Proposals for the electricity market from competition policy

Japan Fair Trade Commission
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I. Introduction

1. Background

Japan's electricity supply system has become a subject of intense debate due to the Great East Japan Earthquake and the incident of Tokyo Electric Power Co.'s Fukushima Dai-Ichi nuclear plants, which has been generating fresh concerns over electricity market's lack of adequate competition as the issue had been raised in the past. After the Great East Japan Earthquake, through user-side efforts to reduce their electricity consumption during times of peak demand and increased environmental awareness, their enormous interest goes to the issues relevant to the way forward for the electricity business should be, such as how to utilize renewable energy sources, beyond their everyday concern over electricity cost reduction. Consequently, discussions have been carried out within government on these issues.

Recently, "Policy on Regulatory and Institutional Reform in the Energy Sector," which was adopted by the Cabinet on April 3, 2012 that was compiled based on the discussion results from studies of deregulation and reform of the energy industry undertaken by the "Subcommittee on Regulatory and Institutional Reform" which was established under the "Government Revitalization Unit", articulated what the Japan Fair Trade Commission (hereinafter referred to as the "JFTC") is assigned to do as follows: in the light of the current situation that (i) "the General Electricity Utilities have the market power, and the PPSs face difficulties in increasing their market share" and (ii) "there has been no competition among the General Electricity Utilities beyond their respective service areas, and large-scale users cannot purchase electricity in a single contract covering the entire country", the JFTC is instructed "to comprehend and analyze issues of current state of competition in the electricity market, then to discuss the results from what they learned, while taking the progress of the discussions made by the Ministry of Economy, Trade and Industry (hereinafter referred to as the "METI") into account, and to draw conclusion on the JFTC view from the standpoint of competition policy" ("General Electricity Utilities" means those who are granted permissions from the Minister of the METI to engage in running their businesses that supply electricity in response to general demand, which refers to Japan's 10 (ten) existing electric power companies. "PPSs" are those that submitted notification about their plans to engage in running their businesses that supply electricity to "Specific-Scale Demand" users who are the object of deregulation.[1]).

This time, the JFTC, in response to the above Cabinet decision, conducted a survey on the current state of the electricity market, discussed what they learned from the standpoint of competition policy, then, crystallized the JFTC ideas.

Meanwhile, the JFTC is willing to continue to discuss the way competition should be in the electricity market that reflects observations etc. of actual competition state in foreign countries, as necessary, while taking the shifts made in the debates concerning the reform of the electricity market into account.

[1] "*Shin-denryoku*" was used to be called as "PPS (Power Producer and Supplier) " in Japanese (*in English, "*Shin-denryoku*" is/has been translated into PPS(s)(Power Producer and Supplier))

2. Changes in the electricity market

The current electricity business system has been in place since 1951, when the government divided the nation into 9 service areas—10 after Okinawa was returned to Japan—and allowed the General Electricity Utilities to have monopolies in their respective service areas so as to achieve economies of scale. At the same time, the system has been regulated in terms of supply conditions such as electricity prices in order to protect users and to ensure proper transactions. Meanwhile, the changes have been made in the environment surrounding electricity business such as a sharp increase in demand during peak hour required heavy investments, and advancement in technology that has increased the possibility to establish small-sized power plants dispersed at various locations and growing criticism concerning their business efficiency. In response to these changes, following 1995, a series of deregulations have been steadily introduced.

More than a decade has passed since the time when the retail sector was partially deregulated. Nonetheless, the market share held by PPSs still remains small. Among the General Electricity Utilities also, no competition takes place across their respective service areas. As a result, the General Electricity Utilities have had near monopolies in their respective service areas.[2]

3. Benefits of deregulation

Generally speaking, trades performed in a market where fair and free competition takes place enable efficient resource allocation thereby, making consumers be enable to purchase better products and services at lower prices and in larger quantities. For this reason, in Japan, also, that the price, quantity, quality, etc. of products and services should be freely determined by respective enterprises is deemed as principle. In addition, as to regulations, they should be kept to a minimum to achieve the policy purposes.

In a case where a section used to be under government control became to be deregulated, thanks to the effects of deregulation such as expansion of the businesses areas where the existing enterprises can freely operate their business and promotion of new entrants, competition among enterprises are stimulated that would add expectation to more efficient business activities. Furthermore, for users, broadened user choices as a result of more varieties of products and services or reduced prices as a result of more efficient business activities can be expected.

When this principle is applied to the electricity market, as to the benefit of deregulation, from the standpoint of competition policy, it is thought to be that deregulation promotes competition among electricity utilities thereby; encouraging efficiency of electricity utilities through competition whereas deregulation is to broaden the range of users' alternatives thereby, enabling users to enjoy the benefits from it. Thus, from users' standpoints of benefit, it is vital for users to make effective competition work in the retail sector.

In the course of the discussion for deregulation in the retail sector as a part of electricity business reform, the purpose of deregulation was explained as follows:

[2] As of now, there was only one precedent in which a General Electricity Utility supplied electricity beyond its traditional service area.

"The primary purpose is to use the principle of market mechanism as much as possible as a means of achieving efficiency. Enterprises, in another word, are encouraged to achieve efficiency by maximizing initiatives in their own businesses in a competitive market while reflecting stimulation from competition and market scrutiny instead of relying on government regulations. The secondary purpose, from the standpoint of users, is to expand the range of options available to them. In short, in the deregulated sector, deregulation would broaden the range of supplier-alternatives, and in the regulated sector, deregulation would broaden the range of pricing menu that means that users' initiatives will be required". (The report by the Electricity Utility Industry Council's Subcommittee of Basic Policy Directions, January 21, 1999).

4. The JFTC's previous efforts

The JFTC, in 1982, conducted a cross-sectional survey and analysis with respect to governmental regulatory system that targeted 16 business sectors, and the electricity business is one of the 16 business sectors. Since then, in April 1997, the JFTC released "a report on issues of deregulation and competition policy in the electricity industry" from "the Study Group on Government Regulations and Competition Policy" while the JFTC has discussed the way regulations should be in the electricity business etc., in collaboration with the reviews by the METI, then, based on the results from their discussions, the JFTC has provided proposals, for example, as follows:
Concerning the way to ensure neutrality of the transmission and distribution units:

(1) It is extremely important to ensure neutrality of transmission and distribution units in order to secure fair competition between market entrants and the General Electricity Utilities (Deregulation and Competition Policy in Public Utilities Sector, the Study Group on Government Regulations and Competition Policy, January 2001).

(2) The independent of transmission and distribution operations from the General Electricity Utilities must be considered in order to create an environment conducive to competition in preparation for full deregulation of the retail sector (Preparation for Promoting Competition in the Electricity Industry Sector, June 2002, the Study Group on Government Regulations and Competition Policy).

As to the vitalization of the electric power exchange, the JFTC called for more electricity to be supplied in order to increase trading. The JFTC also suggested that oversight of the market should be strengthened and that more information should be disclosed. Concerning the transmission system that requires electricity utilities to match their generation with demand within 30 minutes timeframe (30-minute balancing rule), the JFTC has proposed that balancing rule be set depending on the size of the electricity utilities or another type of balancing rule be set. The JFTC has also proposed that balancing rule be based on their prearranged generation plans (Competition in the Electricity Market and Issues for the Future, June 2006, the JFTC).

In sectors that have already been deregulated, the General Electricity Utilities that exclude market entry could be punished in accordance with the 1947 Act on Prohibition of Private Monopolization and Maintenance of Fair Trade (Act No. 54, hereinafter

referred to as the Antimonopoly Act). The application of the Antimonopoly Act expands as deregulation progresses. Therefore, the JFTC, in cooperation with the METI, released "Guidelines for Proper Electric Power Trade" in order to define activities that would violate the Antimonopoly Act and the 1964 Electricity Business Act (Act No.170). Based on these guidelines, the JFTC has been making efforts to prevent such violations.

5. Points of view

This study is conducted based on the above Cabinet decision, as well as the following points of view:

(1) From the standpoint of competition policy, it would be desirable to create a market mechanism in which enterprises make best use of their resources and provide attractive products and services so that consumers can enjoy the benefit. On the other hand, current regulations are in place for various policy requirements.

Whether purposes of regulations are reasonable in light of the policy requirements, and whether they are kept to a minimum to achieve their intended purposes.

(2) There are situations in which the very regulations intended to prevent a market failure end up distorting or hampering the market. This happens when the contents and methods of the regulations have been inadequately designed. Additionally, regulations that do not take into consideration enterprises' rational economic decisions sometimes fail to accomplish their purposes.

Whether the contents and methods of the regulations are designed to be able to reasonably achieve their intended purposes in the light of enterprises' incentives.

(3) As deregulation is promoted, market participants would be able to expand the range of their businesses.

If the characteristics of the electricity market and enterprises' behavior based on the said characteristics prevent free and effective competition, there should be measures to solve such problems.

II. Current state and problems of the electricity market

The JFTC conducted various surveys and interviews to grasp the current state of the electricity market. In particular, the JFTC posted a notice on its website on April 9, 2012, seeking comments about the current state of competition from users in the deregulated sector of the market, PPSs, and enterprises that operate their own power generation facilities. The JFTC also contacted 27 groups— 9 General Electricity Utilities, 8 PPSs, 4 enterprises that operate their own power generation facilities, 2 enterprises of electricity-related services, 3 users in the deregulated sector of the market, and 1 consumer organization—to interview their representatives. The JFTC also spoke with 55 members of the JFTC's antitrust cooperation committee, including individuals belonging to consumer organizations. At the same time, the JFTC sent out questionnaires to 9 General Electricity Utilities, 11 PPSs, and 26 public organizations that operate hydroelectric plants (See section 2(4) below.). These 26 public organizations, which are established under the Article 2 of the Local Public Enterprise Act, are operated by regional governments and municipalities.

This section will provide an overview of the current state of the electricity market based on the information obtained through the surveys and discuss some of the problems from the standpoint of the competition policy.[3]

1. Retail sector

(1) Basic regulatory framework in the retail sector

A. Regulated and deregulated portions of the market

In the retail sector, the General Electricity Utilities and PPSs are allowed to provide electricity to large-scale users no matter where they are located, as long as they buy at least 50 kW of electricity using special high-voltage lines or high-voltage lines[4] (Article 16, paragraph 2 of the Electricity Business Act). On the other hand, the General Electricity Utilities maintain monopolies in their respective service areas in providing electricity to small-lot users. Thus, the industry has both deregulated and regulated sectors of the retail market.

The General Electricity Utilities can provide electricity to users located outside their own services areas in the deregulated sector of the market. When providing such a

[3] The Electricity Business Act classifies electricity business into general electricity business, wholesale electricity business, specified electricity business, and specified-scale electricity business. From the standpoint of competition policy, however, it is more useful to classify them according to different stages of electricity transaction. This paper will group generation and wholesale as one business category. Here, "wholesale" refers to the sale of electricity to PPSs and through the electric power exchange. This is a different concept from the word "wholesale," such as "wholesale electricity business" and "wholesale supply" used in the Electricity Business Act, which implies the sale to the General Electricity Utilities.

[4] Special high-voltage lines transmit more than 7,000 volts of electricity. High-voltage lines carry more than 750 volts of continuous current, as well as more than 600 volts of alternate current that does not exceed 7,000 volts (Article 2, paragraph 1, items 2 and 3 of the 1997 Ministry of International Trade and Industry ordinance that sets technical standards for electricity facilities—ordinance No. 52).

service, however, the General Electricity Utilities are subject to the same regulations as PPSs (Article 2, paragraph 1, Item 7 of the Electricity Business Act).

