Nihon Keizai Shimbun
(Japan Economy Newspaper),
March 20th, 2017, morning edition
Originally written in Japanese

Full deregulation of electricity retail market, 1 year on
Few households are switching their supplier
Attractive fee packages are key
Requirement for service fusion that promotes technical innovation

Takanori Ida

Professor, Graduate School of Economics, Kyoto University
Research area: Applied Economics
Telecommunication Economics and Behavioral Economics
Publications selected:
[1] Ida, T. (2009) *Broadband Economics: Lessons from Japa*n,
Routledge (Taylor & Francis Group): London.
[2] Ito, K., T. Ida, M. Tanaka (2017) "Moral Suasion and Economic Incentives: Field Experimental Evidence from Energy Demand," Forthcoming in American Economic Journal: Economic Policy.

Highlights

○ Only 5% of households have switched their electricity supplier
○ Electricity tariffs that bind customers do not raise efficiency
○ Fusion of various platforms in prospect

Full deregulation of retail electricity, which included households, was realized in April 2016. Since the accident at Fukushima, the No. 1 nuclear power plant of Tokyo Electric Power Company in 2011, electricity unit prices have increased by more than 20%. It was expected that through active competition, diversification of service and cost reduction would be brought about. However, as of January 2017, only around three million households (5% of the market) had changed their electricity supplier, much to the surprise of many commentators.

In a survey conducted by my team in the financial year 2015 before deregulation, among those who were asked whether they would consider switching from their current electricity supplier to a new one, 32% of households replied in the affirmative. However, by the financial year 2016, the figure had fallen drastically to 17% (refer to Figure 1). The number of households not intending to switch had also risen, making it fairly difficult to envisage consumer switching on a large scale.

However, it is probably too early to conclude that full deregulation was a failure. In the UK, distribution and supply companies were set up in each region, with full deregulation from 1999, but the switching rate a year after deregulation was only 12%. Although lower than that of the UK, Japan's 5% switching rate does not compare unfavorably with those in France and Germany.

According to contemporary economics, the economic efficiency of effective competition hinges more upon the rationalization of tariff systems and technological innovation than on market share *per se*. In this article, I discuss issues in, and future prospects for, the household electricity retail market.

◇◇◇　◇◇◇

First, let us examine why the switching rate among households was only 5%, a year after full deregulation.

In the 2015 survey, 10-20% of households said that they would consider switching from their current electricity supplier to a different supplier for a 5% saving on their electricity bill, 50% would consider switching for a 10% saving, and 90% for a 20% saving (refer to Figure 2). Thus, for consumer switching on a large scale, a 10-20% reduction in electricity charges is required.

However, when we examined data from next-generation electricity meters in 1,000 detached homes in Yokohama City to compare the charges paid to Tokyo Electric Power and other new power producers and suppliers, we found that the charges of new companies were barely a few percent lower. Most of the new entrants have not been able to secure their own power generation facilities and, with wholesale electricity market transactions accounting for only 3% of total demand volume, they are not in a strong competitive position regarding pricing. A switching rate of only 5% does not seem surprising in this context.

It should not be forgotten that the tariff system is more important than the level of electricity charges. Demand for electricity in Japan peaks during summer afternoons. Under the existing tariff system, the unit price of electricity is the same both at off-peak times and peak times (when electricity supply-demand is tight). This is economically inefficient and tantamount to selling fresh water at the same price in the desert and in lush grasslands. It makes sense to instead introduce a time-variable tariff system, in which prices rise at peak times and fall at off-peak times.

After deregulation, all the electricity companies announced new tariff menus aimed at retaining customers. These centered on large discounts, with households using the most electricity enjoying the biggest reductions. This works against economic efficiency by encouraging the consumption of more electricity at times when electricity supply-demand is tight, such as during the day in summer.

Time-variable tariffs have been introduced by electricity companies, but there are problems with their design. Using household demand data for Yokohama City, I calculated how many households would benefit from lower electricity bills if they switched from a uniform tariff to a time-variable tariff. The results were startling. They showed that, for 95% of households, electricity bills would be higher if they changed to a time-variable tariff. A new tariff system is required to be revenue neutral; that is, designed to ensure that the average payment under the old and new systems is the same.

