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# How Much is TEPCO Worth?–Estimating the Fundamental Value of its Thermal Plants

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## Abstract

The Fukushima Daiichi Nuclear Power Station held by Tokyo Electric Power Company (TEPCO) had a serious nuclear accident in March of 2011. TEPCO's liability for the losses caused by this accident is speculated to reach several trillion yen. For this compensation, TEPCO is supposed to sell its assets, including those for its power business. Their sales are crucial for TEPCO's solvency. We estimate the fundamental values of TEPCO's thermal plants by modeling their plant operation patterns based on spot market prices and fuel costs. Then, we discuss the implication of their divestiture in the context of the regulatory reforms as a radical path to unbundling.

## JEL Classification No.:

L94, Q48

## Keywords:

Fukushima nuclear accident; power market reform; unbundling.

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# 1. Introduction

The Great East Japan Earthquake and the subsequent tsunami hit and heavily damaged the Fukushima Daiichi Nuclear Power Station held by Tokyo Electric Power Company (TEPCO) in March of 2011. The nuclear accident immensely damaged Tohoku and northern Kanto areas with a huge amount of radioactive substances released into the air and the sea. Tens of thousands of residents were evacuated from the area within 20 km from the power station. The Fukushima accident was rated level 7 (the highest level) on the International Nuclear and Radiological Event Scale–as serious as the Chernobyl accident in 1986. The Fukushima accident was reported all over the world (INPO (2011), ONR (2011)) and invoked debates on the pessimistic future of nuclear power (Joskow and Parsons (2012)).

The loss accruing from the accident is speculated to reach several trillion yen. The TEPCO Management and Finance Investigation Committee (TMFIC) (2011), established by the Government of Japan (GOJ) to restructure TEPCO, reports that decommissioning costs for the four most aged reactors among the six on the site and compensation payments for the accident would amount to 1.2 and 4.5 trillion yen, respectively (Table 1.1). This estimate indicates very minimum decommissioning costs including only cold shutdown, removal of nuclear fuels from the spent fuel pools, disposal of radioactive substances, and reactor facilities demolition, but excluding final radioactive disposal costs. Furthermore, decontamination costs vary depending on the target air dose rate, which is supposed to be set from a scientific viewpoint but is sometimes affected by a groundless fear of exposure to radioactive substances.

Table 1.1: Estimated Nuclear Disaster Damage Costs for 2012–2013
[Unit: billion yen]

| | |
|---|---|
| Reactor decommissioning costs | 1,151 |
| Damage compensation costs | 4,540 |
| Compensation in the first year | 1,025 |
| Compensation in the second year | 897 |
| Compensation for temporary damages | 2,618 |
| Total | 5,691 |

Source: TMFIC (2011)

The committee calculates the compensation costs for both persistent damages and temporary damages. In the former estimate, they assume 160,000 evacuees over a two-year period and reparation for their lost income, business damages, mental suffering, evacuation, and homecoming expenses. The temporary damages include the effect of harmful rumors on the agricultural, fishery, food, and tourism industries and depreciated property values due to exposure to radioactive substances. These factors are also minimal.

As TEPCO is supposed to compensate for this loss with support by the GOJ, TEPCO needs to sell its own assets–not only for its side-businesses but also its electric power business–to cover those expenses. Although it is planning to raise its power charges, such an option cannot be found acceptable by the GOJ and will result in a tariff raise that cannot fully cover the costs to manage its crisis. In addition, to show its unresisting and sincere attitude as a public utility and the wrongdoer to the GOJ, TEPCO must restructure its business and assets.

Therefore, TEPCO's solvency and the liquidity of its assets are the crucial issues. A large part of its liquid assets, especially its share of other companies not related to its power business, have been already sold. Some of the other fixed assets, such as assets of its affiliated companies and shares of gas companies, have been also sold. Those sales, however, would not be large enough to fully cover the costs related to the accident. It has to sell its core power business assets (Table 1.2).

