

# The Study on the Development of Power Trading Platform and Competition Regulation

## Abstract

Keyword(s) : Power trading platform 、 ancillary service market 、 competition initiative

The purpose of this study is firstly to understand how the structure of Taipower's power trading platform operates and the plans for its future development. Secondly, it is to investigate the main development trends, influences and cases of advanced countries in the promotion of power trading platforms, and finally, to explore, from the structural and behavioral aspects, the main competition issues for the development of the power trading platforms. Furthermore, the pre-diagnosis and evaluation of the power trading platforms are conducted and used as a reference for Fair Trade Commission to develop power market competition initiatives.

The research results indicate that the relevant market definition of the power trading platforms. In terms of the product market, the electric energy futures and the spot market can be regarded as the same product market, and the "reserve capacity" and "ancillary services" should be regarded as two separate product markets. As for the real-time electricity balance market, due to the very short timeframe from the real-time dispatching and very limited substitution with other electric energy markets, it should be regarded as a single independent market. In terms of geographical market, transmission constraints may determine boundaries to it. When the transmission constraints are completely binding, the two ends of the transmission congested line will form two market areas. The extent to which the congestion area can be regarded as a different geographic market should be determined by the main regulator as appropriate.

As for the analysis of the structural and behavioral aspects of the power trading platform, the market structure of "three markets and one adjustment procedure" is not conducive to fair competition and economic efficiency, and it will also harm the benefits of consumers. The main deficiencies include:

1. Forming and operating market competition regulations related to the power trading platform, the power transmission and distribution company acting as a dual role of player and referee may abuse its market position, which may result in harmful effects to fair competition.
2. There are structural defects of no independent power exchange, no independent

power system operator and no legal unbundling.

3. The vulnerable structure of the overall power market design has been exemplified by the high HHI index indicating too concentration of the market, lack of demand elasticity, lack of futures market trading platforms, improper SMP pricing rules, and insufficient competition and liquidity. In the behavioral analysis, the result indicates that there are insufficient information disclosure, and serious concerns about withholding behaviors and strategic bidding behaviors of the pivotal company. The current disclosed information cannot sufficiently assist the regulatory authority to test and identify such behaviors.

After pre-diagnosis and assessment, it has been found that the actual prices observed on the ancillary service market have far deviated from the state of those that could be expected in a competitive environment where generators are expected to offer their capacity at marginal variable cost. The regulatory authority should immediately initiate market power mitigation measures to regulate the abuse of market power. We suggest that Fair Trade Commission can adopt the following competition initiatives.

The Structural Competition Initiative:

1. It is recommended that the Ministry of Economic Affairs enable Taipower to implement effective vertical and horizontal unbundling of generation, transmission and distribution, and sales departments through the secondary revision of The Electricity Act to improve various aspects of the market structure such as: HHI market concentration index, inelastic demand elasticity, bidding behavior forms, long-term forward contract market and pricing rules. Otherwise, the power trading platforms will always face the dilemma that their inherent structure is not compatible with fair competition, and it cannot be effectively regulated.
2. It is recommended that the Ministry of Economic Affairs enable Taipower to implement effective ownership unbundling of its grid sector so as to improve independency and neutrality of the system operator and the market operator. It should follow the US FERC to establish an independent market monitoring unit (Market Monitoring Unit) within the power trading platform to monitor and report the state of the various markets for the protection of consumer benefits and the sound development of the market.

The Behavioral Competition Initiative:

1. It is recommended that the power reform should adhere to the liberalization policy of "opening at both ends and tightening in the middle". The behavior of

power companies at both ends of power generation and retailers should be regulated through well-designed liberalized and contestable market rules and be subject to the Electricity Act and Fair Trade Law, especially through the test of market power and various behavior and impact tests. The power grid business with natural monopoly should play the role of "common carrier" and do a good job in a manner of independency, neutrality, openness, transparency, economic efficiency and power security in market management and power dispatch. The power industry regulatory authority should draft the code of conduct for the transmission and distribution company as a standard for regulating their behavior, rather than leave it for self-determination and self-regulation.

2. It is recommended that the power industry regulatory authority should immediately implement the amendments to The Power Trading Platform Management Regulations and Operation Procedure, including: adjustment of the disclosure scope of power trading platform information, regular market power testing, and regular testing of withholding behavior and strategic bidding behavior of companies with market power or pivotal capacity. Market power mitigation or market circuit-breaking measures should be adopted when market power is abused. These include restricting bidding at cost, setting up futures trading platforms or introducing some long-term contracts, adjusting price caps and other competitive promotion measures. The independent market monitoring unit should report the market status to the regulatory authorities in writing on a quarterly basis and inform the public on-line openly.
3. At present, three electricity markets have excluded and restricted the access of electricity retailers, power generators, and large users. They also lack the participation of virtual power plants, decentralized power resources and demand-side resources. In the case of a limited number of participants, the SMP pricing rule is likely to encourage the abuse of market power by the pivotal producers. It is recommended that the regulatory authority adopt PAB pricing rules until the market concentration index HHI can be satisfied for competition. Otherwise it is suggested that Taipower to make offer and bids at cost level or a fixed reference price level. Finally, the above competition initiatives can be used as a reference for Fair Trading Commission to develop power market competition initiatives and handle power industry-related cases in the future.