

Analysis of low-voltage power market competition four years after electricity retail deregulation¹

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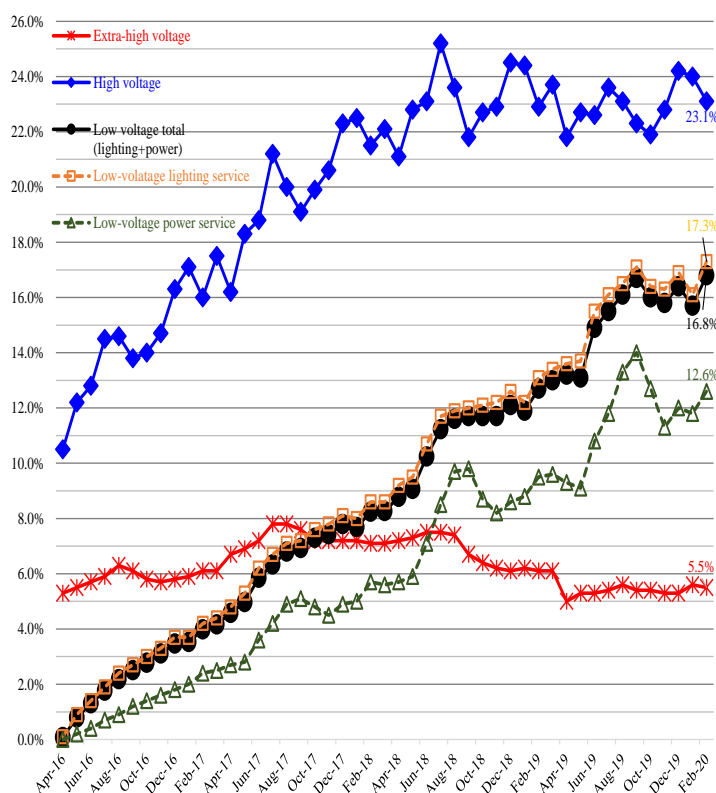
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1. Review of sales by new PPS companies

Four years have passed since new power producers and supplier companies began to sell electricity to low-voltage users such as residential and commercial users upon the full electricity retail deregulation in April 2016. I would like to review electricity sales by those new PPS companies and analyze reasons for relevant developments, based on monthly Electricity Trading Reports by the Electricity and Gas Market Surveillance Commission.

(1) New PPS companies' share of low-voltage power sales sharply rose to 16.8%

New PPS companies' share of low-voltage electricity sales soared rapidly to 16.8% (17.3% for low-voltage lighting services and 12.6% for low-voltage power services). In an apparent synergy effect, their share of high-voltage electricity sales that were deregulated 15 years ago almost doubled in the four years.



(2) New PPS companies won 1.1 trillion yen per year in low-voltage electricity sales

Sales volume, the number of contracts and sales value for traditional electric power utilities and new PPS companies in the year to February 2020 have been tabulated (Table 1-1).

Although traditional power utilities had occupied low-voltage electricity sales until March 2016, new

PPS companies won 45,921 GWh per year in such sales volume, 10.85 million contracts per month (a total of 130 million contracts per year) and 1.1 trillion yen per year in sales value from traditional utilities.

Figure 1-1 New PPS companies' share of nationwide electricity sales

Prepared from Electricity Trading Reports by the Electricity and Gas Market Surveillance Commission

¹ This paper adds "reasons for customers' switching to new PPS companies" to a report in the June 2020 issue of *EDMC Energy Trend*.

Monthly average low-voltage sales per contract came to 353 kWh or 8,432 yen for new PPS companies, some 30% higher than 278 kWh or 6,281 yen for traditional power utilities, indicating new PPS companies' cream-skimming practice of attracting high-value customers with lower unit prices for higher consumption. Many new PPS companies discount unit prices for highest or third bracket users (more than 300 kWh per month) in the lighting service market featuring progressive unit prices (Table 1-2) and those for larger-lot customers (paying higher basic charges) in the low-voltage market (Table 1-3), resulting in PPS companies' gap with traditional utilities in sales per contract.