Table 1.2: TEPCO's Assets at the End of March, 2010
[Unit: billion yen]

| | | |
|---|---|---|
| Fixed assets | 11,855 | |
| Electric power business facility | 7,872 | (100.0%) |
| Hydro power plants | 716 | (9.1%) |
| Thermal power plants | 1,032 | (13.1%) |
| Nuclear power plants | 671 | (8.5%) |
| Other power plants | 11 | (0.1%) |
| Transmission facility | 2,178 | (27.7%) |
| Transformation facility | 866 | (11.0%) |
| Distribution facility | 2,232 | (28.3%) |
| Other facility | 166 | (2.1%) |
| Construction in progress | 651 | |
| Nuclear fuel | 904 | |
| Other fixed assets | 2,429 | |
| Liquid assets | 788 | |
| Total | 12,643 | |

Source: TEPCO (2011)

TEPCO's balance sheets show that electric power business facilities account for about two-thirds of its fixed assets. Among these facilities, network facilities are too large to be taken over by other private companies. Nuclear power plants are no doubt difficult to sell under the current circumstances. It will have to sell its thermal plants to raise money for its reparation. Although their book value in the balance sheet implies the thermal plants would be worth about one trillion yen, more accurate estimates are needed.

The reforms of outdated regulatory measures in Japan's power industry have often been discussed by, for example, METI (2006, 2011) and Nagayama (2011). In the context of regulatory reform, the sale of power plants has another implication–achieving de facto unbundling of TEPCO. Several companies will purchase the thermal power plants and operate as independent power producers (IPPs). Once TEPCO is divested of a large part of its generation capacity, it cannot be a (fully) vertically-integrated power company any longer. This leads to unbundling of the power system in a way different from how other countries have succeeded in unbundling.

In this study, we estimate the fundamental values of TEPCO's existing plants, which determine its solvency as well as the tax burden needed to make up the losses which TEPCO alone cannot compensate for. In Section 2, assuming load factor and profit margins to be exogenous, we illustrate the fundamental value of a hypothetical plant with variations of these two factors as well as a discount rate. Load factor and profit margins are affected by the market price and the fuel costs. While the former is common for all the plants, the latter is plant-specific. Therefore, the profit margins can vary widely among the plants. In Section 3, we model load factor and profit margins as endogenous variables determined by the gap between the spot market prices and the fuel costs. With the profit margin estimates, we estimate the fundamental values of the TEPCO's individual plants more accurately. In Section 4, we discuss the implications of the divestiture of TEPCO's thermal plants as a radical path toward power market reform to unbundling and wrap up our results.

## 2. Estimating the Fundamental Values of Thermal Plants with an Exogenous Load Factor Approach

The value of thermal plants depends on fuel type, capacity, fuel costs, sales price of power, load factor, project duration, discount rates, and so on. Among them, fuel costs and sales price of power depend on many parameters difficult to forecast for the long run. The fundamental value of a plant $V$ can be computed by considering its capacity $K$ (MW) and load factor $L$ yielding the profit margin $\pi$ (yen/kWh) as well as the discount rate $\delta$ for the project duration $D$ (years) in the following standard formula of the discounted cash flow (Luenberger (1997)):

$$V = \pi \cdot K \cdot L \cdot 365 \cdot 24 \frac{1-(1-\delta)^D}{1-(1-\delta)}$$

When we apply this formula for a hypothetical 100 MW plant earning a 1.00 yen/kWh profit margin, we obtain the estimates shown in Table 2.1. (When either the profit margin per kWh, the plant capacity, or the load factor is doubled, so is the estimated fundamental value.) This implies that a, for example, 400-MW thermal plant with a load factor of 50% operating for 20 years earns 24 billion yen with the discount rate of 4%

assuming a profit margin of 1.00 yen/kWh. We ignore its scrap value for simplicity. The fundamental value less opportunity costs for alternative projects is the net revenue from this investment project. If the rate of return of alternative projects is assumed to be, say, 10% or 20%, investors are willing to pay 22 or 20 billion yen for purchasing the 400-MW thermal plant.

