Competitive Landscape After Three and Half Years of Japan's City-Gas Market Full Retail Competition

Daisuke Masago[1]

1. Introduction

More than three and half years have passed since Japan's city-gas retail market for all the market segments was opened for competition on 1 April 2017. Judging from the author's analysis of the number of switching cases and switching rates, the rate of progress in the full retail liberalization of city-gas differs between rural and urban areas. The author has also analyzed the impact of changes in consumer behavior due to the expansion of COVID-19 infection on the competition for customers, and the 'start-up wholesaling' launched in FY2019 as an initiative to promote the new entrants into the gas retail business from the perspective of the purpose of its introduction.

2. Course and objectives of the full retail liberalization of city-gas

The liberalization of the city-gas business in Japan has been proceeding in stages since 1995. The domestic sales volume of city-gas has been steadily expanding along with the increase in demand due to industrial development. However, at the beginning of the liberalization history, the city-gas business was vertically integrated and licensed in each of more than 200 franchised regions, and the retailing and maintenance and operation of the network were carried out by a specific company as a regional monopoly. Under the then Gas Business Act, it was not possible to set rates for each customer, and industrial customers with large gas consumption expressed a strong demand for liberalization to enable price negotiations. As a result, liberalization began in 1995 for large users with annual gas consumption of 2 million cubic meters on more, such as large factories and large hospitals. After that, the threshold volume for liberalized gas sales was lowered in stages, and the scope of liberalization was expanded. In the wake of the Great East Japan Earthquake in March 2011, as the electric power system was being reformed, the full liberalization of the retail market for city-gas was considered with the aim of "ensuring a stable supply of natural gas," "maximizing the control of gas prices," "diversifying usage menus and expanding business opportunities," and "expanding the ways of using natural gas". In April 2017, the full liberalization of the city-gas retail market was launched for small offices and residential customers.

[1] Researcher, Gas Group, Fossil Energies and International Cooperation Unit.

Table 1 Course toward the full liberalization of Japan's city-gas

Start	Liberalization target	Liberalization rate to gas sales volume
1995～	Consumers with annual gas consumption of 2,000,000 cubic meters and over < Large-scale factory, Large-scale hospital >	49%
1999～	1,000,000 cubic meters and over < Large-scale hotels >	53%
2004～	500,000 cubic meters and over < Medium-scale factories, medium-scale hospitals >	57%
2007～	100,000 cubic meters and over < Mid-scale hotels >	64%
2017～	All consumers <office, residential customers>	100%

3. Progress in the full liberalization of gas retailing

3.1 New Entrants

Prior to the full liberalization of gas retailing, general gas utilities operated under a "license system," with each utility operating exclusively in areas licensed by the Minister of Economy, Trade and Industry (METI). However, with the enforcement of the revised Gas Business Act on 1 April 2017, the gas retail business after the full liberalization of gas retailing was revised to a "registration system" that requires registration and certification by the METI or the Director-General of the Bureau of Economy, Trade and Industry. New entrants to the gas retail market include a diverse range of businesses, mainly former general gas utilities, former general electric power utilities, and LPG retailers. As of 20 October 2020, the number of registered gas retail suppliers was 82. However, not all registered suppliers have necessarily entered the gas retail market, and only 35 suppliers (43% of the total number of registered suppliers) are supplying or planning to supply gas. Although the timing of liberalization and the size of the markets differ, the number of new entrants is much smaller than 420 in the low-voltage electric power sector.

Figure 1 shows the number of companies that are registered as gas retailers and that are supplying or planning to supply gas. The number of new entries by former general gas utilities and former general electric power utilities has not necessarily increased. On the other hand, there has been a significant increase in the number of entries by "others" service suppliers, which include internet service providers and new power producers and suppliers. This is due in large part to the "city-gas platform" provided by the Tokyo Energy Alliance (TEA). The company launched its platform business in October 2017. The company provides

gas procurement, security, and customer management systems to companies that are considering entering the gas retail business. TEA is a joint venture between TEPCO EP and NIPPON GAS, with TEPCO EP taking over gas procurement and NIPPON GAS taking over safety technologies and customer management systems accumulated in the propane industry. Currently, there are 16 "others" suppliers that are supplying or planning to supply gas, and 11 of them have adopted the TEA's city-gas platform. Some propane gas retailing companies have also adopted TEA's city-gas platform. The number of new entrants using the platform is expected to increase in the future.

