

The Behavior and Influence of Provincial Governments in Electricity Price Reform

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Abstract: The first pilot provinces that conducted reform have achieved a general decline in the cost of electricity consumption for industries and business in the short term by accounting for their transmission and distribution prices and advancing the direct power transaction, resulting in the economic development. It cannot be ignored, however, that the provincial governments play a limited role in the local economic restructuring and development, due to their limited role and influence in the electricity price reform and the relatively simple regulation of transmission and distribution prices. Therefore, the provincial governments should fully consider their own resource endowments in pushing forward price reform, actively explore how to scientifically determine transmission and distribution prices, rationally regulate the price, and strengthen the supervision function on electricity price, so as to play a vital role in the development of economy with a high quality.

According to the *Further Deepening the Reform of the Electric Power System* (No. 9 [2015] of the CPC Central Committee) issued by the CPC Central Committee and the State Council in 2015, the government has clearly defined the objectives and key tasks of the price mechanism reform and electricity price reform. Specifically, in accordance with General Secretary Xi Jinping's concrete plan for the power system reform, the government will focus on enabling the market to play a decisive role in the allocation of resources and better play its role, actively adapt to and lead the new normal of the economy, adhere to the general tone of making progress while maintaining stability. It will set the structural reform as the main task, establish and implement the five major development concepts, focus on the key task of "cutting overcapacity, destocking, deleveraging, reducing corporate costs and shoring up weak spots". Additionally, it will adhere to the people-oriented development, co-ordinate and promote electricity price reform, rationalize the electricity price form mechanism, to further promote the electricity tariff reform in depth. The provincial governments play a significant role in advancing the supply-side structural reform and vigorously promoting the reform of the electric power system. It is necessary to clearly define the relationship between the central government and local governments, and to promote the realization of power price reform based on the province conditions, so as to achieve the economic sustainable development or reducing the electricity price for industries and enterprises. By empowering the provincial governments to "regulate the middle and let go of both ends", i.e. to strengthen regulations on the electricity transmission and distribution price, and gradually release regulations on the on-grid power price and the selling price, the industrial electricity tariffs have been gradually cut to effectively relieve the pressure on enterprises' cost, thus stimulating the economic development.

1. The Electricity Pricing and its Price Composition

Electricity price is a monetary manifestation of its value (including the products and the services), a collection of prices from electricity production, transmission, distribution and sales, and the price of a special and important product with basic and resource-based nature. From the analysis of these four links in electricity industry, the electricity price can be categorized as generation price,

transmission and distribution prices and sales price respectively. The electricity generation price, i.e., the ex-factory price of power generated by power plants, reflects the scarcity of electricity generation resources and cost differences, and its fluctuations can be utilized to rationalize the power supply structure. The transmission and distribution prices, also called electricity grid price, are the prices at which the owners of transmission and distribution grid sell the electricity power to the power-selling enterprises. The sales price of electricity, meaning the price at which the end-users pay to the power-selling companies, also known as the user price or the retail price, is close to the connotation of the retail prices for general commodities. In this paper, we mainly study the transmission and distribution prices.

The transmission and distribution prices work mainly for three aspects, i.e. the investors, managers and consumers. The government determines a reasonable income level for transmission and distribution tariffs, and guides investors to invest rationally to the power grid. Therefore, under the determined level of transmission and distribution prices, especially the performance-based approach to regulate the prices, grid operators can only make a higher profit by strengthening management, reducing costs and improving operating performance. The level of the prices can have a direct impact on users to increase or decrease consumption. Judging from the natural properties of electricity generation, transmission, distribution and sales, the generation and sales are the competitive links while the transmission and distribution belong to the natural monopoly links, whose economies of scale outweigh the competitive benefits within a certain region. As a result, more stringent economic regulation should be implemented on the electricity transmission and distribution, and their prices or the income of power grid enterprises should be put under control.

2. The Analysis on the Implementation of Provincial Governments on Electricity Price Reform

2.1 The reform of transmission and distribution prices has been proactively promoted, laying the foundation for restoring the commodity attribute of electricity prices

In accordance with the spirit of the state power system reform, the first pilot provinces, such as Guizhou and Hubei, have independently approved the transmission and distribution prices according to the principle of “allowable costs plus reasonable profits”. Based on *the Measures for the Cost Supervision and Examination of Power Transmission and Distribution Pricing (for Trial Implementation)* (No. 1347 [2015] of the National Development and Reform Commission), accounting cost pricing (i.e. cost-plus pricing) is adopted for transmission and distribution prices, a combination of the original value depreciation of the fixed assets related to transmission and distribution services, the operation and maintenance costs (including material costs, repair costs, and artificial salaries, etc.), the costs to maintain the normal operation of power grid enterprises and their reasonable profits. The government supervises the cost of grid companies through audit institutions, regulate the transmission and distribution prices, so that those of power grid enterprises can be approved, the commodity attribute of electricity price restored, and the follow-up transaction of both supply and demand side implemented on a solid foundation. Guizhou Province, as an example, have approved transmission and distribution prices in the first regulatory cycle through cost-plus pricing, as shown in Table 1.

