

The Nuclear Power Controversy and Further Recommendations in Taiwan

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The current Taiwan electricity market is an oligopoly market which is dominated by a state-owned enterprise (Taipower company, TPW) and operated through principle-agent institutional arrangement. It creates many rent-seeking phenomena and conflicts, especially in the controversy of Fourth Nuclear Power Plant (4th NPP). (Figure1) This article examines the different stakeholders' interests and perspectives by literature search and review to make some international comparisons and provide some specific recommendations and strategies to solve the existing dilemma.

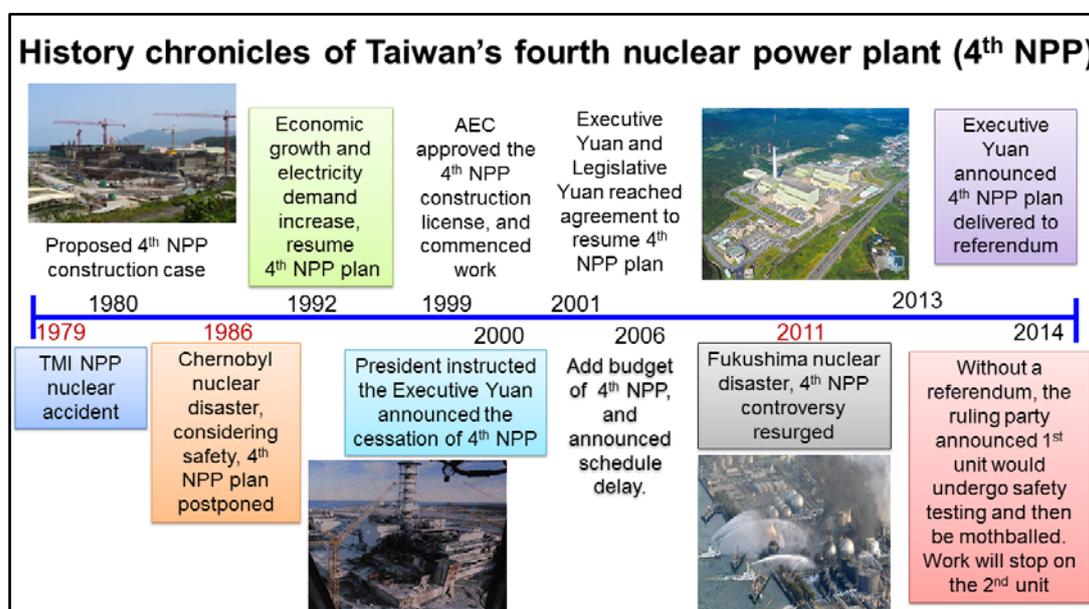


Figure 1. History chronicles of Taiwan's fourth nuclear power plant (4th NPP)
Source : This study (2014)

The electricity price in Taiwan is regulated by government's formulation. Theoretically, under the tariff design of the rate of return (ROR), there should not be any serious loss. In fact, lots of policy subsidies have ruined the balance of revenue and costs, also resulted in an accumulated deficit of US\$ 70 billion for Taipower so far. Under irrational political manipulation, The 4th NPP which was expected to mitigate Taipower's deteriorated financial status. But now it forced to halt

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construction, and the construction cost of US\$ 95 billion have become a severe burden exacerbating the company's financial crisis.

“Nuclear power” has almost become a common problem which every developed countries must deal with, it's the essential consequence in the evolution of post-industrial and risky society. In many developed countries, electricity market liberalization has become a solution to nuclear political tangle, also made uniformity between power and responsibility on various stakeholders. In order to stimulate the transformation of economic systems and industrial structure upgrading, Taiwan must establish a reliable, flexible, and workable electricity supply industry business model based on market mechanism, making electricity technologies and resources produced and consumed in a most efficient way. In all, a free-market mechanism would be the direction of Taiwan's electricity reform. This article provides an advised roadmap for Taiwan's electricity liberalization as below. (Table 1)

Table1. The advised roadmap of Taiwan's electricity liberalization

| Schedule Item | Current | Phase I | Phase II | Phase III |
|-----------------------|------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Time Frame | None | 6 months after Electricity Act enacted | 2 years after Electricity Act enacted | 5 years after Electricity Act enacted |
| Utility Restructure | None | Taipower would unbundle the Financial and decision-making procedures | Taipower would separate into G/T/D subsidiaries | Taipower would restructure and separate into different corporations including power generation, transmission, distribution and retailing |
| Market Transaction | Oligopoly | Bilateral trading contract | Bilateral trading and spot market | Bilateral trading, futures, and spot markets |
| Openness for wheeling | None | High voltage users | Medium voltage users | Open to all users |
| Ancillary Service | Internalized | Purchased by Taipower SO in contract market | Purchased by the Independent System Operator (ISO) in contract market | Based on market-based transaction |
| Regulatory Entity | Bureau of Energy, Ministry of Economic Affairs | Bureau of Energy, Ministry of Economic Affairs | To establish Public Utilities Commission | Public Utilities Commission |
| Pricing | Pricing by Taipower | Negotiated by bilateral contracts in PPA | Market Clearing Price (MCP) in spot market or negotiated by bilateral contracts | Bidding with Location Marginal Price (LMP) in spot market or negotiated by bilateral contracts |

Source : This study (2014)