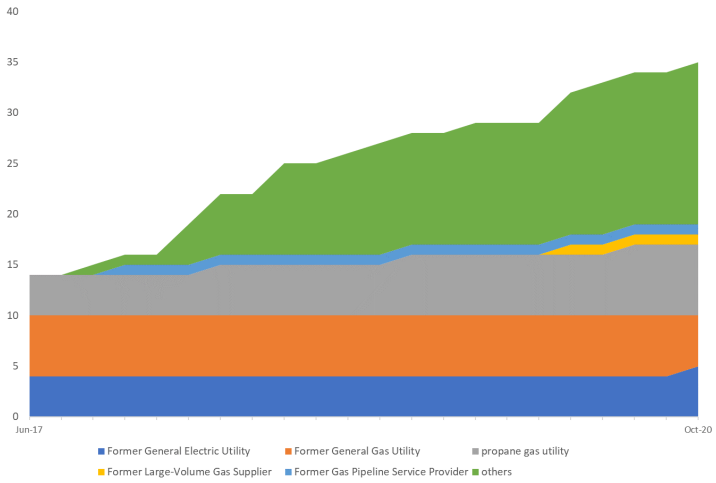

Figure 1 Change in the number of new entrants that are supplying or planning to supply gas

Figure 2 shows the actual retail supply areas applied for by the 35 new entrants. When a prospective new entrant applies for gas retail registration to the METI or the Director-General of the Bureau of Economy, Trade and Industry, it is necessary to apply for the area of the general gas pipeline utility to which it plans to supply retail gas, in addition to the gas retail business system and complaint handling system. After aggregating the retail supply area applications of each company, the author has found that the new entrants have entered a total of 21 prefectures. Characteristically, the areas of entry are mainly the supply areas of the four major city gas companies (Tokyo Gas, Toho Gas, Osaka Gas, and Saibu Gas (the Fukuoka area only)), which have a large number of city-gas customers, and competition for customers are fierce between existing city-gas companies and new entrants. On the other hand, there are 26 prefectures where no new entrants have entered the market. The main reason for this is the inability to ensure sufficient business profitability for new entrants. In this case, the city-gas customers in the 26 prefectures where no new entrants have entered the market will not be able to fully enjoy the benefits of liberalization unless the existing city-gas companies voluntarily set new price menus and expand their services.

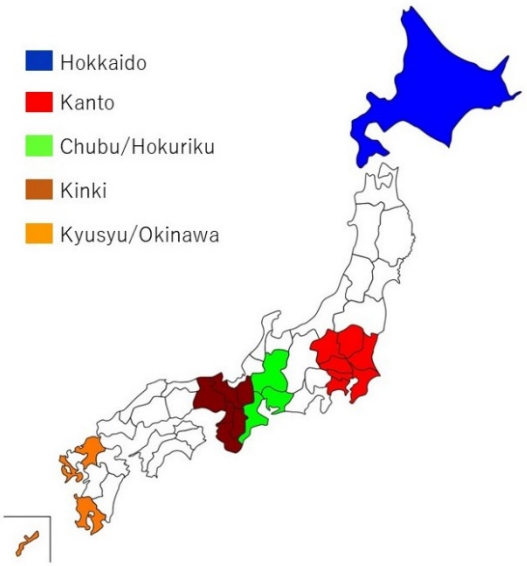

Figure 2 Entry areas of new entrants that are supplying or planning to supply gas

3.2 Customer switching

The number of switching is used as a typical indicator to evaluate the competition trend and progress of the liberalization of gas retailing. As of the end of August 2020, the number of switching applications published monthly by the Agency for Natural Resources and Energy was approximately 3.8 million (an increase of 44% or 1.15 million compared to the same month in 2019), and the number of applications for switching has been steadily accumulating. However, the number of applications for switching published by the agency is a cumulated value, and further analysis is needed to determine whether switching is expanding its use as an option for city-gas consumers.

