Electricity System Reform in Japan and the Significance of International Grid Connection

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Reforms of the Electricity System and the Gas System Taking Place in Parallel

* Electricity system reform → Gas system reform
  
  2015: Establishment of the Organization for Cross-regional Coordination of Transmission Operators
  2016: Full liberalization of the electricity retail market
  2017: Full liberalization of the gas retail market
  2020: Unbundling (Legal unbundling)
  2022: Spin off of pipeline networks owned by three major gas suppliers (Legal unbundling)

* Growth of the energy market (Domestic demand)
  +...LNG
  0...Electricity
  −...Oil
Liberalization and Energy Supply (Changes in Competition)

- Newcomers (communications, etc.) vs. electricity
- Newcomers (oil, etc.) vs. city gas
- Electricity vs. electricity
- City gas vs. city gas
- Electricity vs. city gas
- Electricity vs. liquefied petroleum gas (LPG)
- City gas vs. LPG
- LPG vs. LPG
Points to Note concerning the Electricity System Reform

* Two points of significance about the full liberalization of the retail market
  • Free choice by consumers
  • Strengthening of governance functions through competition
    The issue of “mismatch between strong on-site capabilities and weak management capabilities” will be solved.

* Price will not necessarily fall
  • Liberalization = Market mechanism = Supply and Demand Relationship
  • Possible shortage of power generation facilities: Problem of the new electricity mix
  • Price may rise gradually after an initial fall

* The unbundling scheme must be designed with caution
  • Diverse lessons from abroad: Difference in history → Difference in results
    The “grid system” of UK (1926), the “power pool” in the Northeast of US (1927)
The Development Process of Electric Utility Business in Japan

I. Private sector-led system (1883 - 1938)
   (i) The years of urban electric lighting companies, which mainly used thermal power (1883 - 1906)
   (ii) The years characterized by development of hydropower, long-distance power transmission, and competition (1907 - 1931)
   (iii) The years of collaboration and voluntary regulation (1932 - 1938)

II. State-control of electricity (1939 - 1950)

III. System comprised of nine (ten) private power utilities (1951 - 2016)
   (v) The years of “supplying inexpensive electricity” (1951 - 1973)
   (vi) The years of “supplying electricity that is not inexpensive” (1974 - 1994)
   (vii) The years of electricity liberalization (1995 - 2016)
Distinctive Feature and the Keyword of the Development Process

- Distinctive feature:
  Except during period II (iv), private management has been the dominating system.

- Keyword = Electric utility business with autonomy of management:
  - “Electric utility business managed as a private company while ensuring public benefit”
  - Privately-owned, privately managed utilities to achieve “inexpensive and stable supply of electricity” through their corporate efforts
The End of the System Comprised of Ten Private Power Utilities

(1) Private ownership and private management

(2) Regional division

(3) Monopoly

(4) Vertical integration

Continued

Ended in April 2016

To end by 2020
Lights and Shadows of Unbundling

Advantages

- Intensifies competition
- Promotes wide deployment of distributed power sources

Disadvantages

- May impair the high grid operation capacity
- Depresses investment in power generation
Significance of International Grid Connection

(1) Expansion of the wholesale electricity market
    Reinforces the achievements of the full liberalization of the electricity retail market.

(2) Contribution to stable supply of electricity in both Japan and Korea
    Leads to improved political and economic relationship.

(3) Opportunity to make use of direct current high voltage power transmission technology
    Contributes to expansion of power generation from renewables.