Sector Report

March 2, 2001

Diversification at Japan's Electric Utilities

Analyst:

1. Introduction

As the debate about deregulating Japan's electricity market began, electric utilities started entering the communications market in the late 1980s. Since that time, utilities have entered a variety of fields. Furthermore, this diversification drive is expected to continue. This document examines this trend from the perspectives of:

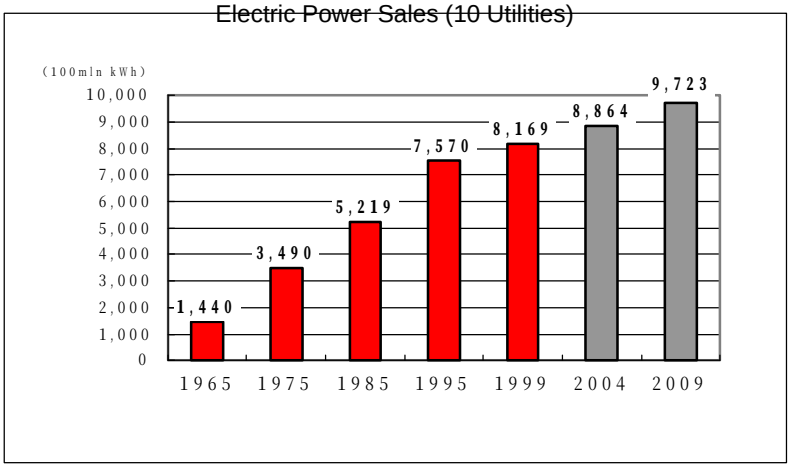
- the reasons that electric utilities are embarking on diversification
- the assets and strengths of electric utilities that can be used for diversification
- whether or not electric utilities have the resources needed to successfully diversify their activities

2. Why Electric Utilities Must Diversify

The primary reason that utilities are diversifying is probably to utilize assets and other resources more efficiently. Many companies in other industries are undoubtedly embarking on diversification programs of their own for the same reason. However, the reasons behind the utilities' diversification is somewhat different.

Outlook for Electricity Demand

There is no possibility of strong growth in Japan's demand for electricity. An electric power research organization estimates that nationwide demand will increase at an annual rate of only about 1.6% between now and 2025 (see graph below, Source: Electric Power Industry Handbook). Note that figures through 1999 are actual results for the nine major utilities; other figures are estimates by Central Research Institute of Electric Power Industry.



This is a flash report. Business forecasts and ratings are subject to change if deemed necessary by later research findings. For private circulation only. All information is given in good faith but without any legal responsibility whatsoever. This report is not to be construed as an offer or solicitation to sell or buy securities referred to herein. Opinions expressed are subject to change without notice. ABC Securities or its employees may hold, at any time, positions in stocks mentioned in this report

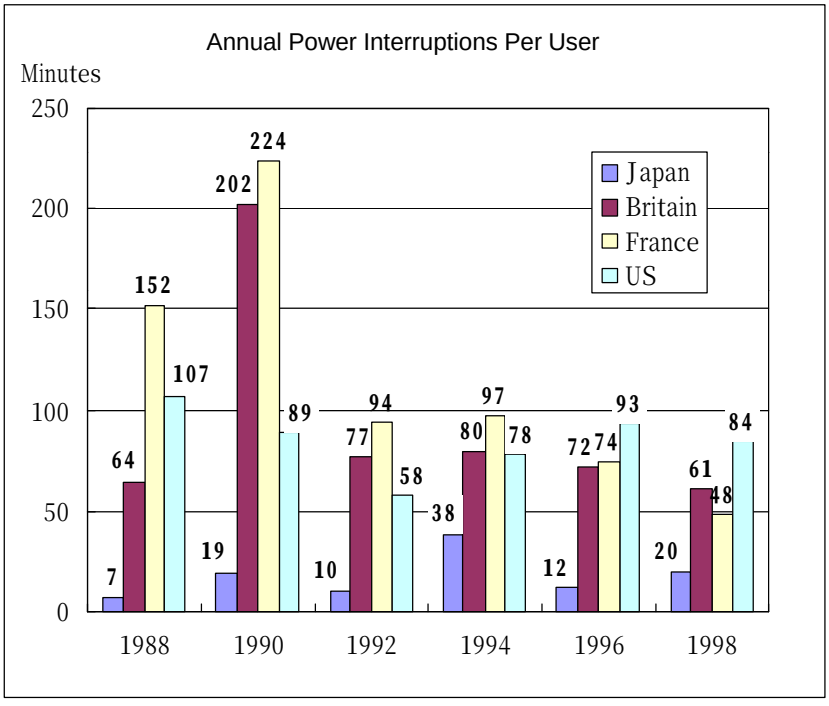
Even in the Kanto region, where the largest increase in demand is foreseen, Tokyo Electric Power estimates that electricity sales will grow only about 1.9% annually between 1998 and 2009 (see table below).