Table 1 Guizhou power transmission and distribution prices in 2016-2018

Program	Electricity (yuan/ KWh)					Basic price	
	Less than 1 kV	10 (20) kV	35 kV	110 kV	220 kV	The maximum demand (yuan/kV. month)	Transformer capacity (yuan/ KWh. month)
Electricity used for general business and others	0.4660	0.3991	0.3365				
Large industry electricity		0.1739	0.1302	0.0799	0.0567	35	26

Data Sources: Guizhou Provincial Development and Reform Commission (No. 402 [2016] of Guizhou Development and Reform Commission)

2.2 A trading platform for electricity has been established to realize market transactions between generation and sales sides, and to gradually promote the market

Before the power system reform, the user side does not trade directly with the generation side, nor do they have the right to choose due to the predominance of power grid enterprises. All electricity generation enterprises arrange the annual generating capacity according to the allocated quota, and implement the uniform on-grid power tariffs of hydropower and fossil-fuel power. While after the reform, this problem has been gradually solved as the government set out to conduct macro-control and build the power trading platform.

Take Guizhou Province for example. It took the lead in the country to set up a power trading center, through which the electricity generation side and sales side managed to trade directly. Through comparing prices and selecting, large power users negotiate with electricity generation enterprises for ensuring the on-grid power tariffs. In this way, the power price paid by users = the agreed on-grid price + the transmission and distribution price decided by the government + the government taxes and others. As a result, the electricity costs of power users have been reduced; while on the other side, generation enterprises have been competing with each other so that some with big unit capacities, low generating costs and advanced management have had more competitive advantages, whereas their weaker counterparts have gradually phased out. Following the deployment in the *2017 Implementation Plan for Sustaining and Reducing the Power Consumption Costs of Industrial Enterprises*, Guizhou will work to further expand the electricity market, and add new registrations of several market entities, so as to achieve a full coverage of market transaction with the participation of large industrial users, and to reach over 42 billion kilowatts for the power trading volume throughout the year.

2.3 The influence of the government on the current economic development through the power pricing regulation method “regulate the middle and let go of both ends”

By carrying out the power pricing regulation method of “regulate the middle and let go of both ends”, i.e. to approve transmission and distribution tariffs and promote the marketization for power generation and sales sides, the provincial governments have managed to reduce the power costs for the local business entities, and promoted their production resuming to a certain degree, thus improving the cost competitiveness of the local products. Take the year 2016 as an example, the comprehensive power price of large industrial enterprises in Guizhou province dropped by 0.12 yuan / kWh, reducing their electricity cost by 5.066 billion yuan. Through the power price reform, Guizhou, as the province with the lowest power price in China, has been able to cut the energy supply costs, and to form a “low-lying land” of power costs and a “high land” of focusing industrial elements. Consequently, its industrial competitiveness and attraction for investment has been growing, and its industrial economic growth has exceeded the national growth for five consecutive years, with the stable year-on-year increase rate higher than the national rate by 3.5%. Seeing from the table showing how power price reductions in the first reform pilot provinces affected local GDP growth, the reducing power price did stimulate the economic development. One of the principles for this is that, with power industries keeping reasonable monopoly profits, the government has realized the rational and effective allocation of resources in the whole social production system, thus promoting the balanced development of all industrial systems, and maximizing the social production efficiency and the average profits.