Table 2.1: The Fundamental Value of a 100-MW Thermal Plant Yielding a Profit Margin of 1.00 yen/kWh
[unit: billion yen]

| Project duration | 20 years | | | | 10 years | | | |
|---|---|---|---|---|---|---|---|---|
| | Discount rate | | | | | | | |
| Load factor | 3% | 4% | 5% | 6% | 3% | 4% | 5% | 6% |
| 20% | 2.7 | 2.4 | 2.2 | 2.1 | 1.5 | 1.5 | 1.4 | 1.3 |
| 30% | 4.0 | 3.7 | 3.4 | 3.1 | 2.3 | 2.2 | 2.1 | 2.0 |
| 40% | 5.3 | 4.9 | 4.5 | 4.1 | 3.1 | 2.9 | 2.8 | 2.7 |
| 50% | 6.7 | 6.1 | 5.6 | 5.2 | 3.8 | 3.7 | 3.5 | 3.4 |
| 60% | 8.0 | 7.3 | 6.7 | 6.2 | 4.6 | 4.4 | 4.2 | 4.0 |
| 70% | 9.3 | 8.6 | 7.9 | 7.3 | 5.4 | 5.1 | 4.9 | 4.7 |
| 80% | 10.7 | 9.8 | 9.0 | 8.3 | 6.1 | 5.9 | 5.6 | 5.4 |

Note: No scrap value is assumed.

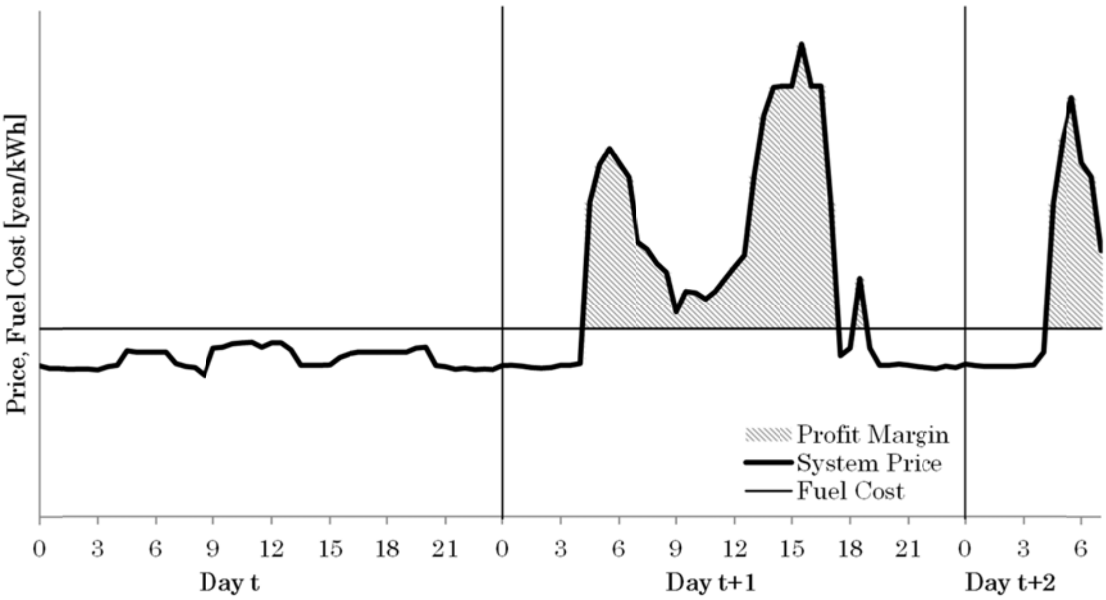
While parameters such as plant capacity, project duration, and discount rates are often observable or accurately estimated, the other two parameters of load factor and profit margins are not. Wild assumptions about these two key parameters can result in inaccurate estimates. Next, we estimate these two parameters by modeling the plant operation patterns and the half-hourly profit margin, which are endogenously determined by the fuel costs and the wholesale power market prices.

# 3. Estimating the Fundamental Values of Thermal Plants with an Endogenous Load Factor Approach

Power plants operate only when it is profitable to–the power market price is higher than their marginal costs, mostly fuel costs (Figure 3.1). These operation patterns determine load factor and profit margins, which were assumed to be exogenous in the previous section.