Table 1-1 Annual nationwide electricity sales volume, contracts and value

	New PPS companies						Traditional power utilities (deemed retailers)				
	Extra-high voltage	High voltage	Low voltage total	Low-voltage market share	Lighting	Electric power	Extra-high voltage	High voltage	Low voltage total	Lighting	Electric power
Annual electricity sales volume (GWh) ①	12,519	69,322	45,921	15.3%	41,922	3,999	217,265	232,248	254,264	223,935	30,328
Total number of contracts (1,000 contracts per year) ②	18	2,698	130,209	12.5%	123,339	6,870	114	7,393	915,326	845,754	69,572
Annual sales value (million yen) ③	167,348	1,137,569	1,097,979	16.0%	985,834	112,145	2,615,354	3,646,308	5,749,074	4,968,261	780,814
Electricity sales volume per contract (kWh/contract, month) ①÷② ×1,000	706,625	25,694	353	122.8%	340	582	1,904,179	31,416	278	265	436
Electricity sales value per kWh (yen/kWh) ③÷①	13.4	16.4	23.9	104.8%	23.5	28.0	12.0	15.7	22.6	22.2	25.7
Sales value per contract (yen/contract, month) ③÷② ×1,000	9,445,618	421,648	8,432	128.8%	7,993	16,324	22,921,798	493,239	6,281	5,874	11,223

	Nationwide total				
	Extra-high voltage	High voltage	Low voltage total	Lighting	Electric power
Annual electricity sales volume (GWh) ①	229,784	301,570	300,185	265,857	34,327
Total number of contracts (1,000 contracts per year) ②	132	10,090	1,045,535	969,093	76,442
Annual sales value (million yen) ③	2,782,702	4,783,877	6,847,053	5,954,094	892,959
Electricity sales volume per contract (kWh/contract, month) ①÷② ×1,000	1,743,219	29,887	287	274	449
Electricity sales value per kWh (yen/kWh) ③÷①	12.1	15.9	22.8	22.4	26.0
Sales value per contract (yen/contract, month) ③÷② ×1,000	21,110,504	474,097	6,549	6,144	11,682

Prepared from annual data into which monthly data in the EGC Electricity Trading Reports from March 2019 to February 2020 were totaled.

Table 1-2 Low-voltage lighting service prices for a traditional utility and a new PPS company

		Example: Traditional utility A (Transitional lighting service price)	Example: New PPS company B (Deregulated lighting service price)	B-A gap
Basic price	per 10A	286.00 yen/contract, month	286.00 yen/contract, month	±0.00 yen/contract, month
Power price	[1st stage] 1-120 kWh	19.88 yen/kWh	19.85 yen/kWh	0.03 yen/kWh
	[2nd stage] 121-300 kWh	26.48 yen/kWh	25.35 yen/kWh	1.13 yen/kWh
	[3rd stage] 301 kWh or more	30.57 yen/kWh	27.48 yen/kWh	3.09 yen/kWh

Prepared from electricity price tables on websites of Companies A and B

Table 1-3 Low-voltage power service prices for a traditional utility and a new PPS company

		Example: Traditional utility A (Transitional lighting service price)	Example: New PPS company B (Deregulated lighting service price)	B-A gap
Basic price	per 10A	286.00 yen/contract, month	286.00 yen/contract, month	±0.00 yen/contract, month
Power price	[1st stage] 1-120 kWh	19.88 yen/kWh	19.85 yen/kWh	0.03 yen/kWh
	[2nd stage] 121-300 kWh	26.48 yen/kWh	25.35 yen/kWh	1.13 yen/kWh
	[3rd stage] 301 kWh or more	30.57 yen/kWh	27.48 yen/kWh	3.09 yen/kWh

Prepared from electricity price tables on websites of Companies A and B

(3) New PPS companies' higher average unit sales price, impacts of gaps between regional regulated prices

It is generally known that new PPS companies have taken advantage of lower prices to expand their share of electricity sales. Strangely, however, the average sales value per kWh in Table 1-1 stands at 23.9 yen for new PPS companies, higher than 22.6 yen for traditional power utilities. One reason for the gap may be new PPS companies' practice of attracting high-value customers with lower unit prices for higher consumption. Another apparent reason is that large gaps between regional regulated electricity prices lead new PPS companies to be more competitive (with higher market shares) in regions where regulated prices are higher and less competitive than in those where such prices are lower, resulting in new PPS companies' higher unit price as the weighted average.