TEPCO E. Power Demand Forecast（Source: FY2000 Corporate Plan）

FY	1998	1999	2000	2001	2004	2009	Av. Growth 1998～2009
Power sales (100mln kWh)	2,670	2,745	2,739	2,795	2,982	3,294	1.9%
Max. Capacity (10,000kW)	5,660	5,720	5,863	5,981	6,347	6,955	1.9%

Solid Reputation for Quality of Electricity

Comparisons with overseas utilities shed light on the many ways in which Japan's electric utilities offer superior services. For example, during the postwar years Japan's utilities were given monopolies in their respective service areas, allowing them to achieve and maintain services of a high quality. Users have grown accustomed to receiving service that ranks among the best in the world. With deregulation, utilities will no longer be legally required to supply power. Nevertheless, users will continue to demand excellent service because the present level has become the standard against which all others will be measured. Consumers of electricity in Japan appear to be willing to pay somewhat higher rates as a premium to receive a high-grade electricity supply.



Deregulation is altering this situation. As utilities face growing pressure from the market to reduce their rates, users are likely to become unwilling, at least for the time being, to pay a premium to preserve the traditionally high level of service. After all, the utilities currently are finding that

This is a flash report. Business forecasts and ratings are subject to change if deemed necessary by later research findings. For private circulation only. All information is given in good faith but without any legal responsibility whatsoever. This report is not to be construed as an offer or solicitation to sell or buy securities referred to herein. Opinions expressed are subject to change without notice. ABC Securities or its employees may hold, at any time, positions in stocks mentioned in this report

customers are becoming less and less appreciative of good service. Utilities will thus face considerable difficulty in preserving and bolstering their competitive strengths by attempting to use the quality of their services to differentiate themselves from competitors. Another conclusion is that utilities cannot expect a differentiation strategy to yield significant benefits.

We believe that the rules of this game will not change as long as there is no shift in the unwillingness of consumers to pay a premium, even for excellent service. Consequently, the utilities must cut costs if they are to survive in this new marketplace, regardless of their dominant positions. This new "rule" may also pose a barrier to companies considering entry in the electricity supply market. More significantly, though, is the strong likelihood that electric utilities, despite their superiority to new entrants due to overwhelming expertise in their core utility operations, will nevertheless be forced by competitive pressures in a deregulated market to steadily reduce costs and electricity rates. The implications are clear: Electric utilities will find their electricity generation and supply operations, a field where they should be very strong, to be less and less attractive.

For new entrants, the situation is quite different. Many companies that have been generating their own electricity can now sell the excess power that had until now been wasted. One example is Nippon Steel. Until now, the company has been using part of the power from its massive internal power generating facilities to conduct a wholesale electricity business. With deregulation, Nippon Steel can now purchase excess power from other companies to conduct a retail electricity business. It is unclear if Nippon Steel can gain sufficient scale to threaten the established utilities. But regardless of scale, one conclusion is inescapable. Non-utilities will have a critical cost advantage due to their ability to produce and sell electricity without making large outlays for generating facilities.

Rate Revisions Based on Actual Costs and Fully Distributed Cost

Electric utilities will not be able to deal with new competitors merely by cutting the cost of power. The reason is that utilities will no longer be able to use the traditional rate determination system, under which a suitable profit margin was added to expenses. The old system resulted in rates that did not reflect the unique requirements of each user. Under the new rules, utilities must be able to successfully compete with others even as they provide the same high level of service but without receiving a premium rate. To compete and win, companies must continuously bring down expenses. Going one more step, utilities may no longer be able to preserve the profit margins that were allowed under regulation.

A Deteriorating Competitive Position Relative to New Entrants

Although this somewhat contradicts previous statements, there are many new entrants among the independent power providers with considerable know-how about generating facilities. For example, Marubeni and Tomen both have experience outside Japan in the wholesaling of electricity. Having experienced deregulated markets, such companies have an advantage

This is a flash report. Business forecasts and ratings are subject to change if deemed necessary by later research findings. For private circulation only. All information is given in good faith but without any legal responsibility whatsoever. This report is not to be construed as an offer or solicitation to sell or buy securities referred to herein. Opinions expressed are subject to change without notice. ABC Securities or its employees may hold, at any time, positions in stocks mentioned in this report

relative to electric utilities, which have until now operated their power stations in an environment where rates were tied to costs.