We use the system price at the Japan Electric Power Exchange (JEPX) for every 30 minutes in 2010 with the fuel costs of TEPCO's thermal plants estimated by Hosoe (2012) (Table 3.2).[1] By summing up the half-hourly profit margin for a year, we estimate the annual profit margins and the fundamental values of all the plants for the whole project duration. The plant life is assumed to be 40 years without any scrap value for simplicity.

Figure 3.1: Estimating Profit Margins for a Plant




[1] Hosoe (2012) computes fuel efficiency (i.e., fuel consumption per power unit generated) of thermal power plants in Japan using plant data by ANRE and combines this estimate with the import prices of coal, crude oil, heavy oil, liquefied natural gas, and liquefied petroleum gas in 2010 to estimate their fuel costs following Akiyama and Hosoe (2011). However, as Hirono Coal-fired Thermal Plant No. 5 is a new plant without its fuel consumption data, its fuel costs are assumed to be as high as that of Hitachi-Naka Coal-fired Thermal Plant No. 1. Other than Hosoe (2012), the power generation costs are estimated by, for example, Akimoto (2011) for 2005 and NPU (2011) for 2010.

Table 3.2: The Fundamental Values of TEPCO's Plants with the JEPX Spot Price for 2010

| Fuel type | Power station | Unit No. | Capacity [MW] | Starting year of operation | Remaining plant life | Fuel Costs [yen/kWh] | Annual profit margin [bil. Yen] | Load factor [%] | Average profit margin [yen/kWh] | Plant value [bil. yen] |
|---|---|---|---|---|---|---|---|---|---|---|
| Coal | Hirono | 5 | 600 | 2004 | 32 | 2.94 | 26 | 100.0 | 4.87 | 467 |
| Coal | Hitachi-Naka | 1 | 1000 | 2003 | 31 | 2.94 | 43 | 100.0 | 4.87 | 766 |
| Oil | Kashima | 5 | 1000 | 1974 | 2 | 9.92 | 3 | 11.0 | 2.79 | 5 |
| Oil | | 6 | 1000 | 1975 | 3 | 9.92 | 3 | 11.0 | 2.79 | 8 |
| Oil | Oi | 3 | 350 | 1973 | 1 | 10.64 | 1 | 7.2 | 3.41 | 1 |
| Oil | Hirono | 3 | 1000 | 1989 | 17 | 10.07 | 3 | 9.5 | 3.08 | 32 |
| Oil | | 4 | 1000 | 1989 | 17 | 10.07 | 3 | 9.5 | 3.08 | 32 |
| LNG* | Chiba | 1 | 1440 | 2000 | 28 | 6.69 | 18 | 59.9 | 2.39 | 307 |
| LNG* | | 2 | 1440 | 2000 | 28 | 6.69 | 18 | 59.9 | 2.39 | 307 |
| LNG* | Shinagawa | 1 | 1140 | 2003 | 31 | 5.95 | 19 | 79.4 | 2.44 | 347 |
| LNG* | Yokohama | 7 | 1400 | 1998 | 26 | 6.99 | 15 | 55.4 | 2.27 | 252 |
| LNG* | | 8 | 1400 | 1998 | 26 | 6.99 | 15 | 55.4 | 2.27 | 252 |
| LNG | Anegasaki | 5 | 600 | 1977 | 5 | 9.24 | 2 | 18.3 | 2.23 | 10 |
| LNG | | 6 | 600 | 1979 | 7 | 9.24 | 2 | 18.3 | 2.23 | 13 |
| LNG | Minami-Yokohama | 3 | 450 | 1973 | 1 | 8.72 | 2 | 27.7 | 1.89 | 2 |
| LNG | Sodegaura | 1 | 600 | 1974 | 2 | 8.36 | 3 | 34.3 | 1.85 | 7 |
| LNG | | 2 | 1000 | 1975 | 3 | 8.36 | 6 | 34.3 | 1.85 | 16 |
| LNG | | 3 | 1000 | 1977 | 5 | 8.36 | 6 | 34.3 | 1.85 | 26 |
| LNG | | 4 | 1000 | 1979 | 7 | 8.36 | 6 | 34.3 | 1.85 | 35 |
| LNG* | Futtsu | 1 | 1000 | 1986 | 14 | 7.44 | 9 | 48.6 | 2.10 | 98 |
| LNG* | | 2 | 1000 | 1988 | 16 | 7.44 | 9 | 48.6 | 2.10 | 107 |
| LNG* | | 3 | 1520 | 2001 | 29 | 7.44 | 14 | 48.6 | 2.10 | 236 |
| LNG* | | 4 | 1520 | 2010 | 38 | 7.44 | 14 | 48.6 | 2.10 | 268 |
| LNG | Higashi- | 1 | 1000 | 1987 | 15 | 8.26 | 6 | 36.1 | 1.86 | 67 |
| LNG | Ogishima | 2 | 1000 | 1991 | 19 | 8.26 | 6 | 36.1 | 1.86 | 79 |
| LNG* | Kawasaki | 1 | 1500 | 2008 | 36 | 8.59 | 7 | 30.9 | 1.82 | 142 |
| Total | | | | | | | | | | 3,882 |