When providing electricity to small-lot users, the General Electricity Utilities are required to abide by the terms set forth in a supply contract approved by the METI (Article 19, paragraph 1 of the Electricity Business Act). Prices are determined based on ordinance No. 105 issued by the Ministry of Trade and Industry in 1999. This ordinance calls for the fully distributed cost method, which allows the General Electricity Utilities to earn a certain level of income and recover expenses incurred in the regulated sector of the market.

B. Supply obligation and provisions for the "last resort service"

In the regulated sector of the industry, the General Electricity Utilities have an obligation to supply electricity under the terms specified in a contract approved by the METI (Article 18, paragraph 1 of the Electricity Business Act). The supply obligation also exists in the deregulated sector of the market, where the General Electricity Utilities are not allowed to refuse a supply request from users who have no other means of obtaining electricity, unless their businesses in the regulated sector of the market are otherwise hampered or there are other justifiable grounds to refuse such a request (Article 18, paragraph 2 of the Electricity Business Act). When the General Electricity Utilities provide electricity to those who have no other means of obtaining electricity, they must abide by the supply conditions contained the "Provisions for Last Resort Service" submitted to the METI (Article 19, paragraph 2, item 1 of the Electricity Business Act). The provisions include prices, which are currently set 20% above the disclosed standard prices applied to users in the deregulated sector of the market.[5]

While the General Electricity Utilities disclose standard prices for the deregulated sector of the market, those prices could be negotiable. The JFTC found during interviews that at least one large-lot user was conducting individual price negotiations with its supplier.

(2) Market entry of PPSs

A. Market share of PPSs nationwide and by areas

PPSs had approximately 3.5% of the deregulated market in terms of sales volume in fiscal 2010. It has been over 10 years since the deregulation took place; however, their market share still remains small. While there are differences in their market share among areas, service areas of Tokyo Electric Power and Kansai Electric Power Co. were among the biggest markets for PPSs. Even so, they had only about 6% of the market in the service area of Tokyo Electric Power and about 5% in the area of Kansai Electric Power.

[5] This applies to Tokyo Electric Power. The last resort service is a short-term contract for one year or less. The 20% surcharge for the "last resort service" is the same as that for an "emergency electricity supply" under the conventional contract, which has the same supply period (Concerning decisions to order changes in wheeling service provisions or last resort service provisions, the Ministry of International Trade and Industry, January 31, 2000).

Table 1 Market Share of PPSs from FY 2005 to FY2011 (Unit: %)

FY	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011
Share	1.96	2.35	2.57	2.54	2.82	3.47	3.56

Source: Prompt report on aggregate electricity demand (The Agency for Natural Resources and Energy)

Table 2 Market Share of PPSs for Fiscal 2010 (By Service Area) (Unit: %) *

Service Area	Hokkaido	Tohoku	Tokyo	Chubu
Share	0.44	1.25	5.92	1.24

Hokuriku	Kansai	Chugoku	Shikoku	Kyushu
0.00	4.73	1.17	0.00	1.21

*Estimated from a survey of 9 General Electricity Utilities and the eleven biggest PPSs. (Okinawa is excluded.)

B. Market share of PPSs according to service categories

One method of categorizing services in the deregulated sector of the market is to group them into special high-voltage services and high-voltage services, and into business use and industrial use. Business use refers to services provided to offices and stores where electricity is used mainly for lighting, while industrial use refers to services provided to factories, etc. where electricity is used for motors and other power supply as well as lighting. As Table 3 shows, PPSs' share in the industrial use category is smaller than that in the business use category. This situation has remained almost unchanged since fiscal 2004, which was not long after the deregulation took place, and the Great East Japan Earthquake seems not to have had any impact on it.

Table 3 PPSs' Market Share Based on Service Categories (Unit: %)

Service categories / FY	Special High Voltage		High Voltage		Overall
	Industrial	Business	Industrial	Business	
Fiscal 2004 *	0.2	20.1	0.0	0.5	2.0
Fiscal 2010	1.0	20.7	0.5	4.5	3.5
Fiscal 2011	0.9	20.1	0.7	5.0	3.6

*For fiscal 2004, the figure is for services provided to those using at least 500 kW of power during the April–December period.

Source: For fiscal 2004, data are taken from the METI.[6]
For fiscal 2010 and 2011, data are based on a survey of 9 General Electricity Utilities and the eleven biggest PPSs. (Okinawa is excluded.)

C. Cost structure of PPSs

PPSs have difficulties in winning users for industrial use because the General Electricity Utilities charge less for industrial use than they do for business use, according to JFTC interviews with PPSs. (The problem is referred to as business-industrial disparity.[7]) The General Electricity Utilities have an advantage particularly in nighttime operations that require a huge amount of electricity because they have power plants that incur low variable costs for an extended period of time, such as nuclear plants and hydroelectric plants. These facilities are known as base-load power plants.[8]

PPSs scarcely rely on nuclear plants and hydroelectric plants. In fiscal 2010, PPSs procured 62% of their electricity from Non-Utility Power Producers etc. that own electricity-generation facilities that exclude the General Electricity Utilities (hereinafter, referred to as "Non-Utility Power Producers etc."). Enterprises Of that, hydroelectric plants comprised only 2.1%, and there was no nuclear power involved.[9] PPSs produced 19.4% of their electricity using their own plants, none of which was nuclear plants or hydroelectric plants.[10] As a result, PPSs have higher variable costs than the General Electricity Utilities.

PPSs argue that they have difficulties in competing with the General Electricity Utilities in serving users that use a huge amount of electricity at nighttime since it is hard to offer competitive prices and secure a steady supply of a large amount of electricity under these circumstances. Therefore, the composition of their power sources appears to be the main reason that the PPSs' market share in the industrial use sector is small.

After the Great East Japan Earthquake, most of the country's nuclear plants, which provided 32% of the electricity produced by the General Electricity Utilities in fiscal 2010, have halted operations. It is not certain when those reactors will restart.

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[6] http://www.meti.go.jp/committee/downloadfiles/g50815a56j.pdf.

[7] Special high-voltage prices for industrial use were about 20% lower than the prices for business use in fiscal 2010, according to estimates obtained by analyzing data released by the Agency for Natural Resources and Energy. The average special high-voltage price for industrial use was 10.22 yen/kWh, while the average special high-voltage price for business use was 12.26 yen/kWh. The average high-voltage price for industrial use was 14.44 yen/kWh, while the average high-voltage price for business use was 15.18 yen/kWh.

[8] They constitute the base for the daily load curve. They are the primary sources of electricity that ensure a certain level of electricity supply. In Japan, they include nuclear plants and hydroelectric plants, which can be operated without high variable expenses, such as fuel costs, after initial capital investments have been made. Coal-fired plants, whose fuel costs are also relatively low, are common too. While most hydroelectric plants, particularly run-off-river type plants, are used as base-load power plants, other types of hydroelectric plants, such as pumped-storage and reservoir-type plants, are used as backup supply during times of peak demand.

[9] Electricity Produced by electricity generation for own use, Survey of Electricity Statistics, the Agency for Natural Resources and Energy, Fiscal 2010.

[10] Table of Approved Electricity Generation, Survey of Electricity Statistics, the Agency for Natural Resources and Energy, Fiscal 2010; According to JFTC interviews, however, there are some PPSs that use the parent enterprise's power plants as their own even though data do not reflect those uses. These plants include hydroelectric plants.

Therefore, the disparity between the composition of power sources of PPSs and that of the General Electricity Utilities would change for the time being.

D. Operating costs

Tokyo Electric Power has 13,000users with supply contracts of 500 kW or higher. Tokyo Electric Power's users in the deregulated sector of the market with supply contracts of less than 500 kW numbers 224,000.[11] These numbers indicate that there are more users of high-voltage power than those of special high-voltage power and that there are many small-lot users. PPSs point out, therefore, that operations and customer care of the high-voltage business are more costly.

(3) The current state of sales activity and electricity supply of the General Electricity Utilities

There is only one precedent in which a General Electricity Utility provided electricity to a user outside its own service area. According to JFTC interviews, the General Electricity Utilities do not generally reach out to potential users outside their respective service areas. This situation has been the same to the one which existed before the Great East Japan Earthquake etc. caused a supply shortage.

The General Electricity Utilities responded to the JFTC by saying that their primary duty is to provide a steady supply of electricity within their respective service areas and that it would take too much time and money to newly build a system such as sales activities and user support systems etc. outside of their service areas.[12] During the years of operations as regional monopolies with supply obligations, as the General Electricity Utilities explained, they have built facilities and sales structures in such a way as to optimize their services tailored to respond to the needs raised within their existing respective service areas. Thus, it is reckoned that the General Electricity Utilities have no incentive to vigorously expand their business to the outside of their respective service areas.

In Japan, a service area's transmission network is connected to other service areas' networks through an interconnected line (this means a transmission facility which connects a service area with another. Hereinafter, referred to as the above). Power frequencies differ between the eastern and western parts of the country. The transmission of electricity between these two areas, therefore, requires a frequency converter (hereinafter, referred to as "FC"). Therefore, the capacity of interconnected lines and FCs to transmit and convert physically imposes a limit on the volume of electricity traffic between respective service areas and between the west region and the east region of Japan.[13] As a result, electricity utilities have a substantial need to establish power plants

[11] Outlines of Submission for Approval of Changes in Electricity Rates, Tokyo Electric Power, May 2012, p.36.
[12] A General Electricity Utility told the JFTC in an interview that it was seeking to attract enterprises which have a broad-ranging relationship with subcontract factories to its service area by offering advantageous terms to them.
[13] It is known as an FC.

within their respective service areas where electricity supply are required. That raises the cost of providing electricity to users outside their respective service areas.

As the plausible efforts to be made to strengthen interconnected lines and FCs, discussions have been made in the Agency for Natural Resources and Energy from the standpoints of how to efficiently utilize wide-area electricity supply beyond service areas and to stimulate the electricity market.

(4) Other current state of the retail sector

A. Diverse user needs

In the interview with consumer organization representatives, the JFTC has learned that among small-lot users, some seek a variety of options that include options not only seeking for better contract conditions but also for options to choose renewable energy over other sources of electricity. This is an implication of their expectations to an effective deregulation that would enable to supply various services and products in a way to respond to such various user needs.

B. Partial supply

Under a "partial supply", multiple retailers would share a single distribution line to provide electricity to a particular location. PPSs have expressed hope towards partial supply because it can be a solving measure to secure power source that allows the retailers to supply electricity in cooperation with the General Electricity Utilities in the point that would enable the retailers in the case where only with the retailers sufficient electricity to be met with required volume and prices cannot be provided and because it can be a measure to enable the retailers to secure certain number of users under favorable supply conditions. Meanwhile, many users interviewed by the JFTC were not aware of partial supply nor had they been contacted by PPSs about the partial supply. In fact, partial supply has rarely been used in the past.[14]

In seeking to prevent any violations of the Antimonopoly Act in relation to partial supply, the JFTC lists possible illegal actions in the "Guidelines for Proper Electric Power Trade" that are those, including refusal of supply and unreasonable pricing, such as refusal of partial supply requiring them to adjust their generation output, setting requirements, beyond what is necessary, on PPSs to submit advance notice, to reveal their supply plans. Throughout this survey, no information to be mentioned that implies any existence of cases violating the Antimonopoly Act with regard to partial supply has turned up.