Table 1-4 New PPS companies' share of electricity sales by region and regulated unit rates

	New PPS companies			Nationwide total Low-voltage electricity sales volume (GWh)	Comparison target (regulated price for traditional utilities)	
	Low-voltage electricity sales (GWh)	Sales share (%)	Order		(yen/353kW h, month)	Order
Hokkaido	1,680	13.1%	3	12,817	12,063	10
Tohoku	2,239	8.3%	6	26,867	10,376	9
Tokyo	22,429	22.6%	1	99,451	10,188	7
Chubu	4,340	11.3%	4	38,498	9,603	3
Hokuriku	349	3.8%	9	9,087	9,335	1
Kansai	9,807	20.0%	2	48,925	9,684	4
Chugoku	1,037	5.3%	8	19,552	9,836	5
Shikoku	789	7.7%	7	10,204	9,920	6
Kyushu	3,161	10.0%	5	31,668	9,567	2
Okinawa	90	2.9%	10	3,116	10,374	8
Nationwide total	45,921	15.3%	—	300,185	10,006	—

Prepared from annual data into which monthly data in the EGC Electricity Trading Reports from March 2019 to February 2020 were totaled and from data on websites of traditional power utilities.

* Traditional power utilities' regulated prices are compared by new PPS companies with the prices for the PPC average electricity consumption of 353 kWh per month.

Those prices are for the meter rate lighting B plan (contract current at 40 amperes) for Hokkaido, Tohoku, Tokyo, Chubu, Hokuriku and Kyushu, for the meter rate lighting A plan (unrelated to contract current) for Kansai, Chugoku and Shikoku, and for the meter rate lighting plan (unrelated to contract current) for Okinawa in February 2020.

The prices include the 10% consumption tax, fuel cost adjustments and the renewable energy promotion surcharge, without reflecting discounts for account transfer payments.

2. Analyzing reasons for switching to new PPS companies

(1) Reasons for users to switch new PPS companies: Prices

Lower electricity prices are a reason that can be immediately assumed for the shift of 1 trillion yen in annual low-voltage electricity sales to new PPS companies. In fact, most new PPS companies have lower price plans than traditional power utilities. There are many electricity price comparison sites on the internet, and consumers receive phone calls and direct mails from new PPS companies publicizing lower electricity prices. Lower electricity prices may thus be leading users to switch to new PPS companies. One of the objectives for deregulating electricity retail is to hold down electricity prices as much as possible². Users' selection of power suppliers is undoubtedly designed to hold down electricity prices.

How much lower are PPS prices? Each household can use power price comparison websites, leading us to assume that overall PPS prices would be lower. As discussed in 1. (3), however, the average

² "Integrated Energy System Reform," Agency for Natural Resources and Energy website https://www.enecho.meti.go.jp/category/electricity_and_gas/energy_system_reform/

unit price for new PPS companies is higher, while it is difficult to get adjustment information such as each new PPS company's breakdown of electricity consumption by volume bracket, and the number of contracts and sales by region. Therefore, I would like to leave the question of how much lower PPS prices are to be answered in the future.

(2) Reasons for users to select new PPS companies: Non-price reasons

In fact, prices alone cannot easily lead consumers to switch to new PPS companies. How does each new PPS company attract customers with non-price incentives? I collected and grouped information about sales promotion by the top 100 new PPS companies in the low-voltage electricity market for households and shops in a bid to verify non-price reasons for customers to switch to new PPS companies. Many new PPS companies refused to publish prices and proposals for sales promotion to corporate customers, making it difficult for us to understand the relevant realities. Therefore, their sales to corporate customers are exempted from the verification.