Note: * indicates gas-turbine combined cycle. Discount rate=4%, Year of divestiture=2012, Plant life=40 years. The other 28 valueless plants are omitted in this table.
Source: Hosoe (2012) for the fuel costs, ANRE for the plant specifications.

We compute the fundamental values of all 54 of TEPCO's thermal plants (Table 3.2). As many plants are almost 40 years old or older, our estimates suggest that only several plants are worth purchasing, such as the two coal-fired thermal plants and the ten gas-turbine combined cycle ones. Plants installed in the mid-1970s have only marginal value.

Given the spot market price observed in 2010, the average profit margin, computed only for operating times, is about 5 yen/kWh for the coal-fired thermal plants, a little lower than 2 yen/kWh for the LNG-fired ones, a little higher than 2 yen/kWh for the gas-turbine combined cycle ones, and about 3 yen/kWh for the oil-fired ones. The total of their fundamental values would reach 3.9 trillion yen.

If their scrap values, which are ignored in our estimates, are positive, these plant values would be larger by that much. For example, the total book value of the 15 power station sites for those thermal plants amounts to 0.2 trillion yen (TEPCO (2011)); the overage plants, which are assumed to be useless, may yield some profits. In addition to these currently operating plants, there are several plants scheduled to be in operation in the near future.[2] Other than those plants that are TEPCO's own, it has a share of joint-venture (JV) IPPs, such as Kimitsu JV (1,000MW), Kashima JV (1,400MW), Soma JV (1,000MW), and Joban JV (1,625MW). Their market values can be estimated in the same manner, though fuel efficiency data are not available for new plants.

We do not consider any shutdown time for plant maintenance in our estimates. While plants showing low load factor (due to high-fuel costs) can be maintained during off-peak seasons (i.e., spring and fall in Japan), we must explicitly assume unavailability for the base-load plants showing high load factor. For example, the two coal-fired plants are estimated to fully operate throughout the year (i.e., load factor=100%) (Table 3.2). If we assume their maximum load factor to be 80% to reserve their maintenance time, their values should be estimated at 0.2 trillion yen less.

Regarding the sensitivity of our estimates, the estimated fundamental values are dependent more on the assumed spot market prices. When we hypothetically use the half-hourly spot prices and annual averages of imported fuel prices observed in 2006–2009 but using the same plant specifications and remaining plant life, the alternative estimates

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[2] Hirono No. 6 (coal, 600MW) and Hitachi-Naka No. 2 (coal, 1,000MW) are planned to start their operation in 2013. Kawasaki No. 2 (LNG*, 1,920MW) is scheduled to start its operation in 2013–2017.

of the total plant value vary from 2.2 to 9.5 trillion yen (Table 3.3).[3] Note that the variations of the spot market prices and fuel prices were affected by a couple of crises in those years. TEPCO had the Kashiwazaki-Kariwa Nuclear Power Station (8,212 MW) hit by the Chuetsu-oki Earthquake in July of 2007 and increased its power demand to cause price hikes at the JEPX. The year of 2009 was the post-Lehman Shock year, when power demand and thus spot prices sharply fell accompanied by fuel prices, as represented by the crude oil price in Table 3.3. However, given the recent pessimistic circumstance for the existing and new nuclear power plants in Japan (Joskow and Parsons (2012)), power shortages could persist for years. Actually, the simple average spot price, which was 8.4 yen/kWh in June 1, 2010–February 28, 2011, sharply rose to 14.2 yen/kWh in June 1, 2011–February 29, 2012.[4] The power price hike would make the thermal plants more attractive for investors despite the recent energy price rises.