Figure 3 shows the monthly number of switching applications in the four regions where switching is occurring (Kanto, Chubu/Hokuriku, Kinki, and Kyushu/Okinawa). In the three regions (Chubu/Hokuriku, Kinki, and Kyushu/Okinawa), the number of switching applications has stagnated, with the largest monthly number of approximately 51,000 recorded in the Kinki region in April 2018. On the other hand, in the Kanto region, approximately 135,000 city-gas customers applied for switching in April 2020, which is the largest number for a month since the statistics started.

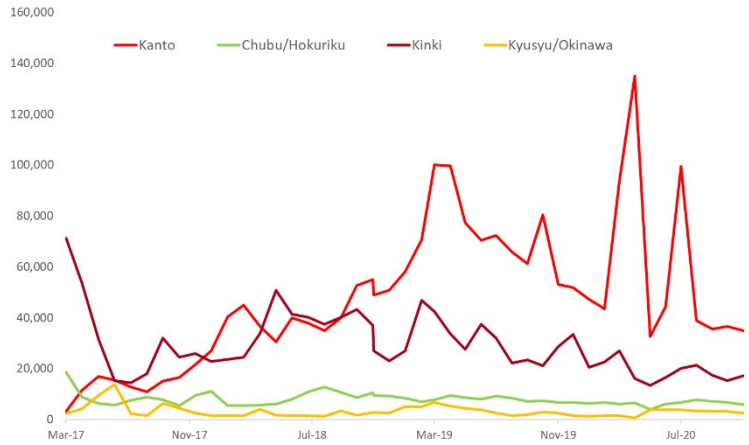

Figure 3 Monthly switching by region

Figure 4 shows the switching rates, which is the ratio of switching applications to the number of city-gas customers by region. As of July 2020, the Kanto region had the largest number of customers in Japan, with approximately 13.64 million, which is 52% of Japan's total. This is 2.1 times more than the Kinki region, 5.5 times more than the Chubu/Hokuriku regions, and 9.5 times more than Kyushu/Okinawa. In terms of the number of switching applications, the Kanto region has been at a higher level than the other three regions since September 2018. However, the switching rates are less than 1% due to a large number of city-gas customers. In Kinki, the rate was 1.15% in March 2017This is assumed to be a transitory increase due to the introduction period of liberalization.

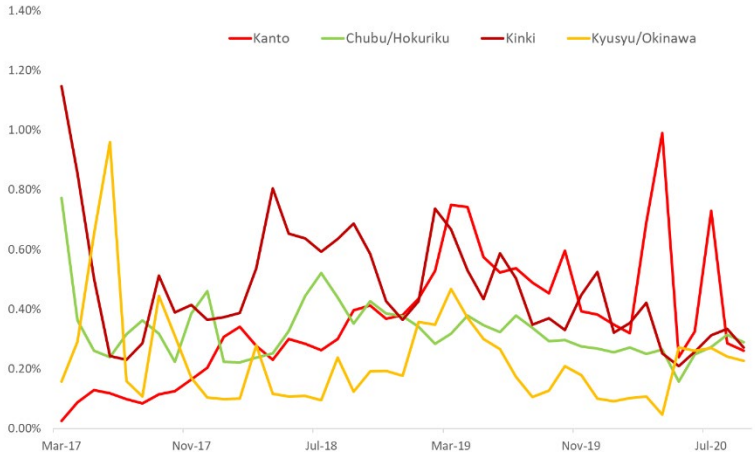

Figure 4 Monthly switching rate by region

Table 2 shows a comparison of switching rates between Japan and the United Kingdom over the last two years. As in Japan, the United Kingdom has been liberalizing the gas market in stages, and full liberalization began in 2002 with the removal of gas price regulations. The average monthly switching rate in the United Kingdom for 2019 was 1.7%, while the rate in Japan was 0.4%. There is a large difference in the number of switching cases and switching rates when comparing the two countries. However, it should be noted that there are differences in the awareness of switching among customers due to the different start dates of liberalization, the number of gas retails companies, the installation status of pipelines, and the density of customers, etc.