Whereas, as to partial supply, survey implies certain existence of needs of notification to inform public including users its legal plausibility and its various patterns

[14] According to JFTC interviews, there was only one precedent in which partial supply had been used. According to a report released at the third meeting of the Expert Committee on the Electricity Power Systems Reform of the Agency for Natural Resources and Energy, however, there were two precedents; reference 1-1, 91.

of utilization.[15] The Agency for Natural Resources and Energy, in relation to their promotion of green electric power, provides information on partial supply on its website.[16]

2. Generation/wholesale sector

(1) Basic regulatory framework

According to the Electricity Business Act, an act of electricity generation itself is not considered an electricity business. There are no regulations prohibiting Non-Utility Power Producers etc. from doing business by generating electricity.[17] However, there are regulations on wholesale activities. An act of providing more than 1,000 kW of electricity for 10 years or more; or more than 100,000 kW of electricity for 5 years or more; is considered "Wholesale Supply". Those who engage in wholesale supply must report their supply terms and conditions to the authorities (Article 22, paragraph 1 of the Electricity Business Act). Providers of Wholesale Supply are called Independent Power Producers (hereinafter referred to as "IPP").[18] In addition, the term "Wholesale Electricity Utility" is applied to a utility that owns facilities with aggregated capacity of more than 2 million kW and provides electricity to the General Electricity Utilities to supply electricity for General Electricity Business. Wholesale Electricity Utilities must obtain regulatory approval to start operations (Article 3, paragraph 1 of the Electricity Business Act). They are also placed under obligation to supply electricity to the General Electricity Utilities (Article 18, paragraph 4 of the Electricity Business Act).[19] There is, meanwhile, no regulation on those supplying electricity to the General Electricity Utilities unless they fall under the category of Wholesale Electricity Utilities and if the amount and duration of their services do not reach the level of wholesale supply.

At the same time, there is no regulation on the sale of electricity to PPSs even if the suppliers are Wholesale Electricity Utilities or IPPs.

(2) Sources of electricity for PPSs

PPSs aggregately had a supply capacity of 29.19 billion kWh in fiscal 2010, a twofold increase from 14.54 billion kWh in fiscal 2006. Their sources of electricity are listed in Table 4 which shows that they have reduced their reliance on the fulltime backup (The practice that market entrants continuously procure retailed electricity from the General Electricity Utilities in the case that they have a shortage of electricity for supply to users.[20]). They instead increased purchases from Non-Utility Power Producers etc. to the amount more than 60% of the total. Electricity generated by PPSs for PPSs, called "Self-Generation" in the below table, and from electric power exchange (see below 2(6))

[15] Material 7 distributed by Ennet Corp. at the third meeting of the Expert Committee on the Electricity Power Systems Reform, 10.
[16] http://www.enecho.meti.go.jp/denkihp/120331green/120331green.pdf.
[17] There are regulations concerning the safety and environment protection.
[18] Abbreviated as IPPs.
[19] Currently, there are only two Wholesale Electricity Utilities in Japan—J Power and Japan Atomic Power.
[20] The Electricity Business Act does not regulate the prices that the General Electricity Utilities charge for fulltime backup.

that, together, account for less than 30% of the total, even though this figure has been increasing.[21]

Table 4 Sources of electricity for PPSs (Unit: %)

Sources / FY	Self-Generation (electricity generated by PPSs for PPSs)	Electric Power Exchange	Non-Utility Power Producers etc.	General Electricity Utilities (fulltime backup)	Total
Fiscal 2006	5.2	5.1	49.6	40.1	100.0
Fiscal 2010	19.4	9.6	62.0	9.1	100.0

*The amount of enterprises' "Self-Generation" is obtained by subtracting the amount used for PPSs' own consumption and the amount for specific power supply (power supply in the case where close ties exist between suppliers and users supplied) from the entire electricity generated by PPSs themselves for PPSs to supply.
*Each number has been rounded. Thus, the figure obtained by adding up these numbers does not necessarily match the amount written under "Total".
Source: p. 38, 1-1 of the material of the third meeting of the Expert Committee on the Electricity Power Systems Reform (written by the Secretariat of the Agency for Natural Resources and Energy)

Table 5 shows the amount of electricity generated during fiscal 2010 and market shares sorted by business form. The General Electricity Utilities controlled 72.9% of the market.

Table 5 Electricity generation by business form (Fiscal 2010) (Unit: 100 million kWh; %)

Business form / Amount /Share	General Electricity Utilities	PPSs	Wholesale Electricity Utilities	Non-Utility Power Producers etc.[22]	Specified Electricity Utilities	Total
Amount Generated	8,820	89	859	2,101	15	11,283
Share	72.9	0.8	7.6	18.6	0.1	100.0

[21] According to the JFTC interviews, some PPSs use power plants owned by their parent organizations as PPSs' power plants. Nonetheless, in the statistics, electricity generated by such power plants owned by PPSs' parent organizations is not reflected into PPSs' capacity to generate electricity, therefore, the electricity generated by such power plants was not reflected, in the statistics, as the electricity PPSs generated by their own. Instead, such electricity procurement is classified into electricity procurement from Non-Utility Power Produces etc. due to the categorization the statistics employs for such power plants. Therefore, the electricity that can be substantially deemed as PPSs' Self-Generation can, possibly, be larger than the one described in the body, above, of this survey report.
[22] This, "Non-Utility Power Producers etc.", excludes Wholesale Electricity Utilities.

*The amount generated by "Non-Utility Power Producers etc." is a figure obtained by subtracting "the amount used for generation plants and the amount lost during transmission and distribution" and "the amount provided to those with whom they have close relationships" from the actual amount of "electricity generated for own use and other generations" based on the data of the Survey of Electric Power Statistics for fiscal 2012 released by the Agency for Natural Resources and Energy.
*Each number has been rounded. Thus, the figure obtained by adding up these numbers does not necessarily match the amount written under "Total."
Source: The Survey of Electric Power Statistics for fiscal 2010 released by the Agency for Natural Resources and Energy. Calculated using data on "actual power production (total) by self-generation for own consumption and other" (FY2010).

(3) Self-generation

A. Generation capacity

During fiscal year 2010, PPSs aggregately had a generation capacity of 2.01 million kW, or 0.7% of the total capacity to generate electricity.[23] As Table 5 shows, PPSs produced 8.9 billion kWh, or 0.8% of the total amount of the generated electricity, whereas the General Electricity Utilities generated 822 billion kWh, or 72.9% of the total.

According to JFTC interviews, in terms of newly introduced power plant constructions, the General Electricity Utilities and PPSs do not consider any constructions of nuclear plants as a viable option at least for the time being.[24] Construction of large-sized hydroelectric plants is, also, not realistic either because developable water sources are scarce. If any is found, on top of that, coordinating water rights with local residents would pose another challenge. Large-sized thermal plants, particularly coal-fired plants with relatively low variable costs, would not provide a short-term solution because the entire process of the construction, with strict environmental regulations including environmental assessment, takes between six and nine years. Thermal plants may also end up being costly after taking measures to reduce carbon dioxide emissions.

There are legal privileges accorded to the General Electricity Utilities due to their nature of serving public interest. For instance, the 1951 Basic Act for Land (Act No. 219) allows them to use and appropriate land belonging to a third party, while the 1951 Forestry Act (Act No. 249) exempts them from seeking permission when developing in a forest. The 1961 Act on Special Measures Concerning Lands for Public Use (Act No. 150) allows them to use and appropriate public land, whereas the 1973 Urban Green Space Conservation Act (Act No. 72) exempts them from seeking permission to build facilities in protected areas. However, PPSs do not have these privileges.[25]

[23] Table of Approved Electricity Generation, from the Survey of Electricity Statistics, by the Agency for Natural Resources and Energy, Fiscal Year 2010.
[24] PPSs do not consider nuclear plants a realistic option because it takes a long time to build nuclear plants, it is difficult to obtain support from local residents, and they lack expertise, according to JFTC interviews.
[25] Material 1-1 from the third meeting of the Expert Committee on the Electricity Power Systems Reform, p.137, p.138, the Secretariat of the Agency for Natural Resources and Energy.

Moreover, it has been pointed out that PPSs may be reluctant to acquire existing power plants because fuel prices are likely to increase even further.[26]

B. Electricity generation costs

In respect to the variable costs (costs of operation and fuel), general hydroelectric plants[27] has the lowest variable costs, followed by nuclear plants, land-based wind power, coal-fired thermal plants, LNG thermal plants, small-sized hydroelectric plants, and oil-fired plants.[28]

In terms of output capacity, 97% of the power plants owned by PPSs are thermal plants. PPSs do not operate nuclear plants or hydroelectric plants, which usually incur lower generation costs.[29] Also, 99% or more of the electricity actually generated by PPSs is generated at thermal plants. The rest is wind power.[30] On the other hand, the General Electricity Utilities and Wholesale Electricity Utilities generated approximately 40% of their electricity from nuclear plants and hydroelectric plants, both in terms of output capacity[31] of owned power plants and in terms of the actual generation volume,[32] before the Great East Japan Earthquake. Since almost all the nuclear plants in Japan were halted after the quake, nuclear power comprised only 1.1% of the power generated by the General Electricity Utilities and Wholesale Electricity Utilities as of April 2012(Hydroelectric power comprised 11.2%).[33]

As seen above, PPSs' reliance on facilities that have high variable costs is greater than that of the General Electricity Utilities and Wholesale Electricity Utilities. Moreover, because prices of crude oil and LNG have been rising since generation and wholesale sector was deregulated,[34] the assumption concerning the effectiveness of small- and medium-sized thermal plants has changed.

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[26] *Market Strategy of Power/Gas/Energy Services 2012—Comprehensive Survey*, Fuji-Keizai.

[27] This excludes the pumped-storage hydroelectric plants.

[28] A report released by the cost inspection committee of the Energy and Environment Council in December 2011 provides cost estimates of electricity generation based on power plants. According to the report, variable costs (operation maintenance and fuel costs) per 1 kWh are 4.1–5.0 yen for nuclear plant, 5.6 yen for coal-fired plant, 8.9 yen for LNG-fired plant, 17.6 yen for oil-fired plant, 2.2 yen for general hydroelectric plant, 14.1 yen for small hydroelectric plant (1,000–10,000 kW), and 4.6 yen for land-based wind power.

[29] Table of Approved Electricity Generation, Survey of Electricity Statistics, the Agency for Natural Resources and Energy, April 2011. Also, see footnote 10.

[30] Electricity Generation—Summary, Survey of Electricity Statistics, the Agency for Natural Resources and Energy for fiscal 2010. A total of 17.9% of the electricity generated by thermal plants was produced using biomass-based waste. See footnote 9.

[31] Table of Approved Electricity Generation, Survey of Electricity Statistics, the Agency for Natural Resources and Energy, April 2011. Nuclear plant: 21%; hydroelectric plant: 19%.

[32] Electricity Generation—Summary, Survey of Electricity Statistics, the Agency for Natural Resources and Energy for fiscal 2010. Nuclear plant: 33%; hydroelectric plant: 8%

[33] Electricity Generation—Summary, Survey of Electricity Statistics, the Agency for Natural Resources and Energy for fiscal 2010.

