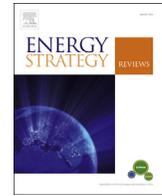


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## CASE STUDY

# Market entry barriers for foreign direct investment and private investors: Lessons from China's electricity market

Sun Xuegong, Guo Liyan, Zeng Zheng\*

*Institute of Economic Research, National Development and Reform Commission, Room 1317, Building B, Guohong Building, Jia. No. 11, Muxidibeili, Xicheng Dist., Beijing 100038, China*

## ARTICLE INFO

## Article history:

Received 17 September 2012  
 Received in revised form  
 22 January 2013  
 Accepted 5 February 2013  
 Available online xxx

## Keywords:

Electricity market  
 Market entry barriers  
 Foreign direct investment  
 Private investors

## ABSTRACT

Energy market Integration (EMI) is one of the priorities of regional cooperation identified by leaders from the East Asian Summit (EAS) region. The countries in the region have made great efforts to push for the electricity sector reform so as to boost the participation of private investment. However, a review of these reform experiences suggests that there is significant disparity between the expected and actual outcomes of reform. China has implemented its reform program since the 1990s, and a major reform was introduced in 2002, with the corporatization and unbundling of electricity being achieved. But, a competitive market has not yet been established due to both political and technical difficulties. Motivated by the Power Purchase Agreement (PPA), the participation of private investment in China was expanded in the 1990s. Paradoxically, after the introduction of a major reform in 2002 which created more favorable conditions for the private sector, foreign investors retreated from China. Among other things, the authors identified the fragmented regulatory system, unpredictable pricing mechanism, limited access to transmissions, fuel and financing, and unchecked expansion of the state-owned sector as major barriers that impeded the participation of the private sector. The policy responses and implications of China's experience for the region are also discussed.

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## 1. Introduction

In the fifth East Asian Summit, leaders cross the region emphasized the need for greater regional cooperation on energy and welcomed the efforts to address market barriers and promoted more transparent energy trade and investments [1]. Clearly, market liberalization is an important part of EMI in the East Asia Summit region. However, for the electricity sector, once dominated by publicly owned monopolies over the full range of sector activities from production to

distribution, market liberalization is a hard nut to crack. Since the 1980s, electricity sector reform has been implemented across the region in hope to break the monopoly and in turn to attract private investment. A review of these reform experiences suggests a significant disparity between the expected and actual outcomes of reform [2]. The World Bank attributed the disparity to the political nature of electricity tariff setting and the huge stake of investments and assets involved [3]. To better understand the barriers of private participation specific to the region, this study will examine China's experience in electricity sector reform and private participation in the electricity sector. Since the introduction of economic reform in 1978, China has implemented a profound reform in the electricity sector, paving the path for

private and foreign investor entry. Paradoxically, after a major liberalization reform in 2002, private and foreign investment in the electricity sector receded, revealing that breaking the entry barrier is much more than a one-strike effort. The study is aimed to systematically examine the barriers that hinder the participation of private and foreign investors in China's electricity sector and shed light on policy measures to address this problem.

## 2. Chinese electricity market reform

Before the reform, the Chinese electricity sector was a typical state-owned and vertically integrated industry run directly by the power ministry. As a major measure to break the bottlenecks of power shortage, China

\* Corresponding author.

E-mail addresses: [sun\\_xuegong@163.com](mailto:sun_xuegong@163.com) (S. Xuegong), [guo\\_liyan@126.com](mailto:guo_liyan@126.com) (G. Liyan), [zengzhengamr@gmail.com](mailto:zengzhengamr@gmail.com) (Z. Zheng).

begun its electricity sector reform in the 1990s. The reform initiatives are discussed as follows.

### 2.1. The unbundling of the electricity industry

The first step of the reform was the corporatization of the electricity businesses once run directly by the government. In 1997, the state electricity company was created to take over the management of the electricity industry and the power ministry was scrapped in the following year. In 2002, the State Council officially adopted the electricity system reform program, which asked for the separation of power grid and plant and claimed that the goal of the reform was being implemented to establish a competitive electricity market [4]. The unbundling went smoothly. The state grid and its junior counterpart, South Grid, were established. Both are responsible for electricity transmission and distribution. On the power plant side, five power generation companies were also put into operation. However, the establishment of a competitive electricity market has never been within reach because of political and technical difficulties.