Another important point is that many of the largest users of electricity, particularly industrial plants, already have their own generators. Nippon Steel, for instance, produces electricity at all its major mills. And it appears that about half of Shikoku Electric Power's largest customers have their own generators. In Kyushu, internally generated electricity accounts for approximately 17% of total generation capacity. Each producer of electricity has its own production plan that incorporates the cost of generating power internally. This does not necessarily mean that all of these companies could switch over to wholesale electricity sales. However, these companies have gained knowledge in the operation of power stations. So expertise in power generation is clearly not limited to the utilities.

Ordinary Companies Rather Than Providers of a Public Service

As deregulation advances, the legal responsibility for utilities to supply electricity is being eased. Until now, utilities have placed priority on ensuring a stable supply of electricity. Presently, we are seeing this begin to shift to maximizing benefits for shareholders and other stakeholders.

In the past, utilities were required to provide a stable supply of electricity in their role as public service companies. To improve the reliability of the electricity supply, the government approved investments that could be viewed as excessive. Such investments led to rapid growth in utility bond issues and other debt. Since rates were based on the utilities' costs, the resulting rise in expenses caused electricity in Japan to become more expensive than in many other countries.

Today we are seeing the full-scale introduction of deregulation. At the same time, no significant growth in electricity demand is expected. Survival in this competitive marketplace will require that utilities and new entrants alike limit capital spending and cut other expenses to hold down the cost of their electricity. Survival also demands that companies employ their existing assets more efficiently by using them for businesses other than the generation and distribution of electricity.

Preparing for Carbon Emission Restrictions

Moves to restrict the release of carbon dioxide are accelerating worldwide as concerns about global warming grow. A large share of electricity is produced at thermal power stations, which release huge volumes of carbon dioxide. And a large-scale shift to nuclear and other largely carbon dioxide-free technologies is unlikely. One option for utilities may be the system of carbon emission rights or a World Bank carbon fund, both of which have been studied in recent years. In fact, many Japanese utilities are planting forests in other countries. The objective is to create forests capable of capturing and holding atmospheric carbon. This would give utilities the right to emit carbon from their thermal power stations, thereby helping to provide a stable supply of electricity.

For these reasons, electric utilities are turning to new businesses for other

This is a flash report. Business forecasts and ratings are subject to change if deemed necessary by later research findings. For private circulation only. All information is given in good faith but without any legal responsibility whatsoever. This report is not to be construed as an offer or solicitation to sell or buy securities referred to herein. Opinions expressed are subject to change without notice. ABC Securities or its employees may hold, at any time, positions in stocks mentioned in this report

sources of earnings.

3. Resources to Support Diversification

Naturally, succeeding in a particular business requires that a company have the necessary assets. We believe that the following assets and other resources at the utilities will prove valuable in entering new markets.

Many People Are Available for Use in New Businesses

Equipment used by utilities incorporates many sophisticated technologies such as automation and remote control to eliminate the need for human operators. As fewer people are needed for the distribution of electricity, utilities are finding themselves with a growing number of individuals who can be assigned elsewhere. Furthermore, Japan's employment market does not permit layoffs and other drastic moves. Of course, it is not clear whether or not these people can actually operate a new business profitably.

Many Assets Suitable for Use in New Businesses

Utilities have many assets that could be immediately applied to new businesses. Two examples are communications systems and LNG pipelines and storage centers. Additionally, the application of space-saving technology and underground distribution facilities is freeing up land that is suitable for other businesses.

The Knowledge for New Businesses Is in Place

Expertise in fields as diverse as meteorology and cable TV are essential for the generation and distribution of electricity. Utilities are thus skilled in a surprisingly broad range of fields.

A Cash Flow That Can Support New Business Ventures

Although there will be no big rise in electricity demand, electric utilities will continue to produce huge operating cash flows. Furthermore, the growth in demand for electricity is slowing at the same time that capital expenditures fall as utilities complete large-scale projects. Capital budgets at utilities are therefore projected to decline.