[34] The price of crude oil, which was 11,057 yen/kL in 1995, rose to 45,373 yen/kL in 2010, according to trade statistics from the Ministry of Finance. The price of LNG, which was 17,235 yen/ton in 1995, rose to 50,299 yen/ton in 2010.

(4) Procurement from Non-Utility Power Producers etc. Enterprises

80 percent of the electricity supplied by Non-Utility Power Producers etc., excluding Wholesale Electricity Utilities, went to the General Electricity Utilities and 14% to PPSs in fiscal 2010.[35] 98 percent of the electricity generated by Wholesale Electricity Utilities was provided to the General Electricity Utilities.[36] Non-Utility Power Producers etc. do not sell much electricity to PPSs for the following several reasons.

86 percent of the electricity provided to the General Electricity Utilities by IPPs and Wholesale Electricity Utilities was based on long-term contracts of more than 10 years.[37] In the backgrounds of such situation, the following regulatory bindings are, assumingly, existing: Wholesale Supply and Wholesale Electricity Utilities conducted by IPPs are, in the first place, respectively, designed to provide electricity to the General Electricity Utilities (Article 2, paragraph 1 of the Electricity Business Act). In addition to that, in terms of legal terminology of "whole supply", only a business conduct selling electricity can be fallen under the term "whole supply" only when does the business conduct has a contract whose terms and condition include electricity supply to the General Electricity Utilities and the term length is either 5 years or longer or 10 years or longer. (Article 3 of the enforcement regulations of the Electricity Business Act. (The Ministry of Trade and Industry ordinance No. 77 issued in 1995)).

According to JFTC interviews with IPPs, IPPs said that IPPs tend to prefer to enter into a contract which enables IPPs to sell electricity with long-term stable supply conditions because the depreciation period for their power plants is also long-term. Other than that, from the JFTC interviews with Non-Utility Power Producers etc., the JFTC learnt that Enterprises, according to their representatives, PPSs, compared with the General Electricity Utilities, often impose heavier financial burden on Non-Utility Power Producers etc. when Non-Utility Power Producers etc. cannot supply the contracted volume required by conditions. (More on this in part 2–3 (4) c (b).) As you see, the opinions, above, from representatives of IPPs and Non-Utility Power Producers etc., tell the factors why electricity supply to the General Electricity Utilities tends to be prioritized more than that to PPSs.

There are 26 public organizations that are managed by regional governments or municipalities and operate hydroelectric plants. Among these public organizations, 25 have supply contracts only with the General Electricity Utilities for 10 years or more, and 16 have supply contracts of 15 years or more. As to 5 of the 26 organizations, their contract partners are limited only to, under respective municipal laws, the General

[35] This was calculated using data on "the amount of their generation for their own use, etc." taken from the Survey of Electricity Statistics for fiscal 2010, which was released by the Agency for Natural Resources and Energy. According to the Electricity Business Act, there are other types of electricity utilities; these are Wholesale Electricity Utilities and Specified Electricity Utilities. The latter provide electricity to a specified location with approval from the Minister of Economy, Trade and Industry (Article 2, paragraph 2, item 6 of the Electricity Business Act).

[36] Obtained by dividing the amount of electricity J-Power and Japan Atomic Power provided to the General Electricity Utilities (71.9 billion kWh for the two companies) by the amount provided to other electricity utilities (73.3 billion kWh). The data were taken from the 2010 annual report released by J-Power and financial statements of Japan Atomic Power.

[37] Material 1-1 from the third meeting of the Expert Committee on the Electricity Power Systems Reform, p.36, the Secretariat of the Agency for Natural Resources and Energy.

Electricity Utilities whose service areas include the local government. Many of these contracts were signed after 2009, meaning that they have recently been renewed. A representative of one of the public organizations told the JFTC that the public organization's mission was to indirectly serve the community by providing electricity to its own governed area by selling locally generated electricity to the General Electricity Utilities. According to representatives of PPSs, public organizations, as local public agencies, value their associations with the General Electricity Utilities that have deep roots in their communities.

(5) Procurement of electricity from the General Electricity Utilities (fulltime backup support)

The fulltime backup, mentioned earlier, in which PPSs buy electricity from the General Electricity Utilities at wholesale prices to make up for their own supply shortfalls, is a private contract between the two enterprises; it is not based on any regulatory requirements. PPSs have reduced their reliance on fulltime backup to less than 10% of their total supply capacity, as mentioned in section (2). While their reliance on the General Electricity Utilities has declined in percentage terms, the number of fulltime backup contracts has increased because market entrants and PPSs seeking to expand their service areas are signing such agreements for the first time.[38] This indicates that there is a variation in the use of fulltime backup among PPSs.

A representative of a General Electricity Utility, while acknowledging the necessity of fulltime backup in some cases, told the JFTC that PPSs should not be allowed to use fulltime backup once they reach a certain size. On the other hand, PPSs insist that fulltime backup is necessary and should be expanded.

It is not desirable for new entrants to rely on fulltime backup excessively for an extended period of time. Such transactions are, in the first place, supposed to transit to those to be conducted through electric power exchange, which is being expected.[39] However, electric power exchange is not capable of handling such transactions at this time. Fulltime backup, therefore, still remains an important method of procurement for PPSs.[40] Thus; "the Guidelines for Proper Electric Power Trade" lists actions with regard to full-time backup that could be violations of the Antimonopoly Act thereby, preventing illegal conducts.

During this study, with regard to fulltime backup, any specific information implying violations of the Antimonopoly Act has not turned out.

(6) Electric power exchange

Electric power exchange was established in Japan in 2003 for the purpose of effective use of electricity etc. for the electricity utilities and so on. The Japan Electric Power Exchange, JEPX (*Nihon Oroshiuri Denryoku Torihikijo*) operates as the nation's

[38] Material 1-1 from the third meeting of the Expert Committee on the Electricity Power Systems Reform, p.95, the Secretariat of the Agency for Natural Resources and Energy.
[39] Guidelines for Proper Electric Power Trade, Part 2, III 1 (2).
[40] A report released by the system reform subcommittee of the Electricity Industry Committee, May 22, 2006, etc.

only electric power exchange. The electric power exchange currently hosts spot trading, forward trading, and "hours-before" trading, etc. Spot trading involves the buying and selling of contracts for next-day delivery every 30 minutes, while forward trading is a trade to deal electricity during a certain future period of time. The exchange's "hours-before" trading involves transactions that take place several hours before delivery, every 30 minutes.[41] The exchange does not in principle allow participation of those who do not handle electricity as an actual commodity.[42]

Trading volume at electric power exchange as of fiscal 2010 was equivalent to 0.6% of the amount sold in the retail sector. PPSs procure less than 10% of their electricity from the exchange. It should also be noted that the exchange halted Tokyo-area spot trading and "hours-before" trading from March 14, 2011, to May 31 of that year, when supply ran short after the Great East Japan Earthquake.

Trading remains low at the electric power exchange because of the following reasons:

Since the outcome of trading is determined every 30 minutes when the exchange matches orders, even if buyers and sellers want to trade a great amount of electricity for a certain amount of time, the amount of electricity available for trading varies substantially depending on the time of day (so-called "missing teeth"). That means sellers sometimes cannot unload everything they want to sell,[43] while buyers cannot procure all the electricity they need.[44]

Moreover, the General Electricity Utilities may lack incentives to participate in trading as active sellers. Representatives of the General Electricity Utilities told the JFTC that they would judge whether or not they would use the electric power exchange based on a rational economic decision. The General Electricity Utilities often place sell orders at prices determined by adding fixed costs to variable costs.[45] Considering that the General Electricity Utilities have already set aside fixed costs for their own power demand,[46] they could make profits from trades through their own generation/wholesale units if they sell excess electricity at prices that even a little exceed their variable costs. However, they have no incentive to sell power at lower prices because PPSs could then users attract users to which the General Electricity Utilities originally provide electricity,

[41] Article 87, paragraph 1 of the electric power exchange's business regulations used to limit "hours-before" trading to cases in which users of networks had to procure electricity due to unexpected supply shortages caused by a sudden increase in demand or a facilities failure after they had compiled a production plan to be submitted to the General Electricity Utilities. Paragraph 2 of the same article banned transactions that did not apply to the situation described in paragraph 1. However, the electric power exchange revised that rule to allow some trading for financial gains. The above-mentioned requirement in Article 87, paragraph 1 was eliminated on June 20, 2012.

[42] In addition to electricity utilities, there are others that are eligible for membership. They are traders hired by enterprises that have signed an electricity purchase agreement. Those who have been approved by the executive council can also become members (Article 2 of the exchange rule concerning membership).

[43] Sellers would lose money if they cannot unload everything because they would have to reduce power generation to meet the requirement that they match their generation with demand within a 30-minute timeframe; this requirement will be discussed later in this report.

[44] A proposal has been made in order to deal with this situation. The proposal calls for the introduction of a block-trading system, in which electricity supplied within a certain timeframe is packaged as a single product.

[45] Material 1-1 from the third meeting of the Expert Committee on the Electricity Power Systems Reform, 55.

[46] Ibid.

by means of the electricity procured at such prices. Consequently, it seems that the General Electricity Utilities, which have both generation/wholesale units and retail units, set high prices based on a rational economic decision.[47]

Furthermore, it is pointed out that producers only with small-sized generation plants have difficulties in participating into trading through electric power exchange because the minimum trading unit at the electric power exchange is 1,000 kWh.[48]

IPPs told, in the interview, that they were reluctant to unload electricity through electric power exchange due to the following reasons: in the case where IPPs sell electricity through electric power exchange the risk they could be left with unsold electricity is larger, making electricity generation planning is more difficult, and the costs to incur for the case where they could not execute the volume they contracted is larger, compared with the case of trading with the General Electricity Utilities which enables IPPs to stably sell electricity through long-term contracts.

PPSs also pointed out that, in the JFTC interview, PPSs cannot rely on electric power exchange as a source of electricity due to the following reasons: the electric power exchange lacks liquidity, PPSs can make contracts with electric power exchange but cannot execute such contracts that call for an amount exceeding the capacity of interconnected lines and FCs (called "market division") etc.[49] On top of that, the PPSs' representatives mentioned that electric power exchange failed to set benchmark prices.

(7) Other potential methods of procurement of electricity from the General Electricity Utilities

Electricity trading among the General Electricity Utilities totaled 51.7 billion kWh in fiscal 2010.[50] That was approximately equivalent to 6% of the electricity the General Electricity Utilities generated that year and 2.5 times the amount sold by PPSs.[51]

The Rules of Electric Power System Council of Japan[52] stipulates legal requirements set on the following two of all electricity trading among the General Electricity Utilities: "Interchange for the mutual supply and demand support" and "Interchange for the broad area mutual cooperation." In the former case, the General Electricity Utilities provide electricity to one another when a supply shortage is caused by an unexpected event, such as a plant accident. In the latter case, the General Electricity

[47] Fewer sell orders placed by the General Electricity Utilities are executed than those submitted by Non-Utility Power Producers etc. (Material 1-1 from the third meeting of the Expert Committee on the Electricity Power Systems Reform, 53). This indicates that the General Electricity Utilities set higher prices than Non-Utility Power Producers.

[48] The electric power exchange created a market for dispersed and green power trading on June 18, 2012, to allow operators of dispersed power systems, including smaller operators of less than 1,000 kWh, to participate in power trading.

