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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 (iv) 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
.....Continued
- (2) Regional division
- (3) Monopoly
.....Ended in April 2016
- (4) Vertical integration
.....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.