clear timeline at this stage as to how long the transition time would be. Following the release of Document No. 9, the National Development Reform Commission (NDRC) and the National Energy Administration (NEA) jointly released six supportive documents on 30 November 2015, which cover six key topics identified in this reform, namely transmission and distribution electricity tariff reform, electricity market, electricity trade organization, electricity dispatch plan, retail market reform, and the discipline and management of coal-fired self-generation power plants.

These documents provide detailed information such as the objectives, rules,

measures, institutional arrangement required to support the reform in each of the identified areas. The reform of the electricity pricing mechanism is the highlight of this reform, which aims to separate transmission and distribution tariffs from electricity prices in the generation, wholesale and retail sectors. Furthermore, it also encourages large industrial and commercial consumers to buy electricity from generation companies based on direct electricity purchase agreements at negotiated prices. This move will introduce market influence into electricity price formation, compared to the fully regulated price, which is the current practice.

## **ANALYSIS**

### ***Why Now?***

Discussions on this reform already started in 2014 and there were heated debates among various stakeholders both inside and outside the power sector. Although discussions on China's electricity market reform never completely stopped, the level of enthusiasm dropped. This is because there has not been much progress since the previous major reform of 2003. At that time, China successfully restructured the vertically monopolistic electric power industry, and in the process, set up two grid companies and five large generation corporations. However, the actual achievement was relatively limited compared to the objectives laid out in the 2003 reform plans. Most important of all, electricity tariffs remained fully regulated, which prevented effective competition among market participants.

Timing could be one of the major reasons for China's policy-makers to start this latest round of reform. During the 3rd Plenary Session of the 18th Communist Party of China (CPC) Central Committee held in November 2013, China's new leadership set the goal of overall market reform, with the objective to "speed up the improvement of modern market system and improve the market pricing mechanism". Among the basic industrial sectors in China, the power sector is the only one with fully regulated prices. Therefore, there are clear incentives and pressures to further liberalize this sector.

In addition, after more than three decades of rapid growth, China's economic growth has

started to slow down. This has affected electricity demand which is mainly driven by economic growth, in particular, by the fast development of industrialization and urbanization. According to the NEA, 2014 saw a significant drop of electricity consumption growth at 3.8 per cent, which is the lowest level in China since 1998. Previously, the government's key objective was to ensure sufficient electricity supply at acceptable prices. The current economic slowdown thus provides an opportunity to implement reform measures in the electricity market since there will be less pressures with regards to supply security and tariff increase.

### ***Transmission and Distribution Tariff Reform***

In the transmission and distribution (T&D) sector, tariffs should be set under the principle of "cost plus reasonable profit" at different voltage levels. In order to prepare for a transparent T&D cost system, the T&D costs of the grid companies nation-wide are being examined. The business and profit model of grid companies will be changed if this policy can be successfully implemented since their monopolistic position as the only buyer and seller in the electricity market will become largely restricted as a result.

Pilot reforms on T&D tariffs have been approved in seven cities, provinces, and municipalities by the Central government, namely, Shenzhen, Western Inner Mongolia, Hubei, Anhui, Yunnan, Guizhou and Ningxia. They cover the operation areas of the following grid companies: China Southern Power Grid, Inner Mongolia Western Grid, and the State Grid Corporation of China. These regions have different patterns of electricity supply and demand. For example, Yunnan and Guizhou are electricity exporting provinces with high shares of hydro power in their electricity generation mix; the Inner Mongolia Western Grid faces challenges while exporting its large amount of wind power to eastern China through the Northeast China Grid and North China Grid companies; while Hubei increasingly relies on electricity import from other provinces.

It is hoped that the experiences collected from the pilot reforms projects can be applied to the rest of China. The supportive document

*Implementation Opinions on Promoting Transmission and Distribution Tariff Reform* released in November 2015 also encourages other qualified regions to join the pilot reform programme and to implement the T&D tariff reform nation-wide eventually.

Moreover, reform on the end-user cross-subsidy in the electricity sector will also take place along with the electricity pricing mechanism reform. Cross-subsidies for electricity tariffs have existed in China for decades for both economic and social reasons and are considered difficult to address. For example, unlike most countries in the world, the residential electricity tariff in China is set at a lower level compared to the industrial and commercial sectors since the primary emphasis by the government was on affordability. This reform aims to eliminate unreasonable cross-subsidies, while keeping or even increasing the reasonable ones, such as the renewable energy surcharge.