<Method for verifying non-price reasons for new PPS companies to be selected>

- Annual sales from March 2019 to February 2020 were computed for 619 new PPS companies covered by the Electricity Survey Statistics ((3)-1 electricity demand) published by the Ministry of Economy, Trade and Industry on May 29, 2020. Then, 399 companies reporting sales in the low-voltage electricity market in February 2020 were selected.
- Among those in the low-voltage market, the top 100 companies in sales were selected as those selling electricity to individuals according to information on their websites. In this process, 21 companies having no record of sales to individuals were excluded. In this way, the top 100 companies were sampled from 378 companies excluding the 21 firms. Although the number 100 looks far smaller than indicated by the total number of 378, the 100 companies account for more than 97% of annual PPS sales in the low-voltage market, indicating the number as significant for explaining changes in PPS companies' share of total sales in the market.
- From the websites of the top 100 companies, information on sales areas, mainstay businesses for contacts with customers, the presence or absence of contract cancellation penalties, contract terms and values, new price plans and services, etc. was collected for cross tabulation.

① **Satisfaction and me-tooism (selection from numerous options, nearby people are switching, companies seen frequently on commercials and banners)**

Generally, people feel satisfaction when selecting from numerous options, although such selection is accompanied by confusion. There is me-tooism when people see others selecting some companies or see these companies frequently on commercials. I checked the distribution of the top 100 new PPS companies' sales areas to find how far they participated in the market (Table 2-1)

In regions other than Okinawa served by Okinawa Electric Power Co., there are numerous options, as shown by the distribution. There are more new PPS companies in regions having greater economic sizes. Correlation is seen between the number of new PPS companies in a region and their share of regional sales (new PPS companies' large share in Hokkaido may be attributable to higher regulated prices).

Among the top 100 PPS companies, those offering services in Okinawa are two mobile carriers, a travel company and a new specialized PPS company.

Table 2-1 Sales areas of top 100 new PPS companies

	Sales areas for top 100 companies	Share of sales in Electricity Trading Reports (same as in Table 1-4)
Tokyo	65	22.6%
Kansai	55	20.0%
Chubu	51	11.3%
Kyushu	51	10.0%
Tohoku	47	8.3%
Chugoku	43	5.3%
Shikoku	38	7.7%
Hokkaido	36	13.1%
Hokuriku	31	3.8%
Okinawa	4	2.9%

② **Security, confidence (familiar, credible)**

Given that dealing with familiar or credible companies can enhance security or confidence and become a reason for selecting a new PPS company, I put in order the relationship between the top 100 new PPS companies' mainstay businesses and their sales shares (Table 2-2).

Those having continuous contacts with consumers through their respective mainstay businesses boast higher sales shares, including nine city gas companies, three mobile carriers, four telecommunications (optical communications and cable TV) companies, 27 liquefied petroleum gas companies, and three oil companies.

Specialized PPS companies are struggling due to their small sales shares as they lack continuous contacts with consumers and have difficulty taking advantage of any other businesses for selling electricity. (The presence or absence of a contract cancellation penalty is discussed later).

Table 2-2 Mainstay businesses of top 100 new PPS companies

	Low-voltage market sales volume (GWh)	Share (%)	Number of companies	Cancellation penalty	
				Present	Absent
City gas companies	14,885	36.7%	9	-	9
Mobile carriers	7,869	19.4%	3	1	2
Specialized PPS firms	4,459	11.0%	37	14	23
Telecom (optical/CATV)	3,809	9.4%	4	1	3
LPG firms	3,100	7.6%	27	10	17
Oil firms	2,878	7.1%	3	-	3
Cross-border sales by traditional utilities	1,269	3.1%	4	1	3
Cooperatives (regular delivery)	870	2.1%	10	-	10
Travel firms	599	1.5%	1	1	-
Railway firms	588	1.4%	1	-	1
Mass retailers	281	0.7%	1	-	1
Total	40,609	100.0%	100	28	72

③ Fitness (suitable for equipment, favorite)

A sense of fitness about equipment in possession (such as electric and other heat sources and telecommunications) and values (such as consciousness of environmental and regional contributions, and risk tolerance) can be a reason for switching to a new PPS company.