	Japan			Great Britain		
	Switching Cases	Total Gas Customers	Switching Rates	Switching Cases	Total Gas Customers	Switching Rates
Apr-18	89,313	25,795,510	0.35%	372,000	23,240,000	1.60%
May-18	90,790	25,771,973	0.35%	399,000	23,257,000	1.72%
Jun-18	90,455	25,758,127	0.35%	389,000	23,280,000	1.67%
Jul-18	86,552	25,765,991	0.34%	365,000	23,296,000	1.57%
Aug-18	94,183	25,763,155	0.37%	394,000	23,312,000	1.69%
Sep-18	106,362	25,760,949	0.41%	433,000	23,330,000	1.86%
Oct-18	105,241	25,799,228	0.41%	470,000	23,347,000	2.01%
Nov-18	88,276	25,831,047	0.34%	382,000	23,371,000	1.63%
Dec-18	85,649	25,892,974	0.33%	338,000	23,386,000	1.45%
Jan-19	98,857	25,907,627	0.38%	291,000	23,397,000	1.24%
Feb-19	129,370	25,904,185	0.50%	350,000	23,417,000	1.49%
Mar-19	157,046	25,938,582	0.61%	486,000	23,492,000	2.07%
Apr-19	148,152	26,040,077	0.57%	522,000	23,509,000	2.22%
May-19	117,924	26,047,511	0.45%	381,000	23,528,000	1.62%
Jun-19	119,818	26,037,719	0.46%	336,000	23,548,000	1.43%
Jul-19	116,117	26,017,666	0.45%	402,000	23,568,000	1.71%
Aug-19	97,920	26,035,947	0.38%	391,000	23,588,000	1.66%
Sep-19	93,732	26,032,165	0.36%	436,000	23,606,000	1.85%
Oct-19	111,851	26,061,138	0.43%	431,000	23,632,000	1.82%
Nov-19	91,133	26,091,118	0.35%	378,000	23,653,000	1.60%
Dec-19	93,291	26,146,136	0.36%	418,000	23,670,000	1.77%
Jan-20	75,317	26,154,317	0.29%	340,000	23,682,000	1.44%
Feb-20	74,251	26,156,936	0.28%	406,000	23,700,000	1.71%
Mar-20	128,217	26,188,923	0.49%	457,000	23,716,000	1.93%

Table 2 Monthly switching rates for Japan and the UK

Due to the spread of COVID-19 infection, which is still raging around the world, many industries are experiencing changes in customer behavior. In the gas industry, the sales volume of gas for industrial use decreased significantly due to the economic recession, while sales volume of gas for residential use generally remained at the same level as in 2019. However, the number of applications for switching in May 2020 decreased by 53% compared to May 2019, the largest decrease ever recorded. One of the reasons for the decrease is thought to be that customers' motivation for switching decreased due to the restriction of unnecessary face-to-face sales activities caused by the request to refrain from going out, especially in the metropolitan area.

In addition, due to the restraint in going out, the attention to the latest gas appliances with improved convenience is increasing, especially in the generation for child rearing. Among these, the gas clothes dryer "Kanta-kun" has met the needs of customers for its ability to dry clothes in a short time and at low cost, and its sales have increased rapidly. The attention of consumers to the latest gas appliances may lead to their interest in the services and gas prices of gas suppliers and may also increase their interest in switching.