During the reform transition period, grid companies have to report the amount of cross-subsidies to the price regulation agencies, and collect them through T&D tariffs. After the completion of T&D tariff reform, cross-subsidies will be separated from T&D tariffs. However, the final solutions for removing cross-subsidies are still to be explored.

#### **Reform in the Retail Electricity Sector**

Another highlight of this reform is that with the opening up of the retail electricity business, the investment opportunity is now expanded to non-state-owned investors. According to the Chinese news outlet, China Energy Net, this policy has stimulated the market and more than 300 retail electricity companies have been set up by the end of October 2015. In addition to the five largest state-owned power generation corporations who have set up their affiliated retail electricity companies, many applications from other investors have also been approved, including public-listed Chinese companies such as SUNVIM and Clou Electronics, and other state-owned companies such as Guangzhou Development Group Incorporated.

However, not much business has yet been carried out by these companies as they are

waiting for the official supportive document(s) which will explain how participants in the retail market should operate in practice. Ultimately, the number of participating companies will not be the key factor as this number can change rapidly. The key policy focus and measure of success should instead be on the setting up of clear rules in the retail electricity market and in the ability to develop and maintain an open and fair platform for all types of retailers.

The minimum registered capital of a retail electricity company is RMB2 million, which establishes a relatively high threshold for potential investors. As grid companies are also allowed to apply for the set-up of retail electricity companies, some investors may be concerned with facing unfair or at least tough competition from grid companies on price. They are more likely to be able to compete with grid companies on service quality, such as offering differential contracts to attract different consumers, providing tailored energy saving plans based on advance data analysis, demand-side management (DSM).

#### **Electricity Generation, Consumption and Dispatch Plan**

In the supportive documents, *Implementation Opinions on the Sequential Opening-up of Generation and Consumption Plan* (November 2015) and the *Implementation Opinions on the Promotion of Electricity Market Development* (November 2015), both market-oriented reforms and preferential plans for certain participants have been included.

Firstly, the direct purchase of electricity is opened up for large industrial and commercial consumers at 110 kilowatts (kW) as well as some consumers at 35 kW, and there are also plans to open such purchase arrangements to other lower-voltage industrial and commercial consumers in the future.

Secondly, an electricity market has been proposed, starting with pilot projects to develop a real time electricity market, which will eventually be expanded to a national market system consisting of various trading goods. At the same time, current end-user category-based tariffs will also be deregulated. Along with the opening up of direct purchase

of electricity, some industrial and commercial consumers will be required to enter the electricity market to purchase electricity directly from power generators or through retail electricity companies. Furthermore, some of the regulation regarding on-grid tariffs will be eliminated step-by-step, except for the participants who have dispatch and purchase priorities.

Thirdly, a separate but large group of consumers are kept out of the market competition and are provided priorities for purchasing electricity at regulated tariffs. They include the agriculture, hospitals, water and gas supply, public transport and residential sectors, which collectively consume slightly less than 30 per cent of China's total electricity consumption. Finally, the generation and dispatch priority are provided to renewable energy sources such as wind, solar and biomass, and co-generations, as energy conservation and emission reduction are also major objectives in the electricity market design.

As with the electricity market reform in 2003, strengthening competitiveness in the electricity market is also emphasized as a key goal of this reform, but with more details for implementation, especially on the T&D tariff reform. As a key component in the deregulated electricity market, independent system operators have not been included in this reform plan. This is probably due to resistance from the grid companies. In other words, the latter will still be in charge of making dispatch plans, and this will ensure their continued influence over other participants, including power generation companies and consumers.

Given the importance of the dispatch plan for every participant, including grid companies in the market, the institution in charge of dispatch planning should ideally be an independent agency so as to facilitate fair competition and to establish and maintain an effective framework. Private and non-state-owned investors will have to rely on the transparency and fairness of the dispatch mechanism when they compete with state-owned generators to get access to state-owned grid companies.

Finally, it is worth pointing out that there was no mention of a role for independent system operators in this latest round of reform. This is an unfortunate exclusion since this could greatly boost competition and help eliminate market distortions.

#### WHAT TO LOOK OUT FOR

- The extent to which direct purchase contracts can attract large industrial and commercial consumers entering the market, and help set a market-based electricity pricing mechanism.
- The extent to which grid companies will be involved in the institutional design of electricity trade and settlement centre.
- A more precise timeline for the opening up of electricity dispatch plans, and completing separation of T&D tariffs from electricity prices.
- Additional policies that may further expand the electricity trade between regions and provinces.
- Clarification of rules in the retail electricity market, and whether it will remain attractive for various types of investors and become a viable market.

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