Free cash flows at utilities are expected to stabilize or even climb as long as there is no significant reduction in cash flows from operations. In its fiscal 2000 business plan, Tokyo Electric Power's goal is to produce average annual free cash flows of at least Y250 billion during fiscal 2000, 2001 and 2002. We believe this target will be met, barring any significant unexpected event. Other utilities cannot produce free cash flows of this magnitude. However, they can sustain free cash flows at a relatively stable level as a percentage of total assets. That translates into annual free cash flows of tens of billions of yen at each utility.

The utilities have stated their intention to apply these funds for the purposes of reducing debt, lowering electricity rates, increasing dividends and starting new businesses. Although actual distribution of investment funds will vary with individual utilities, we believe that considerable amounts will be

This is a flash report. Business forecasts and ratings are subject to change if deemed necessary by later research findings. For private circulation only. All information is given in good faith but without any legal responsibility whatsoever. This report is not to be construed as an offer or solicitation to sell or buy securities referred to herein. Opinions expressed are subject to change without notice. ABC Securities or its employees may hold, at any time, positions in stocks mentioned in this report

available for investing in new businesses.

4. Pitfalls

Access to large amounts of money alone does not assure the success of a new business. Many companies have entered fields outside their core businesses only to fail. The following points, many of which are applicable to any company, must be kept in mind when evaluating the prospects for utilities in new markets.

Expertise in Conducting a Business

Knowledge about equipment used for a particular business, such as communications and cable TV, differs from the expertise required to actually manage such a business and generate profits. Merely holding equipment suitable for another business in no way guarantees success. Doing things efficiently and doing things effectively are completely different concepts. Efficiency may give a company an advantage in terms of expenses. The most crucial point, however, is the degree to which a company can become one with its customers. Doing so requires that a company function effectively. How do the diversification plans of utilities look from this perspective?

With regard to sales, one illustration is the My Energy venture of Tokyo Electric Power, which was launched late in 2000 to provide on-site power sources. We have already seen reports of this new company capturing a customer in the service area of Tohoku Electric Power. Many regard this as proof that utilities are skilled at selling their services. But one point must be kept in mind. What is being sold here is not a power supply system or even the accompanying maintenance and other expertise.

Power generation is the core skill of the utilities. What's more, Tohoku Electric Power has the same level of expertise in on-site and distributed power sources as Tokyo Electric Power does. However, Tohoku Electric Power had only launched its Energy Service Company (ESCO) subsidiary in December 2000. Tohoku Electric Power also had to deal with Eneserve and other competitors. So we must view Tokyo Electric Power's success in on-site generation in the home territory of a formidable competitor, Tohoku Electric Power, against the backdrop of Tohoku Electric Power having just started its own distributed power source business.

Another question is whether or not the utilities can exhibit this same sales power when they move into entirely new markets. One more question is how well each utility will be able to defend its home territory when all have their own distributed power source businesses. So it is too soon to view Tokyo Electric Power's accomplishment as a sign of things to come.

Low Expectations for Profit Margins

According to my own research, the utilities have low expectations for profit margins at their new businesses. These companies are choosing activities with an IRR of 8% to 10% or higher. Their policy is to avoid new businesses that only have the potential for an IRR of 8% or less.

These figures are still high in relation to the returns on the core electric

This is a flash report. Business forecasts and ratings are subject to change if deemed necessary by later research findings. For private circulation only. All information is given in good faith but without any legal responsibility whatsoever. This report is not to be construed as an offer or solicitation to sell or buy securities referred to herein. Opinions expressed are subject to change without notice. ABC Securities or its employees may hold, at any time, positions in stocks mentioned in this report

utility operations. A typical venture capital firm, on the other hand, seeks an IRR of 70% to 80% when deciding whether or not to provide funds for a start-up company. Utilities' expectations are obviously quite low.

At utilities, though, the term "new business" has a somewhat different connotation. Rather than creating new sources of profits, utilities are often seeking ways to utilize unused assets, especially land. Their goal is nothing more than to cover maintenance and management expenses. For these ventures, utilities are not aiming for high earnings from the very beginning.

Strategies for Business Development

Utilities tend to choose new business fields where many companies are already active. Examples are communications, real estate, gas, elderly care and data processing. ESCO is one of the very few truly new ventures. Furthermore, the utilities appear to be cutting prices to compete against established players, as can be seen in communication services.

It is often said that there is no absolutely correct or absolutely successful corporate strategy. Nevertheless, after studying new business ventures in past years, it is clear that entering a new market by imitating the techniques of established companies is an almost certain recipe for failure. Why? Established companies have a powerful brand, sales channels, and a proven business pattern. This represents an enormous advantage over new entrants in terms of having the assets needed for success already in place.