[49] A "market division" is also created when the contractual supply amount is smaller than the minimum amount for FCs.

[50] This was calculated using data on power transmissions among the General Electricity Utilities taken from the Survey of Electricity Statistics for fiscal 2010, which was released by the Agency for Natural Resources and Energy.

[51] "Electricity Generation—demand based on specific uses," Survey of Electricity Statistics, the Agency for Natural Resources and Energy for fiscal 2010.

[52] It is an industry group established to help with transmission and distribution, etc. in accordance with Article 93, paragraph 1 of the Electricity Business Act.

Utilities provide electricity to one another in order to avoid reducing production at long-term based resources, during light-loaded time or after heavy rain.

Concerning the latter case, "Interchange for the broad area mutual cooperation", the General Electricity Utilities must first make efforts to eliminate excess electricity by reducing the output of generators, by using the pumped-storage hydroelectricity plants to store electricity, or by going through the electric power exchange. If they cannot still eliminate the problem, they would be able to conduct this type of interchange after the deadline of submitting their supply plans for the following day.[53] There are no rules or regulations that prevent the General Electricity Utilities from making a private contract of providing excess electricity to PPSs. However, the General Electricity Utilities have no incentive to do so, either, since PPSs are their competitors in the retail sector.

Some transactions are carried out spontaneously among the General Electricity Utilities to cope with continuous supply shortages. These transactions, which involve the use of reserve capacity that happens to be available on the day, increased after the Great East Japan Earthquake. Electricity provided through these transactions is said to be costing more because it is generated when the reserve capacity rises. Therefore, it seems to be difficult to say that such electricity, partly because of its high trading cost, can meet the expectations from PPSs that seek to can obtain low-cost electricity.

3. Transmission and distribution sector

(1) Basic framework of transmission and distribution services

According to the Electricity Business Act, PPSs are allowed to operate electricity businesses using their own transmission and distribution networks as long as they make a prior notification of their business plans with the METI (Article 16, paragraph 3, item 1 of the Electricity Business Act). However, since the General Electricity Utilities already own transmission and distribution networks (wire way); PPSs have wheeling service contracts with the General Electricity Utilities, use the said networks and provide electricity. This creates a situation in which the General Electricity Utilities monopolize the wheeling service and PPSs rely on the wheeling service provided by their competitors, the General Electricity Utilities.

If the General Electricity Utilities refuse to offer wheeling services without justifiable reasons, the Minister of the METI can order them to fulfill this duty (Article 24, paragraph 3, item 5 of the Electricity Business Act). The terms and conditions on the pricing etc. of wheeling services must be abided by wheeling service provisions submitted to the Minister of the METI (Article 34, paragraph 3, items 1 and 2 of the Electricity Business Act; details will be discussed later).

However, during this survey, the JFTC did not obtain any specific information of such a case that the General Electricity Utilities had refused to provide wheeling services without any justifiable reasons.

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[53] Electric Power Council of Japan regulations, Chapter 4, Section 6, "1: Action to avoid control of generation output of long-term based resources." s. If excess power is not reduced by this action, PPSs will be asked to reduce their output (Chapter 4, Section 6, "2: Conditions for giving priority load dispatching instructions", the council's regulations). According to JFTC interviews, this usually occurs only when the water must be released from dams after heavy rains.

(2) Accessibilities to transmission and distribution networks operated by the General Electricity Utilities

Power producers must, as their pre-condition of supply, connect their power-generation facilities to transmission and distribution networks in order to supply electricity to retailers. There are technical requirements that must be met, such as the capacity of the electricity lines at the point to connect and that of the connection points. Therefore, power producers who seek to connect to transmission and distribution networks must conduct negotiations with the General Electricity Utilities that own transmission and distribution networks pertinent to their connections while providing power producers' supply and demand data to the General Electricity Utilities. In such negotiations, if the General Electricity Utilities unnecessarily prolong negotiations or refuse to provide necessary information, that would have a similar effect to a refusal to provide wheeling services.

"The Guidelines for Proper Electric Power Trade" lists actions that could be deemed as violations of the Antimonopoly Act with regard to accessibilities to transmission and distribution networks thereby, setting prevention of violations.

As to connection between power plants and transmission and distribution networks, some representatives of PPSs and Non-Utility Power Producers etc. revealed their complaints to the JFTC as follows: the General Electricity Utilities took too much time processing their requests for identifying available connection points and setting the terms and conditions set on their connecting services to the extent which made whether their requests could be approved uncertain. Also, the General Electricity Utilities sometimes ask PPSs and Non-Utility Power Producers etc. to use connection points distant from their power plants. Thus, they could not easily make plant construction plans. It was also pointed out that the General Electricity Utilities, when they drew up distribution facility planning, they considered only their own generated outputs and did not take into account the PPSs' needs to connect their plants with the said networks. It was argued, therefore, that the General Electricity Utilities did not build large enough facilities to accommodate the needs of PPSs.

The Federation of Electric Power Companies of Japan, which is made up of the nation's 10 General Electricity Utilities, responded to such complaints by saying that the General Electricity Utilities did not unfairly treat Non-Utility Power Producers etc. or PPSs because the General Electricity Utilities, with respect to, also, their own power-generation facilities, reflect their own connection needs into their distribution facility planning only after their supply planning had been confirmed and construction payment agreements were signed. The association said, therefore, that respective actions the General Electricity Utilities took were having rationalities for each.[54]

[54] Material 8 from the fourth session of the Expert Committee on the Electricity Power Systems Reform supplied by the Federation of Electric Power Companies of Japan. In interviews with the JFTC, the General Electricity Utilities argued that they treated requests from Non-Utility Power Producers and PPSs the same way they handled the construction of their own power generation facilities. They denied that they had intentionally and unnecessarily delayed their responses to Non-Utility Power Producers etc. and PPSs until the last minutes.

(3) Transmission fees

A. Regulatory framework concerning transmission fees

Transmission fees are specified in wheeling service contracts. The fees are determined in accordance with the Regulations on the methods to calculate the fees according to the General Electricity Utilities wheeling service provisions (Ministry of International Trade and Industry Ordinance No.106 issued in 1999). This ordinance employs the fully distributed cost method. Under this method, cost of transmission and distribution ("Cost of transmission and distribution" includes business return from transmission-related operation of business return divided between transmission-related operations and transmission-cost-related operations on a pro-rata basis.) is added to cost of stabilizing the frequencies throughout power system (Power system refers to the network that connects power plants with the users' power reception facilities.). The cost thus obtained is divided between the regulated area and the deregulated area of the market. The latter is used to calculate the transmission fees for, respectively, special high-voltage and high-voltage electricity. The delivery fees obtained this way include the tax for the promotion of power plant development, which is mostly used for the nuclear plants-related matters. The fees also include nuclear "back-end costs," which refers to the cost relevant to the businesses processing spent nuclear fuel used in nuclear plants.[55]

The General Electricity Utilities separate the accounting of transmission and distribution units, which include wheeling services, from that of their other units (Article 24, paragraph 5, item 1 of the Electricity Business Act). Therefore, the General Electricity Utilities keep accounts as if they made payments for the use of their own networks to their transmission and distribution units.

B. Level of transmission fees

Transmission fees have been lowered in stages since their introduction when the industry was deregulated. As of April 2011, the average transmission fee was 2.03 yen per kWh for special high-voltage electricity and 4.15 yen per kWh for high-voltage electricity.[56] These levels of the transmission fees were equivalent to 15%, in the case of special high-voltage electricity, and 30%, in the case of high-voltage electricity, respectively, of the General Electricity Utilities' electricity retail prices in the deregulated sector of the market.[57]

[55] According to the regulations on contracts pertaining to the fees for the General Electricity Utilities' wheeling services, which set forth the method of calculating transmission fees, the tax for the promotion of power plants development and the cost of processing spent nuclear fuel must be included in the initial cost.
[56] Material 1-2 from the fourth session of the Expert Committee on the Electricity Power Systems Reform provided by the secretariat, 9.
[57] In fiscal 2010, the General Electricity Utilities' average electricity price in the deregulated portion of the market was 13.65 yen/kWh. A representative of a PPS told the JFTC that between 20% and 30% of its revenue went toward the transmission fees.

The Federation of Electric Power Companies of Japan explained the reason of the fallen prices as saying that it simply reflected of the General Electricity Utilities' promotion of efforts to streamline operations.[58]

Representatives of PPSs, however, said during JFTC interviews that high transmission fees create barriers to their market entry by pushing up their costs,[59] and while the method of calculating transmission fees was set forth in an ordinance of the METI, the General Electricity Utilities do not provide details on how they came up with their fees thereby, making the grounds of fees unclear. Therefore, PPSs also pointed out that doubts are remained as to whether the way in which the General Electricity Utilities depreciate their investments is appropriate, as to whether the degree of the amount of their capital investments tacked onto transmission fees is appropriate and so on.[60]

As mentioned in section A, in the accounting, as to the fees in the General Electricity Utilities that can be deemed as the same item equivalent to the transmission fees in PPSs, retail units of the General Electricity Utilities keep accounts as if they made payments to their transmission and distribution units for the use of the networks. This transaction, nonetheless, does not affect the revenue of the General Electricity Utilities as a whole because it simply shifts money from one unit to another within the same enterprise as follows: the amount of income of transmission and distribution unit is equivalent to the amount of expense of the retail unit of the General Electricity Utilities. This system invites criticism as follows: from outside of the General Electricity Utilities, it appears that the General Electricity Utilities seem to may have incentives to collect fees as much as possible from their competitor PPSs in their attempts to shift cross-unit costs as much as possible they can to transmission and distribution units, or so, so that they excessively estimate transmission and distribution costs thereby, setting high transmission fees—the same fees that PPSs must pay. This criticism is further fueled by the fact that the General Electricity Utilities do not disclose in detail how they calculate transmission fees, thereby, no outside party cannot be allowed to examine them.[61]

C. Calculation Method of transmission fees

PPSs also criticize the calculation method of transmission fees because it includes the tax for the promotion of new power plants used mostly for supporting local public bodies at where nuclear plants are located, as well as nuclear "back-end cost" for cleaning up spent nuclear fuel. PPSs argue that their users should not have to shoulder

[58] Current Electricity Rates System and Efforts of Utilities, the Federation of Electric Power Companies of Japan, February 3, 2012, 28.

[59] Material 6 from the fourth session of the Expert Committee on the Electricity Power Systems Reform provided by Ennet Corp., 4.

[60] There were changes in the electricity fee disclosure guidelines in March 2012. A new stipulation requires the General Electricity Utilities to disclose a report that had been submitted in accordance with the regulation concerning the implementation of Electricity Business Act when they began wheeling services (Ministry of International Trade and Industry ordinance No. 77 issued in 1995). This enables third parties to assess the appropriateness of the calculation.