Table 3.3: Estimated Plant Value with Alternative Market Environments

| Price data observed in | Assumed data profile | | Estimated total plant value [bil. yen] |
|---|---|---|---|
| | Average spot price [yen/kWh][a] | Crude oil price [mil. yen/kl][b] | |
| 2006 | 9.32 | 46.8 | 9,469 |
| 2007 | 9.75 | 51.2 | 9,180 |
| 2008 | 11.59 | 67.3 | 7,403 |
| 2009 | 6.52 | 35.5 | 2,245 |
| 2010 | 7.81 | 43.8 | 3,882 |

Source: a/ simple annual average of the half-hourly JEPX spot price, b/ computed with data from trade statistics by Japan Customs.

# 4. Policy Implications for Power Market Reform in Japan

Japan's power market reform has been implemented by introducing a market mechanism step–by-step since 1995. Its scope has expanded from the wholesale market to

[3] Detailed estimates for individual plants for 2006–2009 are shown in the Appendix.

[4] Because the earthquake and the resulting power shortage forced TEPCO to suspend dispatching power for the third-party power companies, no trade was made for Tokyo area at the JEPX from March 14 to May 30 in 2011. Thus, we use the June-February data for a fair comparison, here.

the retail market and from the market segment for large-scale users to that for smaller scale ones. The regulatory authority has struggled to facilitate this type of nationwide competition through the JEPX since its establishment in 2005.

However, vertical unbundling of generation, transmission, and distribution services, which is popular in many developed countries, has not been fully implemented in Japan due to the strong resistance from the incumbent utilities. Moreover, horizontal divestiture of generation capacity has not been conducted either. Since 1951, the same vertically-integrated regional utilities have long been the dominant players in their jurisdictions and have allowed new entrants to gain only a marginal market share–as small as two percent in the retail market–which evidences the unsuccessful reform in the last two decades.

We estimate the fundamental values of TEPCO's thermal plants. Their total values would be 2.2–9.5 trillion yen, which is comparable to TEPCO's speculated liability for its reparation. The sale of thermal power plants would not only enhance TEPCO's solvency after the nuclear accident but also potentially promote competition in the power market through de facto unbundling of TEPCO.

The poor achievements of those reforms can be attributed partly to the nation-wide transmission network designed for the regional monopoly. Many inter-regional links have small capacity, especially at the links connecting the two different frequency areas, and these are often congested by the incumbents' transmission or reserved for specious "emergency" purposes to regionally segment the power market. This exacerbates the abuse of market power by the dominant incumbents within each jurisdiction. Although investment in these bottlenecks has often been proposed to resolve this abuse, the costs are too huge to carry out without serious commitment by the incumbents, who are naturally very reluctant to do so. Instead of such an expensive investment, vertical divestiture of TEPCO's generation capacity, even for reparation purposes, would significantly enhance competition across the bottlenecks in such a manner as Tanaka (2009) argues.

The existing IPPs and entrants originally involved in gas, telecommunication, and oil refining are projected to take over TEPCO's thermal power plants. The horizontal divestiture would lead to de facto vertical unbundling of TEPCO in due course. The nuclear disaster could open a radical path to establishing a more competitive market in Japan through the divestiture of TEPCO's assets for its reparation, which is unique compared with the market-oriented path invented by the reform leaders in Europe and the US.