The electricity companies seem to have constructed their electricity tariff systems without taking revenue neutrality into account.

Deregulation can involve healthy and unhealthy competition. Unhealthy competition entails offering discounts to large-volume customers to retain them, and ends up exacerbating tightness of supply-demand. Healthy competition entails skillful design of a tariff system that irons out the electricity consumption load factor, thereby raising static efficiency. Even healthier competition would raise dynamic efficiency, by supporting "smart" electricity consumption, including automatic power-saving, based on the study of electricity consumption patterns using data from next-generation meters. The move from unhealthy to healthy competition requires a paradigm shift in attitude.

◇◇◇　◇◇◇

With nuclear power generation yet to restart, Japan is easily impacted by sharp fuel price rise, making it challenging to focus exclusively on reducing electricity charges. So, what options do we have?

From April 2017, following electricity, the retail of gas will be fully deregulated. Major electricity companies have already decided to participate, announcing combined electricity and gas tariffs that offer a discount of around 5-6% for a standard household. One possible way ahead is to create economies of scope by combining multiple services and offer overall charge reduction.

In the field of telecommunications, wholesale optical fiber connection services have commenced, and cellphone companies are marketing NTT East and NTT West optical fiber connection services under their own brand names. Purchasing the services of other companies' facilities wholesale in this manner and selling them as a final good is called service-based competition, as opposed to traditional facility-based competition. The electricity and gas industries should probably engage in service-based competition, and implement large discounts via a diverse range of fee packages, raising the attractiveness of their services to users by ultimately fusing them with telecommunications services.

Young people, in particular, are increasingly most comfortable in accessing the Internet through their smartphones. Considering this, in the future, cellphone companies are likely to consider providing service-based competition platforms. Although they are still hesitant to offer full-blown energy services when they do not have their own power generation facilities, I would hope to see all cellphone companies make a serious attempt at developing fused services. If they do not, sooner or later, platform provision could well be dominated by giant IT companies such as Amazon.com (US) or Google (US).

◇◇◇　◇◇◇

We should now turn our attention to the object of service-based competition

incorporating platform fusion. The total value of the electric power industry is at most 20 trillion yen. In contrast, “healthcare, nursing care & pensions” represent an industry worth 100 trillion yen. If it becomes commonplace to collect big data utilizing internet-linked next-generation meters, it will become possible to collect vital health data via wearable terminals.

If energy is the entrance to the “smart” society, then healthcare is likely to be the exit. A grand design is required to build “smart lives” in “smart cities” incorporating energy, healthcare, education, and culture, and utilizing ICT (Information and Communication Technology) effectively as a common base,

Japan has its strength in core Internet of Things-related technology such as driverless cars. Hit by an electricity crisis after the Great East Japan Earthquake, and among the first countries globally to face a declining birthrate and aging population, Japan is a vanguard nation in terms of many social problems. It would be a waste to fail to utilize Japanese innovation in the field of “smart” technology in resolving social problems, domestically and overseas.

The holding of the Olympics in Tokyo in 2020 also represents an opportunity. There is concern that if relevant investment is, as in the past, directed exclusively at premises and buildings, it will only serve as a transient bubble. We need to focus firmly on what will happen after the Olympics, and it is important to leave infrastructure that can be utilized beyond the next generation. This could include the Internet of Things, big data, and artificial intelligence. Reform of the electricity system could be a valuable element in fulfillment of such a futuristic vision.