4. Start-up wholesaling

A new initiative for wholesale supply called "start-up wholesaling" was launched in FY2019. The purpose of the initiative is to promote the entry of new entrants in the Hokkaido, Tohoku, and Chugoku regions, where switching has not yet occurred, and in regions where new entrants have already entered the market but the number of switching has not increased. Start-up wholesaling is positioned as a voluntary initiative by former general gas utilities, based on the "proactive wholesale supply of gas" described in the "Guidelines for Appropriate Gas Transactions" published by the Fair Trade Commission and the METI in January 2019. The participating companies are classified according to their gas procurement capacity and supply facilities. There are nine companies in the first group (Tokyo Gas, Osaka Gas, and Toho Gas) and the second group (Hokkaido Gas, Sendai City Gas Bureau, Shizuoka Gas, Hiroshima Gas, Saibu Gas, and Nihon Gas), and the target area is within the city-gas supply area of these companies. The wholesale system is based on "one-touch wholesaling," in which the wholesaler delivers gas to the gas retail supplier (new entrant) at the point of demand. The terms "start-up wholesaling" and "one-touch wholesaling" are sometimes used interchangeably, but the former refers to the name of the initiative and the latter to the wholesale supply system. By making the wholesale supply system "one-touch wholesale," the wholesaler will be responsible for the "balancing operations" of managing the volume of gas dispatched from the gas pipeline and the volume of gas injected in the consignment supply, which has been one of the issues for new entrants, and the workload of new entrants will be reduced. The system is also designed to set the contract period, method of setting the wholesale price, and maximum usage volume, etc. However, new entrants who do not have strong bargaining power in bilateral trading will be able to lower the entry bar by using start-up wholesaling.

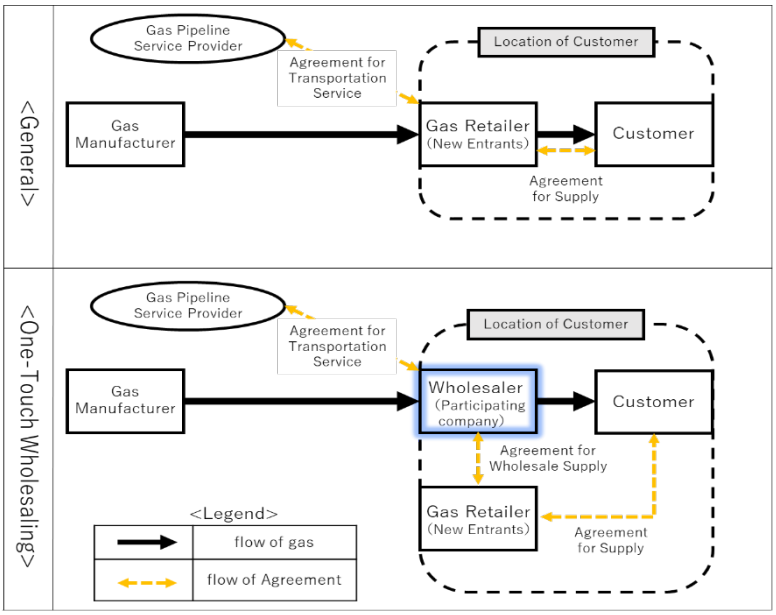

Figure 5 Supply image of one-touch wholesaling

METI published a report on start-up wholesalers in July 2020, in which it announced the number of inquiries to start-up wholesaling from companies that are considering entering the market. The total number of inquiries was 58, including some cases in which a sole company made inquiries to more than one participating company. Because there are 35 new entrants who supply or plan to supply gas as mentioned above, the potential new entrants are showing a high interest in this initiative. However, as of 1 October 2020, there were only three new entrants utilizing start-up wholesaling, and the start has been slower than expected after a detailed system design. In April 2020, Ichitaka Gas One entered the area supplied by Hokkaido Gas, and Koa Gas Nihon entered the area supplied by Nihon Gas in Kagoshima. In addition, in October 2020, Hokkaido Electric Power Company became the first former general electric utility to take advantage of the initiative entering the Hokkaido Gas supply area. Considering that the purpose of the introduction of start-up wholesaling is to promote the entry of new entrants into the market, the fact that areas where no new entrants have appeared so far have observed some interest in entering the market can be appreciated. The three new entrants are also striving to create benefits for customers by setting up "set discounts" for contracts that combine electricity and kerosene. Ichitaka Gas One has been steadily increasing the number of customers and has acquired 47 customers as of the end of June 2020. On the other hand, while Kyushu Electric Power Company and other companies have already entered the Kyushu-Okinawa region, the number of customers of Koa Gas Nihon is unknown.