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# Appendix: Estimates of Individual Plant Values with Alternative Market Environments

| | | 2006 | | | | | 2007 | | | | | 2008 | | | | | 2009 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Power Station | Unit No. | Fuel Costs [yen/kWh] | Annual profit margin [bil. Yen] | Load factor [%] | Average profit margin [yen/kWh] | Plant value [bil. yen] | Fuel Costs [yen/kWh] | Annual profit margin [bil. Yen] | Load factor [%] | Average profit margin [yen/kWh] | Plant value [bil. yen] | Fuel Costs [yen/kWh] | Annual profit margin [bil. Yen] | Load factor [%] | Average profit margin [yen/kWh] | Plant value [bil. yen] | Fuel Costs [yen/kWh] | Annual profit margin [bil. Yen] | Load factor [%] | Average profit margin [yen/kWh] | Plant value [bil. yen] |
| Hirono | 5 | 2.30 | 37 | 100.0 | 7.02 | 673 | 2.60 | 38 | 100.0 | 7.15 | 685 | 4.04 | 40 | 100.0 | 7.55 | 726 | 3.17 | 18 | 99.9 | 3.36 | 322 |
| Hitachi-Naka | 1 | 2.30 | 61 | 100.0 | 7.02 | 1,104 | 2.60 | 63 | 100.0 | 7.15 | 1,124 | 4.04 | 66 | 100.0 | 7.55 | 1,190 | 3.17 | 29 | 99.9 | 3.36 | 528 |
| Kashima | 5 | 10.15 | 10 | 35.9 | 3.04 | 19 | 11.36 | 8 | 25.1 | 3.79 | 16 | 15.54 | 3 | 13.3 | 2.45 | 6 | 8.26 | 1 | 9.9 | 0.80 | 1 |
| | 6 | 10.15 | 10 | 35.9 | 3.04 | 28 | 11.36 | 8 | 25.1 | 3.79 | 24 | 15.54 | 3 | 13.3 | 2.45 | 8 | 8.26 | 1 | 9.9 | 0.80 | 2 |
| Oi | 3 | 11.35 | 2 | 25.4 | 2.85 | 2 | 12.44 | 2 | 21.1 | 3.34 | 2 | 16.33 | 1 | 9.2 | 2.58 | 1 | 8.62 | 0 | 6.2 | 0.81 | 0 |
| Hirono | 3 | 10.29 | 9 | 34.5 | 3.04 | 115 | 11.52 | 8 | 24.4 | 3.75 | 100 | 15.78 | 3 | 12.1 | 2.44 | 32 | 8.39 | 1 | 8.2 | 0.81 | 7 |
| | 4 | 10.29 | 9 | 34.5 | 3.04 | 115 | 11.52 | 8 | 24.4 | 3.75 | 100 | 15.78 | 3 | 12.1 | 2.44 | 32 | 8.39 | 1 | 8.2 | 0.81 | 7 |
| Chiba | 1 | 5.77 | 45 | 88.0 | 4.10 | 774 | 6.34 | 44 | 79.1 | 4.42 | 751 | 9.06 | 36 | 71.0 | 4.05 | 618 | 5.91 | 11 | 62.4 | 1.37 | 183 |
| | 2 | 5.77 | 45 | 88.0 | 4.10 | 774 | 6.34 | 44 | 79.1 | 4.42 | 751 | 9.06 | 36 | 71.0 | 4.05 | 618 | 5.91 | 11 | 62.4 | 1.37 | 183 |
| Shinagawa | 1 | 5.13 | 42 | 97.6 | 4.30 | 752 | 5.64 | 41 | 99.5 | 4.14 | 738 | 8.05 | 37 | 81.8 | 4.46 | 655 | 5.25 | 13 | 82.0 | 1.61 | 237 |