According to the rough estimates of the data from Guizhou Municipal Commission of Economy and Informatization, the industrial added value brought by each ton of coal is about 930 yuan. Among them, coal enterprises achieve the added value of about 70 yuan by producing each ton of thermal coal; through the transmission and distribution of each ton of thermal coal, roughly 440 yuan of added value is achieved in the power industry link (including the generation and supply); then an average of around 420 yuan is achieved in added value after the consumption of power users. Despite the fall of power price due to the regulation method of “regulate the middle and let go of both ends”, the provincial governments have managed to spur power consumption, offset the impact of the low power price on the energy industry with increasing volume, and realized a

win-win situation among power users, the power grids and generation enterprises, driving the growth of industrial added value in the entire industrial chain. Taking Guizhou Province as an example, its total electricity consumption in 2017 exceeded 100 billion kwh, an increase of 14.3% over the same period of last year. The output value of energy industry accounted for nearly 50% of Guizhou's added value of industries above designated scale, reaching nearly 30% contribution rate of economic growth. On the other side, with the approved power transmission and distribution prices, the government has determined the reasonable profits of power grid enterprises. Hence these enterprises can keep the ability to self-accumulate and expand the investment scale so as to ensure their development potential. Moreover, the government can take advantage of pricing regulation to encourage power enterprises to, starting from inside, improve the resource allocation efficiency and make economic decisions, thus making up for the market failure as well as improving the production efficiency

Table 2 The influence on local GDP growth of the power price reduction in first pilot provinces

	Overall power price reduction for general business entities in 2016 (Yuan / kWh)	Average annual GDP growth rate for 2016
Guizhou Province	0.12	11.73%
Anhui Province	0.0428	8.7%
Yunnan Province	0.003	8.5%
Hubei Province	0.03	8.1%
Shanxi Province	0.0609	4.5%

Data resource: websites of the China Electricity Council and the National Bureau of Statistics of China

3. The deficiencies in the Government Promotion of Power Price Reform

3.1 The price formation mechanism lacks a theoretical basis, and the regulation method remains too single

Despite the current approach of “allowable costs plus reasonable profits”, there is no standard method for accounting costs and profits, while in terms of the system, effective norms of price laws and the guarantee for the mechanisms of information transparency are still missing. The adjustment of the power price depends, to some extent, on the bargaining between the government and grid enterprises, as well as the interest coordination among various interest groups. This uncertainty of the price formation mechanism brings about a number of downsides: the enterprises can pass on the costs at will, reducing the external pressure coming with costs and the internal drive to improve efficiencies; price regulation lacks both incentive and binding effects, leading to ineffectiveness. Overall, the price regulation method is too single.

3.2 The reform of power price regulation lags behind, and the functions of the regulatory agency needs to be improved

The current price regulation agencies in our country are mainly administrative departments, which has the final decision for power price yet the single function. Therefore, the enterprises under the regulation face a serious information asymmetry, resulting in a difficulty of implementing the demand management for power enterprises and monitoring their operation costs. Moreover, power price management falls into a passive position due to the missing coordination mechanism among relevant departments along with the sharp drop of their monitoring capacities.

3.3 The power price reform fails to coordinate the economic restructuring

During the current implementation of power system reform, different provincial governments have carried out a combination of measures to reduce electricity prices. Yet some of them have still been holding the misperception that “to promote the power system reform is to cut power price”.

The price reduction, in a short term, do stimulate the production of some industries, especially for those with high energy consumption and low added value, hence sensitive to power price. For instance, in 2017, there were 251 power users in the direct power transaction (not including those from power sales agency companies) in Guizhou, among which 7 are electrolytic aluminum users with the signed power volume reaching 14.988 billion kWh. The local production value could be improved in a short term under the government's current assessment of economic development. In a long run, however, as the market supply and demand have not changed and the competition among provinces to reduce power prices have prevailed, vicious competitions could take place, and some imbalances between supply and demand in industries with excess capacity could be further expanded. All these may have a detrimental impact on pushing forward industrial restructuring and the intensive development mode for concerned enterprises through improving their technological contents, as well as transforming China's economy from focusing on speed to quality and efficiency.

4. Suggestions and Conclusions

The study of the power price formation mechanism should go further based on its characteristics. The legal status of tariff regulation department should be established, our price hearing system improved, the status of cost monitoring procedures highlighted and price regulation measures further improved. We suggest provincial governments to think long term rather than solely pursuing short-term interests, coordinate the price reform with the provincial economy, and explore how the price can be integrated into the economic restructuring. The governments should, meanwhile, to strengthen supervision on the enterprise types which cut the power price in the trading, and rigorously approve enterprises with high energy consumption, high pollution, low added value and overcapacity to participate in power trading market so as to keep them from the dividend of price reduction. In addition, a long-acting mechanism for enhancing the management on the power demand side need to be set up to ensure the quality of power supply; the Balance Fund for power price be established to avoid the imbalance of cross-subsidization. Overall, provincial governments need to, in promoting the power price reform, identify and give a full play to their own roles, status and functions, and with the consideration of their own economic characteristics, to constantly improve their behaviors and effects in the reform when performing their economic functions, the in-depth development of power price reform and the economic growth to a high-quality direction.

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