A more realistic approach is to gain a foothold by targeting smaller market segments. Head-on confrontations with established companies are avoided. Naturally, these segments must have the potential of growing to at least the same scale as the primary market to which it belongs. Otherwise, this approach will fail. Unfortunately, the utilities do not appear to be targeting niche segments where customers are unsatisfied and then attempting to win by moving quickly.

5. Conclusion

All Japanese electric utilities are diversifying in their own ways. And all utilities respond to the claim that their diversification programs have no clear direction by pointing out that investments are targeting only fields where their existing resources can be used most effectively.

The primary concern here is that what utilities call new businesses are actually operations that target established markets where many companies are already active. There are few opportunities for utilities to set themselves apart from competitors. The only way to compete is on the basis of price. Prospects are poor for profit margins significantly higher than those in the electric utility sector. Making the outlook still more difficult is the fact that there is little hope for any of the utilities' new businesses developing into a major source of earnings within the next five years. The conclusion? All these diversification efforts may end up doing nothing more than proving the Miller-Modigliani Theorem that diversification, under certain conditions, will not increase a company's value.

This is a flash report. Business forecasts and ratings are subject to change if deemed necessary by later research findings. For private circulation only. All information is given in good faith but without any legal responsibility whatsoever. This report is not to be construed as an offer or solicitation to sell or buy securities referred to herein. Opinions expressed are subject to change without notice. ABC Securities or its employees may hold, at any time, positions in stocks mentioned in this report

Summary of New Businesses at Utilities
(based on company business plans)

Tokyo Electric Power

1. Electric power generation and distribution
2. Energy and environmental services (distributed power sources, gas, ESCO, wind generation, overseas afforestation projects, etc.)
3. Information and communications (communications, data processing, high-speed Internet access, etc.)
4. Lifestyle services (elderly care, housing evaluations and guarantees, housing development, etc.)

Financial services (climate derivatives, etc.)

Chubu Electric Power

1. Energy and environmental services
2. Community services
3. IT-related services

Kansai Electric Power

Activities tied to "comprehensive lifestyle support services"

1. Energy (electricity, gas, etc.)
2. Information and communications (leasing of infrastructure components, provision of communication platforms, provision of content, etc.)
3. Lifestyle services (real estate, elderly care, home security, etc.)

Chubu Electric Power

1. Electric power generation and distribution
2. ISO certification business, employee benefits, housing evaluations and comprehensive energy supply services (heat, fuel, etc.)
3. Information and communications (data processing, leasing of fiber-optic lines, etc.)
4. Environmental services (afforestation, etc.)
5. Business and lifestyle support services guarantees, etc.)

Hokuriku Electric Power

1. Electric power generation and distribution
2. Businesses in competitive markets (frontier businesses, communications, etc.)
3. Businesses related to electric power (partner businesses)

Tohoku Electric Power

1. Core domain (electricity, gas, ESCO)
2. Peripheral domain (information and communications, environmental

This is a flash report. Business forecasts and ratings are subject to change if deemed necessary by later research findings. For private circulation only. All information is given in good faith but without any legal responsibility whatsoever. This report is not to be construed as an offer or solicitation to sell or buy securities referred to herein. Opinions expressed are subject to change without notice. ABC Securities or its employees may hold, at any time, positions in stocks mentioned in this report

services, overseas operations, etc.)

Shikoku Electric Power

1. Electric power generation and distribution
2. Research and development
3. Construction
4. Manufacture of equipment for the supply of electricity
5. Trading, real estate, services, transportation
6. Data processing, communications

Kyushu Electric Power

1. Electric power generation and distribution
2. Supply of energy (LNG)
3. Information and communications

Hokkaido Electric Power

1. Electric power generation and distribution
2. Supply of energy
3. Design, installation and maintenance of equipment and facilities
4. Engineering consulting
5. Manufacturing, sales, distribution and services
6. Information and communications
7. Others (overseas operations, environmental services, employee benefits, etc.)

Okinawa Electric Power

1. Electric power generation and distribution
2. Construction (studies, design and installation of in-house power generation facilities)
3. Others (operations peripheral to utility operations, information and communications, real estate)

This is a flash report. Business forecasts and ratings are subject to change if deemed necessary by later research findings. For private circulation only. All information is given in good faith but without any legal responsibility whatsoever. This report is not to be construed as an offer or solicitation to sell or buy securities referred to herein. Opinions expressed are subject to change without notice. ABC Securities or its employees may hold, at any time, positions in stocks mentioned in this report