### 2.2. Electricity pricing mechanism

In China, electricity prices are subjected to government regulations. The National Development and Reform Commission (NDRC) sets both the on-grid price and retail price. The rule of price regulation has been changed several times. At the beginning of policy implementation, in order to promote investment in the electricity sector, the on-grid price was set based on the cost and allowed return of individual projects. Later, for improving the efficiency of investment, a yardstick pricing mechanism was introduced. Under this rule, the same on-grid tariff is applied to all power plants of the same type located in the same region no matter what the individual cost was. To tackle the impact of the fluctuation of fuel price on power plants, a mechanism to link the on-grid price to coal price was also established. However, this mechanism has not been strictly followed; coal prices have skyrocketed and general inflation has risen driving power plants into difficult financial situations in recent years. The retail price of electricity, on the other hand, has been set more discretionally as the independent transmission and distribution price is not yet determined. China has adopted the rate of return method for setting transmission and distribution prices. However, the rule for accounting regulatory assets and allowed costs has not been established.

### 2.3. Market entry regulation

The liberalization of the power generation sector entry was done well before the major reform in 2002 with the aim of alleviating the serious shortage of electricity supply caused by the take-off of the Chinese economy. As a result, foreign investors were encouraged to build Independent Power Plants (IPP) in China at very favorable terms. The long term Power Purchase Agreement (PPA) usually offered the foreign investors three guarantees, i.e. guarantee of the sale of electricity, guarantee of the electricity price, and guarantee of the investment return. The committed return could be as high as 15%–20% annually. This super-national treatment ceased by reform in 2002 basically putting all agents of the electricity sector, both domestic and foreign, into the same regulatory framework. In 2010, a new package to encourage private investment was announced by State Council [5]. Renewable energy such as wind, solar, geothermal, and biomass were identified as sectors that generally welcomed the involvement of the private sector. The private sector is also permitted a controlling stake of, or sole ownership of, conventional power plants. The participation of the private sector in nuclear power plants is also allowed in the form of joint venture. The electricity transmission and distribution business, dominated by State Grid, South Grid and a small number of local grids, is still de facto, closed to foreign or private investment, even without explicit embargo.

### 3. The evolving role of foreign and private investment in China's electricity industry

Corresponding to the change in policy regime and market conditions is a change in the role of foreign and private investment in China's electricity sector. Supported by preferential treatment, foreign and private investment experienced a booming in the 1990s. The major reform introduced in 2002,

which provided a more secure legal framework for market opening, also terminated the super-national treatment to foreign investment together with other factors (for example, the Asian financial crisis of 1997 led to a large scale exodus of foreign investors). As a result, foreign and private investment that had accounted for a considerable share of power generation capacity now plays a relatively insignificant role in China's electricity sector.

### 3.1. The prime time for foreign and private investors in the 1990's

As the Chinese economy took off after the reform in 1978, electricity supply increasingly became a bottleneck to further development. To close the gap of electricity demand and supply, the Chinese government worked out a policy to encourage investment from all sources to this sector. Among other things, PPA was widely used during this time to attract the foreign investment. As the result, Independent Power Plants (IPP) mushroomed; and their numbers rivaled central government owned power plants. Local governments were owners or co-owners of most IPPs while a considerable number of foreign and private players also participated. The World Bank data revealed that from 1990 to 1999 China attracted USD 19 billion FDI to invest in the electricity sector; second only to Brazil (see Fig. 1). Most FDI to China was greenfield investment rather than divestiture, making China an outstanding target of investment as compared to other developing countries. Power plants were the main field of investment, roughly accounting for 90% of total electricity-related investment. This pattern is generally in line with other East Asian and Pacific countries (see Fig. 2) [6].

### 3.2. The large retreat of foreign investors around the electricity reform in 2002

Supported by the PPA introduced at the beginning of the reform, foreign and private

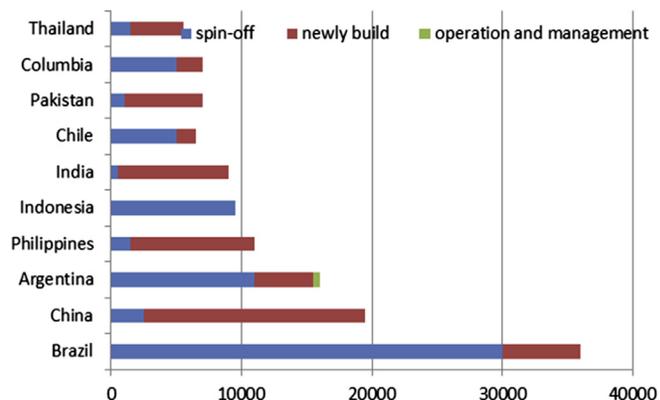


Fig. 1. The type of FDI in electricity sector: China and other developing countries. Source: World Bank, IPP Database.

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