The challenge for the future is to follow up on the large number of companies that

decided not to enter the market despite a large amount of interest in start-up wholesaling. The reason why companies are abandoning their efforts to enter the market is presumably due to their inability to ensure the profitability of their business. It may be difficult for prospective retailers to differentiate their retail gas prices offered to gas customers from those offered by general gas utilities with the wholesale prices offered by the wholesaler (the participating company) to the prospective retailers.

The method of setting wholesale prices for start-up wholesaling is as follows: the wholesaler (participating company) prepares an "upper limit wholesale price list" and presents individual wholesale price lists to the prospective retailers for negotiation at or below the upper limit wholesale price. The upper limit wholesale price list and calculation basis have been submitted to the Agency for Natural Resources and Energy, allowing the prospective retailers to compare and reconcile the wholesale prices as necessary. In other words, governance over the wholesalers is ensured. In the case of a standalone gas contract, Koa Gas Nihon has a superior rate structure to that of Nihon Gas. On the other hand, Ichitaka Gas One offers the same price as the general rate structure of Hokkaido Gas for a standalone gas contract. In addition, Hokkaido Electric Power Company does not offer standalone gas contracts, so it is necessary to combine gas contracts with other fuels to differentiate gas retail prices.

5. Conclusion

The media coverage of the full liberalization of gas retailing is often based on the cumulative number of switching applications and switching rates in the seven regional categories (1) Hokkaido, (2) Tohoku, (3) Kanto, (4) Chubu/Hokuriku, (5) Kinki, (6) Chugoku/Shikoku, and (7) Kyushu/Okinawa, as published by the Agency for Natural Resources and Energy. In this report, gas retail supply areas where new entrants have applied for registration are summarized, and is the author has shown that the areas where the competition among the entrants arises due to the full liberalization of gas retailing are the urban areas where the economic scale is large, and the number of consumers is large. Although the Agency for Natural Resources and Energy publishes the number of applications for switching in each of the seven regional divisions, it does not mean that new entrants have entered the market in all the sub-regions under the regional division. For example, in the Chubu/Hokuriku regions, new entrants have entered the market in the three prefectures in the Toho Gas area (Aichi, Gifu, and Mie), but there have been no entrants in the remaining six prefectures, and it should be noted that there is no competition for residential consumers.

To create and expand the benefits to customers from the full liberalization of gas retailing, it remains important to promote the entry of new entrants. Although the city-gas

platform business provided by TEA is expected to be widely used and expanded, it is assumed that the areas where companies will enter the market will be concentrated in urban areas. There are only three new entrants using start-up wholesaling, but it is significant that new entrants have entered Hokkaido and Kagoshima, which were previously areas with no entrants. There is no target set for the number of new entrants to the market through this initiative, but by further brushing up the design of the system for start-up wholesaling, it is expected that other areas that have not yet entered the market (Sendai City Gas Bureau, Shizuoka Gas, Hiroshima Gas area, etc.) will also take advantage of this initiative.

Reference

1) Japan Gas Association, About the Gas Business, Access date: 2 April 2021, (https://www.gas.or.jp/seido/jiyuka/)
2) METI, The 27th Advisory Committee on Natural Resources and Energy, Electricity and Gas Basic Policy Subcommittee, Electricity and Gas Business Subcommittee, Source 3
3) METI, Registered Gas Retailers, Access date: 22 October 2020, (https://www.enecho.meti.go.jp/category/electricity_and_gas/gas/liberalization/retailers_list/)
4) METI, Number of switching applications, Access date: 5 October 2020, (https://www.enecho.meti.go.jp/category/electricity_and_gas/gas/liberalization/switch/)
5) METI, Current Survey of Production Concerning Gas Industry
6) Office of Gas and Electricity Markets; Date Portal, Access date: 5 October 2020, (https://www.ofgem.gov.uk/data-portal/overview)
7) METI, Working Group on Gas Business System, Source 4

Contact: report@tky.ieej.or.jp