| Yokohama | 7 | 6.04 | 41 | 80.6 | 4.18 | 676 | 6.64 | 40 | 74.2 | 4.40 | 655 | 9.47 | 32 | 68.8 | 3.75 | 519 | 6.17 | 9 | 53.7 | 1.30 | 140 |
| | 8 | 6.04 | 41 | 80.6 | 4.18 | 676 | 6.64 | 40 | 74.2 | 4.40 | 655 | 9.47 | 32 | 68.8 | 3.75 | 519 | 6.17 | 9 | 53.7 | 1.30 | 140 |
| Anegasaki | 5 | 8.46 | 10 | 52.6 | 3.46 | 44 | 9.29 | 9 | 45.1 | 3.66 | 40 | 12.75 | 5 | 32.6 | 2.98 | 24 | 7.90 | 1 | 15.7 | 0.79 | 3 |
| | 6 | 8.46 | 10 | 52.6 | 3.46 | 59 | 9.29 | 9 | 45.1 | 3.66 | 54 | 12.75 | 5 | 32.6 | 2.98 | 32 | 7.90 | 1 | 15.7 | 0.79 | 4 |
| Minami-Yokohama | 3 | 7.52 | 9 | 60.3 | 3.90 | 9 | 8.26 | 9 | 58.5 | 3.75 | 9 | 11.81 | 5 | 39.8 | 3.29 | 5 | 7.70 | 1 | 20.1 | 0.79 | 1 |
| Sodegaura | 1 | 7.21 | 13 | 62.8 | 4.05 | 26 | 7.92 | 13 | 61.4 | 3.90 | 25 | 11.33 | 8 | 45.6 | 3.32 | 16 | 7.38 | 1 | 26.9 | 0.87 | 2 |
| | 2 | 7.21 | 22 | 62.8 | 4.05 | 64 | 7.92 | 21 | 61.4 | 3.90 | 60 | 11.33 | 13 | 45.6 | 3.32 | 38 | 7.38 | 2 | 26.9 | 0.87 | 6 |
| | 3 | 7.21 | 22 | 62.8 | 4.05 | 103 | 7.92 | 21 | 61.4 | 3.90 | 97 | 11.33 | 13 | 45.6 | 3.32 | 61 | 7.38 | 2 | 26.9 | 0.87 | 9 |
| | 4 | 7.21 | 22 | 62.8 | 4.05 | 139 | 7.92 | 21 | 61.4 | 3.90 | 130 | 11.33 | 13 | 45.6 | 3.32 | 83 | 7.38 | 2 | 26.9 | 0.87 | 13 |
| Futtsu | 1 | 6.41 | 27 | 72.7 | 4.24 | 294 | 7.05 | 26 | 69.8 | 4.25 | 283 | 10.07 | 19 | 61.4 | 3.57 | 209 | 6.57 | 4 | 41.3 | 1.23 | 49 |
| | 2 | 6.41 | 27 | 72.7 | 4.24 | 324 | 7.05 | 26 | 69.8 | 4.25 | 311 | 10.07 | 19 | 61.4 | 3.57 | 231 | 6.57 | 4 | 41.3 | 1.23 | 54 |
| | 3 | 6.41 | 41 | 72.7 | 4.24 | 712 | 7.05 | 39 | 69.8 | 4.25 | 685 | 10.07 | 29 | 61.4 | 3.57 | 507 | 6.57 | 7 | 41.3 | 1.23 | 118 |
| | 4 | 6.41 | 41 | 72.7 | 4.24 | 809 | 7.05 | 39 | 69.8 | 4.25 | 778 | 10.07 | 29 | 61.4 | 3.57 | 576 | 6.57 | 7 | 41.3 | 1.23 | 134 |
| Higashi-Ogishima | 1 | 7.12 | 23 | 63.9 | 4.07 | 261 | 7.83 | 21 | 61.8 | 3.97 | 246 | 11.19 | 14 | 47.2 | 3.34 | 159 | 7.29 | 2 | 27.9 | 0.93 | 26 |
| | 2 | 7.12 | 23 | 63.9 | 4.07 | 307 | 7.83 | 21 | 61.8 | 3.97 | 290 | 11.19 | 14 | 47.2 | 3.34 | 187 | 7.29 | 2 | 27.9 | 0.93 | 31 |
| Kawasaki | 1 | 7.41 | 32 | 61.1 | 3.96 | 612 | 8.14 | 30 | 59.2 | 3.82 | 572 | 11.64 | 18 | 41.6 | 3.31 | 350 | 7.59 | 2 | 23.5 | 0.78 | 46 |
| Total | | | | | | 9,469 | | | | | 9,180 | | | | | 7,403 | | | | | 2,245 |

Note: Capacity and remaining plant lives are common.