[61] Article 24, paragraph 5, items 1 and 2 of the Electricity Business Act requires that the General Electricity Utilities disclose earnings and expenses of their wheeling service. According to Article 24, paragraph 3, item 3, the Minister of Economy, Trade and Industry issues an order to change the wheeling service provisions if profits of the wheeling service exceed a certain level and no changes have been made to rectify the situation.

these costs because they do not use electricity generated by nuclear plants.[62] Meanwhile, PPSs pointed out that there is a call for a review as to whether it is proportionate for participants of electric power exchange to be required to pay transmission fees that include the fixed construction costs even they are allowed to use transmission lines only when these lines have an excess capacity; as to whether it is proportionate for PPSs and so on also to pay certain allocated amount of the entire cost of transmission networks despite the fact that the transmission networks have been built mainly for the General Electricity Utilities.[63]

The Agency for Natural Resources and Energy explains in response to the above arguments as follows: As to the tax for promotion of new power plants, it is a cost for a public task that is to be used for various measures to materialize a stable supply of electricity (promoting locations for construction of power plants and diversification of power plants), then, the tax can be deemed as the cost for all electricity users equally to pay. Thus, pertinent to electricity PPSs supply, the agency, above, imposes tax on and collect the cost from PPSs through transmission fees. As to the back-end cost of cleaning up spent nuclear fuel, the agency maintains that it is applied to electricity produced before fiscal 2004. Since current PPSs users were also beneficiaries of electricity generated by nuclear plants in the past, the agency adds this cost to the current transmission fees based on the benefit principle or such.[64]

(4) Fees involving stabilization of electricity system (Payments for an imbalance, etc.)

A. Stabilization of electricity system

The frequencies of electricity correspond to the number of generator rotations. The frequencies fluctuate when there is a divergence between the amount of electricity carried through the transmission and distribution networks and the amount of total demand. Considerable changes in the frequencies separate generators from the electricity systems and cause blackouts. Thus, it is important to stabilize the frequencies within the electricity systems.

The stabilization operations must be conducted in an integrated manner. Central command center of the transmission and distribution units of the General Electricity Utilities that maintain and operate transmission and distribution networks is charged with this task.

In order to ensure stabilization of electricity systems, in detail, central command center instantly makes adjustments so as that the amount of electricity in which central command center allows to connect to transmission and distribution networks (total supply) and the amount of electricity consumed by users within the area (total demand) always match. There are situations in which such volume adjustments cannot solve a large supply–demand disparity. Thus, the General Electricity Utilities specify in their

[62] Material 6 from the fourth session of the Expert Committee on the Electricity Power Systems Reform provided by Ennet Corp., 4.
[63] A report released October 3, 2011, by the TEPCO (Tokyo Electric Power) Management and Finance Investigation Committee, 146.
[64] Material 1-2 from the fourth session of the Expert Committee on the Electricity Power Systems Reform provided by the secretariat of the Agency for Natural Resources and Energy, 12.

supply contracts that they halt electricity or that they require users to halt or reduce electricity use when there is, for instance, a major drought that significantly reduces the amount of the electricity generated by hydroelectric plants so as to enable adjustments from the demand side.[65]

B. Obligation of balancing rule (Requirements to match supply with demand)

PPSs are required to follow 30-minute balancing rule which requires PPSs to match their electricity generation with demand within a 30-minute timeframe (hereinafter, referred to as "obligation of balancing rule") as detailed later in the section titled "payments involved with a supply–demand imbalance" which is enforced under the regulations pertinent to the transmission fee system.

In another words, if there is a supply–demand imbalance within a 30-minute timeframe, and, if it is caused by a lack of electricity, PPSs must pay fees to respond to load changes (supply-demand imbalance fees) in addition to transmission fees. On the other hand, if there is excess electricity, the General Electricity Utilities purchase the electricity in accordance with their supply contracts concluded with PPSs in advance (This will be discussed further in section C). However, the purchase price is sometimes lower than the cost of generation or the revenue that could have been made if PPSs could have sold the electricity to users. That, in such cases, then, becomes a financial burden for PPSs. (a term "payment involved with supply-demand imbalance" refers the financial burden PPSs to incur as a result of a supply–demand imbalance turned out. This term is applied to problems caused by an oversupply, as well as shortage.)

PPSs, in an effort to meet the requirements from the 30-minute balancing rule as much as possible, have been building generation-adjustment systems, installing power plants for adjustment within areas where their users are located and so on.

The current obligation of balancing rule is applied only to PPSs. Non-Utility Power Producers etc. that do not provide electricity to retail users are to be exempt from this requirement.[66]

When PPSs' imbalance states are examined by respective PPS, even if one user uses less electricity than preplanned amount, the imbalance could not occur in the case that another user uses more electricity than preplanned amount. At least one PPS told the JFTC that large-sized PPSs could more easily meet the 30-minute balancing rule than small-sized PPS. That is because any disparity can more easily be solved if there is a larger pool of users.

C. Payments involved with a supply–demand imbalance

(a) Basic framework of regulations etc. on payments involved with a supply–demand imbalance

PPSs, when their total amount of electricity generation is examined by 30 minutes and if the amount falls short to the total demanded electricity within a 30-minute

[65] Article 40 of the electricity supply provisions of Tokyo Electric Power.

[66] Non-Utility Power Producers etc. may not fit the idea of maintaining the supply–demand balance because they do not operate retail businesses and they do not have direct connections with end users.

timeframe, pertaining to transmission fee contract, pay supply-demand imbalance fees to the General Electricity Utilities. The rules on supply-demand imbalance fees are as follows: If the amount of shortfall is no greater than 3%, PPSs are required to pay the "generation cost within the disparity range," which is calculated using the average variable cost of all power plants of the General Electricity Utilities and the fixed cost equivalent to reserve capacity. If the disparity is greater than 3%, PPSs, in addition to the "generation cost within the disparity range" described above, are required to pay the triple amount of[67] the amount exceeding the 3% threshold that is called the "generation cost beyond the disparity range."[68] These fees are handled as a part of transmission fees. The calculation method is stipulated in the Regulations on the methods to calculate the fees set by the General Electricity Utilities wheeling service provisions.

On the other hand, if the demand is lower than the supply, and if the disparity is within 3%, the General Electricity Utilities purchase the excess electricity at prices based on the average variable cost of all power plants in accordance with the contract that allows the General Electricity Utilities to receive excessive electricity via wheeling service. If the disparity exceeds 3%, the amount exceeding this level will be acquired by the General Electricity Utilities without any charge.

For PPSs which entered into the business not that long ago, meanwhile, payments involved with a supply–demand imbalance, above, are mitigated because such supply-demand imbalance fees may put their fledging operations at risk and because small-sized PPSs do not exert much influence on the overall supply–demand situation (calls "*Susokiri* system" exemption from full payment of supply-demand imbalance fees).[69]

The General Electricity Utilities do not keep track of disparities between total amount of electricity demand and total electricity generation at their own retail units. The General Electricity Utilities explained this to the JFTC as saying that they have their transmission and distribution units take in charge, as an exclusively integrated role, of maintaining their supply–demand equilibrium moment by moment to the extent which meets requirements from balancing rule throughout their whole electricity system.[70] In the statements of wheeling service incomes and wheeling service expenditures to be prepared in accordance with Article 5, paragraph 1 of the Electricity Business Act, no matter what the actual amount of imbalance turned out is, the General Electricity Utilities are to record, for accounting purposes, under certain assumptions, 3.7% of the actual amount of electricity at transmission end produced by the General Electricity Utilities, considered as the equivalent imbalance amount to the imbalance the General Electricity Utilities generated, as deeming the amount as the one balanced by supply-demand imbalance fees within the disparity range on wheeling service income and expenditure statement of their transmission and distribution units.

[67] During the nighttime, as well as year-end and New Year holiday seasons, the rates are double.
[68] Within the General Electricity Utilities, these fees are considered revenue for the distribution department.
[69] Material 1-2 from the fourth session of the Expert Committee on the Electricity Power Systems Reform (provided by the secretariat), 20, 21. There are measures to reduce financial obligations by relaxing rules on the disparity range.
[70] According to JFTC interview with the General Electricity Utilities.

(b) PPSs' argument concerning payments involved with a supply–demand imbalance

PPSs argue that financial burdens involved with imbalance raise PPSs' costs and create barriers to market entry because PPSs are required to invest in facilities in order to meet the balancing rule and are required to make payments involved with imbalance, despite the fact that the impacts of the imbalance caused by PPSs on the distribution system are small since their business scales are also small.[71]

In response, the General Electricity Utilities insist that PPSs should bear some financial burden in order to prevent a "moral hazard." They also argue that PPSs could join forces with one another and create a system to balance supply and demand, thereby arguing that the financial burden PPSs bear can be possibly reduced even under existing regulatory system.[72]

PPSs sometimes ask Non-Utility Power Producers etc. Enterprises for payments if they cannot provide electricity as promised. Such fees are necessary for PPSs to make payments involved with the imbalance.[73] The General Electricity Utilities, however, do not always ask Non-Utility Power Producers etc. that supply electricity for the General Electricity Utilities to take their responsibility for disparity payments.[74] Non-Utility Power Producers etc., therefore, have incentives to tend to choose the General Electricity Utilities over PPSs as their trade partners Non-Utility Power Producers etc. to procure electricity for. PPSs argue that this hampers their efforts to procure electricity from.[75]

On the points argued in the above, among representatives of the General Electricity Utilities, some told the JFTC that power plants of Non-Utility Power Producers etc., in the General Electricity Utilities, are classified as part of Self-Generation, then, even if any troubles, such as any accidents, occur, the General Electricity Utilities can handle with through raised the capacity of electricity generation of other power plants for Self-Generation. Therefore, according to their explanations, no problem etc. involved with supply-demand imbalance would not turn out in the first place.[76]

[71] Material 6 from the fourth session of the Expert Committee on the Electricity Power Systems Reform (provided by Ennet Corp.), 3. A number of PPSs raised the same issue during an interview with the JFTC.
[72] Representatives of the General Electricity Utilities made these remarks during a JFTC interview. PPSs responded by saying that creating a group to balance supply and demand would be difficult because that may require them to share customer information with one another.
[73] Among the representatives of Non-Utility Power Producers etc. with whom the JFTC interviewed, there were some who told that they had not been asked by PPSs for such payments. Therefore, the situation varies from one enterprise to another.
[74] The situation varies from one General Electricity Utility to another.
[75] Representatives of PPSs made the remarks during a JFTC interview.
[76] Representatives of the General Electricity Utilities made the remarks during a JFTC interview. As mentioned earlier, Non-Utility Power Producers etc. do not operate retail businesses and do not have direct connections with end users. Thus, they may not fit the idea of the supply–demand balance, although no such remark has been made during the JFTC interviews.

III. Current state of the electricity market and the standpoints of competition policy to tackle the issues

1. Basic Viewpoint

(1) Competition state in the electricity market

A. In the light of the current state of the electricity market described in the above "Part II", it is recognized that there is no effective competition in the market even though the market entry to the retail sector has been deregulated. The factors supporting such impression, above, can be categorized as follows:

(i) PPSs have difficulties in procuring electricity at competitive prices. This is because, with only little room for new construction of base-load power plants, almost all base-load power plants belong to the General Electricity Utilities and Non-Utility Power Producers etc., then, no incentive is urging them to actively provide electricity with PPSs.

(ii) Whereas the General Electricity Utilities have been operating as regional monopolies with supply obligations for years, they have established facilities and sales networks in such a way as to optimize their operations serving for user needs within their respective service areas. Thus, they have no incentive to newly spend cost to seek user needs outside their respective service areas.

(iii) The capacities of interconnected lines and FCs impose physical restrictions on abilities to provide electricity beyond service areas. This is because the General Electricity Utilities, which own and operate these facilities, have no incentive to incur any costs for infrastructure strengthening the facilities more than the extent which exceeds the scale required to ensure sound mutual procurements met with their needs.