Table 2-3 Conditional price plans of 64 among top 100 new PPS companies (including overlaps)

	Plan overview	Number of firms		Plan overview	Number of firms
Plans meeting equipment or values	Prices for all-electric houses	11	Combined discounts	Equipment in possession or under leasing	4
	Renewable energy (higher)	8		Mobile phones/cheap SIM cards	3
	Regional contributions (higher)	3		Proprietary credit cards	3
	Linked to JEPX market trends	2		Kerosene	3
	Discounts for introducing other customers	2		Fueling	1
	Pedometer-linked discounts	1		Vehicle leasing	1
Combined discounts	City gas	21	EV purchase	1	
	LPG	19	Water services	1	
	Delivery system	9	Website registration	1	
	Telecom (optical/CATV)	8	Relatives' subscriptions	1	
	Water delivery	4			

* No company pursuing local consumption of locally generated electricity (as cited by the Agency for Natural Resources and Energy) was discovered.

Electricity retail deregulation was intended to lead to new price plans and services³. In fact, numerous price plans and services that fit various equipment and values and can be customized have been offered (Table 2-3).

Price plans for all-electric houses have increased, while plans that had not been expected have appeared, including plans contributing to renewable energy diffusion and regional communities, those reflecting price changes on the Japan Electric Power Exchange, and network business plans that offer greater discounts in exchange for the introduction of other customers.

There are also discount price plans combined with mainstay or new businesses of new PPS companies. Simple discount price plans for electricity sales alone were offered by only 36 of the top 100 new PPS companies.

④ Easiness (If a new PPS is not satisfactory, a customer may be allowed to switch back to a traditional utility)

The absence of a contract cancellation penalty leads to easiness of switching, lowering hurdles to switching to new PPS companies. As indicated in Table 2-2, 72 of the top 100 new PPS companies take advantage of the absence of a contract cancellation penalty for attracting new customers. The remaining 28 companies require contract cancellation penalty payments. Lower ranked companies feature higher cancellation penalty fees, longer cancellation penalty periods and automatic contract renewal (Table 2-4). This means that it is difficult for consumers to select companies requiring contract cancellation penalty payments.

³ "What Changes Would Come from the Full Electricity Retail Deregulation?" Agency for Natural Resources and Energy website https://www.enecho.meti.go.jp/category/electricity_and_gas/electric/electricity_liberalization/merit/

Table 2-4 Distribution of 28 companies requiring contract cancellation penalty payments by sales, cancellation penalty fee and cancellation penalty period brackets

Sales volume ranking	Cancellation penalty Cancellation penalty period	500 yen		2,000 yen		3,000 yen		3,000 yen		Basic price× 1.5		3,500 yen		3,500 yen		3,850 yen		5,000 yen		5,400 yen		9,800 yen		15,000 yen		N/A	Number of firms	
		1 year	1 year	1 year	1 year	1 year	2 years	1 year	1 year	2 years	1 year	2 years	1 year	2 years	1 year	2 years	1 year	2 years	1 year	2 years	1 year	2 years	1 year	2 years	1 year			2 years
1st-20th		1		1		2																						4
21st-40th				1		1							1															3
41st-60th				2		5																						7
61st-80th				1		2		1		1						1									1			7
81st-100th										1		1							1		1		1		1			7
Total number of firms		1		5		10		1		2		1		1		1		1		1		1		1		1	2	28

(Note) A cancellation penalty period is a period within which a party cancelling a contract must pay a penalty fee. "Renewal" means automatic contract renewal. Contract termination in months other than designated expiration months amounts to cancellation. (Some companies do not designate contract expiration months.)

3. Evolving and deepening electricity deregulation and prospect

The full electricity deregulation is evolving and deepening while providing customers with various options.

Not only the top 100 new PPS companies on which this paper focused, traditional power utilities are also enhancing their customer services by offering new electricity price plans, various combined discounts, visualization services and cross-border sales in Japan. Therefore, irrespective of whether customers have switched to new PPS companies, all people have variously benefitted from the full electricity deregulation. Among the 278 lower-ranked new PPS companies are regional firms that fail to grow due to their policy of selling locally generated power to local customers.

However, there are matters of concern for the future, including heavy incentives for high-consumption (high-value) customers that make it difficult to analyze unit prices, as well as potentially illegal practices regarding contract cancellation penalty. I would like to identify up-to-date information and track changes.

In the future, traditional power utilities are expected to change their electricity price plans through the restart of nuclear power plants. I would like to continuously analyze how new PPS companies would follow traditional power utilities regarding electricity procurement and price plans and what their financial profiles are.

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