Figure 1 Inclination to change electricity provider after deregulation

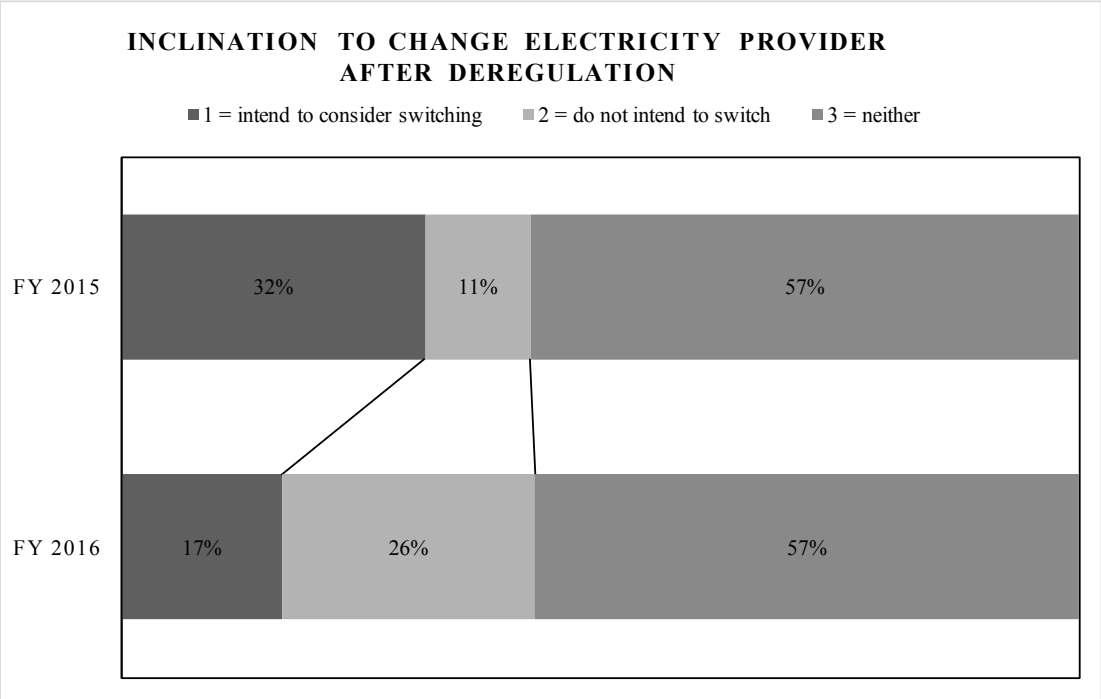
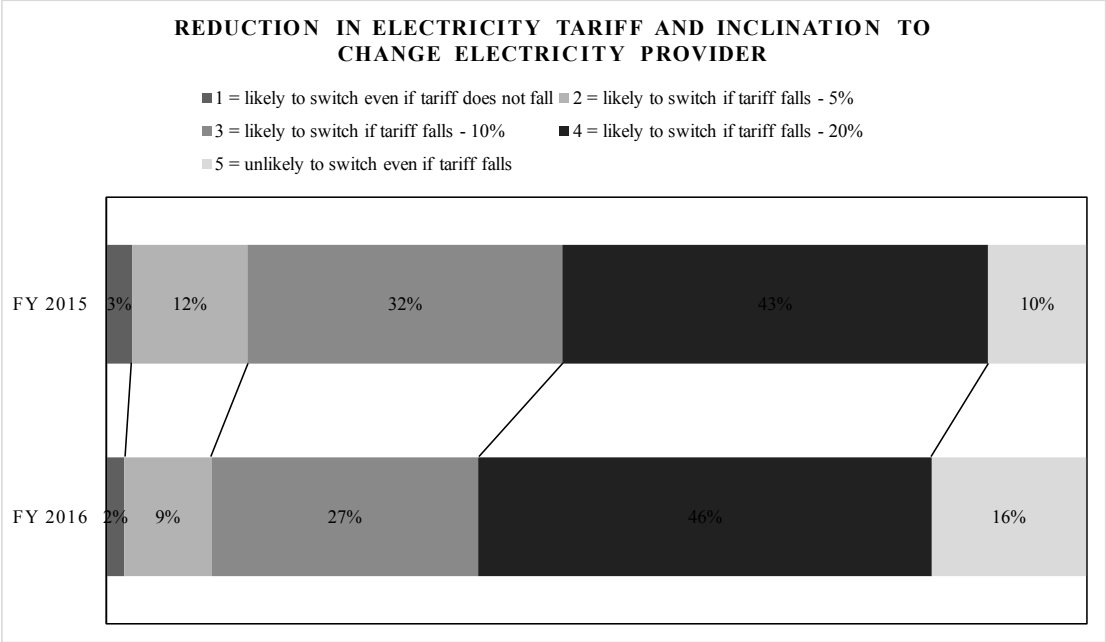


Figure 2 Reduction in electricity tariff and inclination to change electricity provider



Japan Science and Technology Agency, survey by Takanori Ida's team, Kyoto University (11,000 households, nationwide)