Under these circumstances, even if deregulation expands the range of enterprises' choices, only with deregulation, promotion of competition cannot be expected.

B. In addition, one characteristic of the electricity market is that, as we mentioned earlier, Tokyo Electric Power have a large number of users as follows: Tokyo Electric Power Co. has 13,000 users with contracts of 500 kW or more, and 224,000 users with contracts with less than 500 kW (The number does not include users in the regulated sector of the market.). Most of these users are small- and medium-sized users. For such users, the General Electricity Utilities, as a principle, make contracts with these users based on the disclosed standard menus, leaving little room for these users to negotiate. Thus, the user demands are hardly reflected in the menus and prices of the contracts.

In addition, PPSs are not realistic alternatives for small-and medium-sized users under the current state. Therefore, there is a bargaining power disparity; the small-and medium-sized users cannot negotiate with the General Electricity Utilities using PPSs as leverage, nor can they refuse the General Electricity Utilities' demand for disadvantageous conditions such as higher prices.

C. Full deregulation in the retail sector is currently under consideration. Under the current state in which the market is divided into the regulated and deregulated sectors, the General Electricity Utilities have an advantage: they can make profits in the regulated sector of the market under the fully distributed cost method, which enables them to use the profit earned in the regulated sector to set a price, in the deregulated sector of the market, to set such a price that a competitor whose business efficiency level is equivalent to them cannot set.[77] This leads to hamper effective competition in the deregulated sector of the market. That would, then, hamper effective competition in the deregulated sector of the market. Full deregulation, therefore, is desirable from the standpoint of competition policy.

However, even if the retail sector is fully deregulated, the existing number of users in the regulated sector is already far bigger than those in the deregulated sector (in case of Tokyo Electric Co., the number is 28 million), considering that those user's sizes are small, the bargaining power disparity due to the nature of the electricity market, as described in earlier section B (above), will probably become even more apparent. Considering the situation mentioned above, unless any measures to be taken to tackle the state pointed out in sections A and B , a newly deregulated sector of the market would end up in a situation similar to the current deregulated market, at most, where any materialization of an effective competition would be difficult.

(2) The way forward to tackle the issues

The ways forward the electricity business system should be and the ways to progress the system reform will be, we reckon, articulated based on respective relevant authorities' decisions, considering relevant policy requirements such as balancing supply with demand and environment protection. In their decision making, the following points are to be considered: In the electricity market, effective competition in the retail sector is to be ensured thereby, promoting efficiency of electricity business through competition. In order to enable users to benefit from competition through enlargement of user alternatives, only is expanding the spatial range of enterprises' business activities via deregulation alone not sufficient to create effective competition. In addition to that, the system must be designed so as to enable sufficient common-use infrastructures to be built. On top of that, incentives should be given to market participants to shape a system with relevant enterprises' business activities based on their rational economic decisions so as that the PPSs' procurement situation would be improved. If such electricity business system can be established, it would lead to reduce cost to procure electricity to supply for users outside the service areas of the General Electricity Utilities.

At the same time, considering the nature of the electricity market, there should be professional services that represent users in negotiating with electricity utilities. Users should also be encouraged to join forces and negotiate with electricity utilities for better contract terms. It is crucial to enable users' requests to be better reflected in the menus and prices.

[77] In order to prevent the General Electricity Utilities from using profits generated in the regulated sector of the market to set a lower price in the deregulated sector of the market, the General Electricity Utilities are required to respectively disclose earnings of each unit. The General Electricity Utilities' prices are also inspected on a regular basis.

Progress in deregulation would expand the range of business activity options for participants, including those who have market power. It is important to ensure that the provisions of the Antimonopoly Act are fully enforced in order to prevent anticompetitive practices. The JFTC will continue to strictly enforce the Antimonopoly Act and provide clear interpretation of the law through the use of "the Guidelines for Proper Electric Power Trade" and so on.

2. Consideration for enterprises' incentives

(1) Independent of the General Electricity Utilities' retail units from generation/wholesale units

As you see, above, in Part II-2(6), even if PPSs try to seek to procure electricity at competitive price/conditions etc., the General Electricity Utilities, which generate approximately 73% of the electricity consumed in this country, operate generation/wholesale units, as well as retail units. The General Electricity Utilities' generation/wholesale units supply electricity to PPSs, whereas their retail units directly compete with PPSs in the retail sector. Since these two units are vertically integrated, even when the generation/wholesale units are to supply electricity for PPSs based on terms and conditions that have economic rationality, such generation/wholesale units' supply for PPSs appears to be lacking economic rationality from the General Electricity Utilities' point of view.

In a normal market, a supplier must procure raw materials at competitive prices in order to succeed. That is how competition works in the market. That is, if a certain enterprise fails to procure raw materials at competitive prices and lose a competitive position, this can be considered a result of the completion. However, in the electricity market, the situation is different. Power plants that can generate electricity at competitive prices are unevenly concentrated in the hands of the General Electricity Utilities. Such concentration have been developed in the process in which the General Electricity Utilities have been building up and acquiring their power plants under the circumstances of their local monopolization, without any competition of facilities, where the regulations on prices based on the fully distributed cost method are designed to ensure that the General Electricity Utilities can compensate for their capital investments. Taking all the above factors into account, in order to ensure the General Electricity Utilities' incentives to supply electricity for PPSs, separating their retail units and their generation/wholesale units from each other as two different independent entities is an option.

In case where the generation/wholesale units are independent, as a legal entity, from other units of the General Electricity Utilities, it would be a rational economic decision for the generation/wholesale units to provide electricity for PPSs as long as it would generate profits. Therefore, it is expected that there is no incentive to set self-restrain on supplying electricity for PPSs in considering interest conflicts relevant to completion with the retail units or to set higher price range etc. only for PPSs.

However, in a case where the independent of the generation/wholesale units from the retail units is not based on the "ownership unbundling" (a type of unbundling where respective units after unbundling do not maintain capital relationship), in order to seek to maximize the profits of the groups as a whole including the generation/wholesale units

and the retail units, there could be, still, incentive to restrain electricity supply for PPSs or set high price range only for PPSs even if it does not lead to any expansion of profits for the generation/ wholesale units. Nonetheless, once they become independent from each other to be different entities at least, the terms and conditions between the generation/wholesale units and the retail units and those between the generation/wholesale units and PPSs would become available for comparison of generation/wholesale units' supply contracts with procurement-sides. Even the General Electricity Utilities could secure power plants based on their state of regional monopolization and the price regulation based on fully distributed cost method, as mentioned earlier, it could be more difficult for their generation/wholesale units to restrain electricity supply for PPSs or set discriminatory terms and conditions, to the extent which cannot be attached with rational explanations, on electricity supply for PPSs, we reckon, compared with the case where such comparison is not available. For example, in a case where separated generation/wholesale units treat the competitors of their group retail units in a discriminatory manner, such discriminatory conduct would be potentially deemed as a violation of the Antimonopoly Act that prohibits private monopolization (the first section of Article 3 of the Antimonopoly Act) and unfair trade practices (Article 19 of the Antimonopoly Act). The JFTC will continue to closely monitor the situation to ensure that fair competition takes place in the industry and severely punish any violation of the Antimonopoly Act.

In addition, to make PPSs' electricity procurement at competitive price easier, not only can independent of the units but also an establishment of a market to trade electricity and generation capacity be alternatives to take. Such a market, even if such new market is established, however, it could not be expected to see such market exercises its function unless participants of the market have incentive to participate in and utilize the market. Furthermore, another possibility is that to call for bids on the power plants and/or the rights to use electricity in which the General Electricity Utilities possess to make electricity available to PPSs. Or, as an alternative, there is a measure to enforce the General Electricity Utilities etc. to supply the electricity they possess such as certain regulatory obligations imposed on the General Electricity Utilities and Non-Utility Power Producers etc. to sell a certain fixed amount or a certain fixed ratio of electricity they generated to electric power exchange etc. Still, even if supply can be enforced, it would be difficult to determine the adequate amount of electricity that should be made available to PPSs, if it is determined based on the amount of demand that PPS would acquire through competition that is hard to predict. Doing so could hamper competition in the retail sector, and carry a significant risk of the failure of regulation.

It should also be noted that the proposed independent of the General Electricity Utilities' retail units from their generation/ wholesale units is intended to create the General Electricity Utilities' incentives to provide electricity to new entrants. Thus, if the size of the General Electricity Utility is small and their retail units are embedded into their generation/wholesale units, but if no impact on electricity procurement of other competitors has been made, it seems that there is no reason to oblige such a small-sized one to make their units independent from each other.

At the same time, a specified retailer may have to be required to provide electricity to users on remote islands or in sparsely populated mountainous areas. In order

to make this possible, it appears to be necessary to make arrangement or so to establish a system that enables such retailer to efficiently supply electricity for such users.

(2) Independent of the General Electricity Utilities' transmission and distribution units

The General Electricity Utilities' transmission and distribution networks are shared by PPSs and other electricity providers. Therefore, it is necessary to ensure that the said networks are accessible and operated in a neutral and non-discriminatory manner.

The Electricity Business Act lays out various regulations concerning this matter, including the requirement that the finances of the General Electricity Utilities' transmission and distribution units must be managed under separated accounting. However, their transmission and distribution units are vertically integrated with the rest of the organizations, which inevitably creates the General Electricity Utilities' incentive to unfairly treat enterprises that compete directly with their retail units or with their generation/wholesale units. From the standpoint of competition policy, therefore, in order to ensure its accessibility, neutrality and its non-discriminative service manners under such circumstances, and, in order to remove incentives of the transmission and distribution units to unfairly treat enterprises with which the General Electricity Utilities compete in the retail sector or the generation/wholesale sector, the said transmission and distribution networks must be independent from their retail units and from generation/wholesale units, either at least functionally or through making the units independent each other to become each different legal entity. As to the details of such system design, the details should be those so as to materialize the required state that keeps transmission and distribution services accessible and operated in a neutral and non-discriminatory manner as possible as they can achieve.

There is a possibility, on the other hand, that the transmission and distribution units, once separated as independent units, cannot sufficiently have incentives to maintain the facilities and streamline the business etc. Therefore, in the process to design such a system, such a possibility should be taken into consideration to prevent such a situation. For example, designing the system so as to enable measures to exercise adequate intervention through regulation can be proposed.

If the unit would not choose a form of independent of ownership, in the transmission and distribution units, whereas it could be possible that their incentives to unfairly treat competitors of their affiliated units both in the retail sector and generation/wholesale sector may not be fully eliminated, in a case where a transmission and distribution units commit unfair treatment, the JFTC will severely punish such violations of the Antimonopoly Act.

3. Ensuring appropriate terms and conditions for the use of facilities and services provided by the monopolistic suppliers

(1) Transmission fees

Even if transmission and distribution units have been separated, the fact remains that these organizations would still be the monopolistic providers of the wheeling services, which is not different from current existing state. Thus, certain regulations

concerning the level of transmission fees are necessary to prevent harmful effects due to their monopolistic behavior. When authorities impose regulations, from the standpoint of competition policy, it is desirable that such regulations should be designed so as to encourage the transmission and distribution units to streamline their operations as possible as they can.

(2) Payments for obligation of balancing rule and for a supply–demand imbalance

Operators of transmission and distribution networks must ensure to match generation and consumption throughout the system as a whole in an integrated manner (to meet the requirements from balancing rule). It is appropriate that those that have caused an imbalance should be required to make payments depending on the degree of the imbalance they caused. Such payments must be, logically, impartially incurred between the General Electricity Utilities and PPSs that both are in the position of competition each other

On this point, the actual amount of supply-demand imbalance of the General Electricity Utilities is uncertain. Therefore, as to whether the burden of payment involved with supply-demand imbalance imposed on the General Electricity Utilities is equivalent to the burden of payment involved with supply-demand imbalance imposed on PPSs in the perspective of the whole supply-demand imbalance which includes the cases of excessive supply is uncertain. In the first place, for the General Electricity Utilities, despite the amount of supply-demand imbalance that actually turned out, the burden of payment involved with supply-demand imbalance is fixed to a certain cost to pay. Therefore, the existing system of balancing rule is not working as an incentive for the General Electricity Utilities' generation/wholesale units and retail units to ensure to meet requirements from balancing rule.

Therefore, it is reckoned that independent of the General Electricity Utilities from transmission and distribution network operators managing the system as a whole is required and that, then, the General Electricity Utilities are also required to incur the amount of payment involved with supply-demand imbalance that actually turns out.

Furthermore, as to the level of payment involved with supply-demand imbalance, on top of the burden of payment of the cost of adjusting imbalances to be assigned, as incentives to prevent moral-hazards, seen in the existing system, and to encourage participants to make efforts to stable electricity system, it could be deemed as rational to additionally set some form of penalties on harmful influence on electricity system stability. Nonetheless, at the current state, because the number of PPSs users and that of the PPSs' power plants are both small, then, even if supply-demand imbalance caused PPSs turns out, the impact on electricity system stability is limited. In addition, PPSs' business size are small and the number of their power plants and users are also small, therefore, compared with the General Electricity Utilities, in considering PSSs' difficulties in leveling of electricity generation that is to be likely to cause supply-demand imbalance, to set excessive penalty could become a factor that hamper PPSs' new entrants and growth. Therefore, it is appropriate, concerning not only assignment of the cost for imbalance adjustment but also introduction of penalties that the degree of impact on electricity system stability should be taken into account.

4. Infrastructure improvements

(1) Strengthening interconnected lines and FCs

Even if the transmission and distribution units become independent from other units, the transmission and distribution sector is monopolized. Therefore, no aggressive investment incentive that strengthens the interconnected lines and the FCs would not work, we reckon. Thus, it seems that some regulatory interventions and regulations from neutral position such as governmental agencies would be necessary to be introduced to encourage strengthening of the interconnected lines and the FCs in order to remove a barrier to entry for PPSs etc. It takes a huge amount of investment to upgrade the capacities of the interconnected lines and the FCs. The cost would be passed on in the form of higher transmission fees and ultimately shouldered by users. However, electricity utility using the wheeling service could reduce the risk of imbalance as the networks' service areas expand, and could alleviate the burden of the payments for the imbalance. They would also be able to provide electricity across different service areas through the interconnected lines when the "market division" mentioned earlier is eliminated. Meanwhile, users would be able to procure electricity at more competitive prices. The risk of blackouts would decline as reserve capacity dispersed throughout the nation becomes more easily utilized. Therefore, an increased cost could be justified in light of these and other benefits.

(2) Revitalization of the electric power exchange

Even after the General Electricity Utilities' generation/wholesale units are completely obtaining their independent from their retail units, even if their incentives to set restrain on selling electricity at electric power exchange is gone in considering the competition between the retail units of the General Electricity Utilities and PPSs, even so, we cannot expect enterprises motivated with economic rationality to robustly participate into trading at the electric power exchange unless the electric power exchange improves its usability and eliminates problems of "missing teeth" etc. mentioned earlier. Therefore, the electric power exchange's business is expected to be run in a way that electric power exchange painlessly reviews its product designs and trading rules that are to be more convenient to the participants.

(3) Smart meter specification etc.

Electrical meters enable two-way communication and remote control necessary for monitoring and billing, called smart meters, are being introduced. They keep track of users' electricity use and transmit the information to electricity utilities. The smart meters allow users to monitor their own electricity use in real time, which enables users to request contract options suitable for their own electricity use. Furthermore, the smart meters enable electricity providers etc. to create more contract options suitable for their users' electricity use.

Telling of smart meter specification including its communication network, hypothetically, if a smart meter is designed to exclusively for use of specific utilities in

such a way that their use is restricted to one particular provider, for example: to the General Electricity Utilities etc. of a specific region, and if users are required to replace their smart meters every time users change their providers, then, such replacement costs would be large enough to the extent which have effects of expulsion to other retailers. Thus, smart meter has potential risk that may hamper competition among retailers that is something to be necessarily considered.[78]

In addition, concerning the detailed information of usage data of every individual user through smart meter, hypothetically, in a case where only certain limited number of retailers can use such information, other retailers who cannot obtain such information may potentially find themselves in the position of disadvantageous in competition. Therefore, the system design is expected to be something which considers users' rights relevant to user's information management and which, at the same time, would not hamper competition among retailers in handling the information obtained from smart meters.

5. Consideration for bargaining power disparity in the retail sector

As mentioned in section 1-(2), only from the deregulation on new entrants by itself, spurring of competition cannot be expected. It is necessary to implement spurring competition schemes that take into consideration incentives of enterprises through the measures etc. outlined in sections 2 to 4.

On top of that, if you consider the nature of electricity market and the existence of the bargaining power disparity between electricity utilities and users on the grounds of the nature, only through each user's individual action of negotiation with electricity retailers, users cannot expect to ensure appropriate trading conditions. Thus, implementation of the following measures can be reckoned:

(1) Multiple small-lot users' collective negotiations with electricity utilities

That multiple small-lot users assign their rights to negotiate their contract terms and conditions to other enterprises, and collectively conduct negotiation and set terms and conditions with electricity utilities, that is having potentiality of reduce trading costs reduction of electricity utilities. In the case of PPSs, especially, where additional costs PPSs incur to build sales activity for the small-lot users is seemed to be proportionately larger than such costs larger electricity utilities do, cost reduction effect is being expected.

If PPSs become to be able to procure electricity at competitive prices through the respective measures mentioned so far, it is reckoned that users obtain bargaining power against the General Electricity Utilities on the grounds of users' potential switch to PPSs, and if collective negotiation is available for users, negotiation based on such switch potentiality becomes more effective thereby, leading to further enhancement of users'

[78] The METI has created a study group on smart meters. The panel, which includes representatives of the General Electricity Utilities, household appliance companies, telecommunications providers, and academia, released a report in February 2011 on what functions smart meters should have. The study was conducted with the expectation that transmission and distribution networks of the future will have more advanced features.

bargaining power. In addition, thanks to this, it is expected to create new businesses and services.

As to whether such user-side efforts to utilize their bargaining power fall under any violation of the Antimonopoly Act, in a case where the total market share of the goods or services that the enterprises made such efforts for is small enough not to have impact on competition in the market, it is reckoned, in principle, that such user-side efforts would not fall under any violation of the Antimonopoly Act. [79]

Meanwhile, if it is in the supply sector of products manufactured by electricity procured through users' collective negotiation, if it is a case where the market share of the enterprises taking part in users' collective negotiation, and, if it is a case where the ratio of electricity purchase cost to the whole cost required to product supply is high, such efforts made in the product supply sector cause concerns in relation to the Antimonopoly Act that is what you are required to be reminded. [80]

For instance, as to a case where an enterprise association made of small- and medium-sized enterprises conducts users' collective negotiation on electricity, and the enterprise association conducts users' collective negotiation on electricity procurement, in the light of the current state of the electricity market, it is difficult for anyone to imagine an enterprise association whose market share has impact on competition in the electricity market. In general, except a case where the market share of such enterprise association in goods or services supply sector is large, and, except a case where the ratio of electricity charge to the cost required to supply goods or services is high, it is possibly reckoned that users' collective negotiation on electricity procurement conducted by an enterprise association made of small-and medium-sized enterprises would not be deemed problematic in relation to the Antimonopoly Act.

(2) Regulatory obligation to be imposed on enterprises to establish and release a "default-service provisions" etc.

In the sector for small-lot users where newly competition is to be introduced by approving new entrants into the whole retail sector, if there is an abuse of market power in such sector, expected negative impact such as a price increase would be more serious than in the deregulated sector of the market. Therefore, in order to prevent such negative impact, it is reckoned that regulatory authority may establish rules on which electricity utility is to be required to ultimately supply for the users who cannot otherwise procure electricity (default services) and may set regulatory obligation on such electricity utility assigned to draw up and disclose the provisions which stipulate minimum terms and conditions of supply contract (a "default-service" provisions) thereby, banning any contracts under more disadvantageous conditions to users than those stipulated in the provisions.

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[79] According to Guidelines Concerning the Activities of Trade Associations under the Antimonopoly Act, joint undertakings of enterprises would not normally constitute violations of the Antimonopoly Act as long as the joint undertakings are conducted "by firms whose collective market share of the goods or services is too small to have any impact on competition in a market".

[80] "Case 7: Auto-parts makers' joint material purchases," The Consultation Paper on Antimonopoly Act, June 2004, the JFTC.

Meanwhile, even if electricity utilities are being under such regulatory obligation, it does not prohibit electricity utilities from drawing up other contract provisions, other than such "default-service" provisions, that turn out to be more advantageous conditions to users than those set by the "default-service" provisions, or, from setting more advantageous conditions to users than those set by "default-service" provisions through individual negotiations.

6. Miscellaneous

(1) Review of the General Electricity Utilities' special privileges

Something which is granted to the General Electricity Utilities and that which is not granted to PPSs is special privileges for public utilities, which is, most of the cases, conceded to them with respect to construction etc. of power plants and transmission networks. It could be deemed that these special privilege system is established to accord privileges to the General Electricity Utilities in response to the their state in which certain responsibilities such as supply obligation or user protection etc. are imposed on (Last Resort: [the General Electricity Utilities as a contract subject or such supply conditions that are to ultimately supply electricity for the users failed in the situation where the users cannot procure electricity in any other way due to the conditions they cannot reach an agreement about terms and conditions of supply contract etc.], users living in remote areas etc.). Nevertheless, electricity produced under the system in which the General Electricity Utilities enjoy many privileges is provided to the deregulated sector. These privileges benefit the General Electricity Utilities not only in the regulated sector, but also in the deregulated sector. From the standpoint of competition policy, as to these special privileges for public utilities, in the light of the regulatory intentions in the respective laws, if it is a case where no rational reason exists in limiting the scope of objects of special privilege for public utilities only to the General Electricity Utilities, it is desirable that such privileges are to be reviewed to make both utilities even as possible as the system can be in order to create a level playing field for PPSs.

(2) Sale of electricity generated by the power plants possessed by public organizations operating public hydroelectric plants etc.

Public organizations operating hydroelectric plants have been providing electricity to the General Electricity Utilities based on long-term no-bid contracts. This is mainly attributing to, thought to be, its earlier stage where the retail market had not been deregulated when the public power producing business organizations began to operate power plants therefore it had been seen as complement to the electricity generated by the General Electricity Utilities. However, there is no compelling reason today to position the public power producing business this way. If local government ordinances etc. prevent public power producing businesses from selling electricity to enterprises other than the General Electricity Utilities, it is appropriate to review those local government ordinances so as to enable PPSs to utilize the electricity generated by public power producing business through competitive bidding or other means.