

Considering the Impact on Utility Companies of the Price Ceiling for the Fuel Cost Adjustment System

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1. Overview of the Fuel Cost Adjustment System and of the Recent Situation with Energy Prices

Seven of the former general electric utilities, including Tokyo Electric Power Company (TEPCO), applied for approval to raise their regulated rates, and the rate increases became effective from June 1. This paper provides estimates of and discussion on the fuel cost adjustment system and its upper price limit, which are the focus of these price revisions.

The fuel cost adjustment system was introduced with the aim of "clarifying the business efficiency improvements by externalizing the effects of fuel prices and exchange rates that are beyond the scope of utility companies' efficiency improvement efforts, and to reflect changes in economic conditions in rates as promptly as possible while at the same time working to stabilize the business environment for utility companies."¹ The price ceiling is defined as "a fixed upper limit (+50% of the base point) on the range of automatically adjusted rates in order to mitigate large impacts on consumers when fuel prices rise significantly." The fuel cost adjustment amount is calculated as a unit price per kWh per month for each utility company, and an example of the calculation is shown in Figure 1. The system is such that, if the average fuel price calculated here exceeds the price ceiling (1.5 times the base fuel price for each utility company), then the utility company cannot charge the difference to consumers.

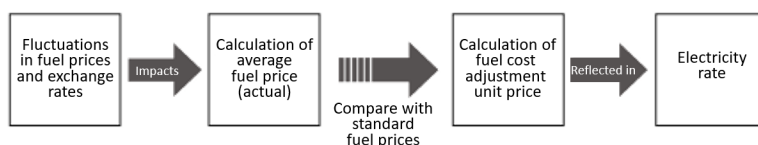


Figure 1: Image of the calculation flow for the fuel cost adjustment system (Source: TEPCO Energy Partner website)

Factors such as Russia's invasion of Ukraine and the continued depreciation of the yen have caused soaring fuel prices since January 2022 (Figure 2). Comparing the prices as of January 2022 and their respective highs, crude oil prices have risen by approx. 1.7 times, thermal coal has risen by approx. 2.8 times, and LNG prices have risen by approximately 2.0 times. The prices for thermal coal and LNG in particular have reached record highs. Although prices are showing signs of stabilizing as of March 2023, there is still a large discrepancy from what they were as of January 2022, and high fuel prices are becoming the norm. Under these circumstances, the average fuel prices for each company exceeded the price ceiling, and the companies were unable to pass the prices on to consumers. This forced the companies to bear the unrecoverable portion of fuel costs, resulting in ballooning deficits, which was one of the reasons behind the recent revision to the regulated rates.

¹ "About the Fuel Cost Adjustment System" on the Agency for Natural Resources and Energy website https://www.enecho.meti.go.jp/category/electricity_and_gas/electric/fee/fuel_cost_adjustment_001/

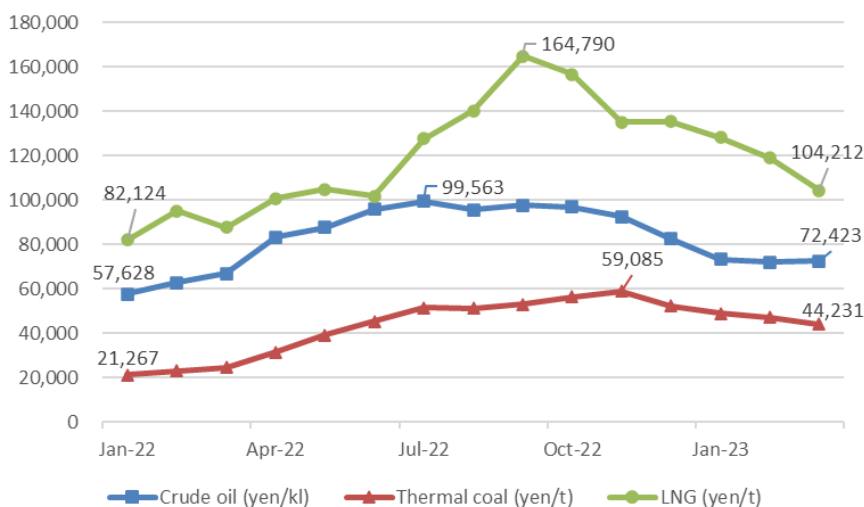


Figure 2: Trends in average import CIF prices for fuel
 (Source: Created by the author based on trade statistics from the Ministry of Finance)

2. Estimating the of the Price Ceiling on Utility Companies

Based on the information provided in the first section, this paper will examine the impact that the sharp rise in fuel costs since last year has had on utility companies, using TEPCO as a case study. Figure 3 shows the fuel adjustment unit price based on the price ceiling after April 2022, the actual fuel adjustment unit price in the absence of the ceiling price, and the difference between them, which is the unit price borne by utility companies. Since September 2022, when a burden of 1.37 yen/kWh was incurred, a burden on utility companies has continued to be incurred until May 2023. Although the amount borne by utility companies peaked at 7.91 yen/kWh in February 2023, as of May 2023 prices have not yet fallen below the upper limit of 5.13 yen/kWh that can be passed on to consumers. In response to soaring fuel costs, the Ministry of Economy, Trade and Industry implemented drastic alleviation measures,² which reduced the burden on consumers from January 2023 onwards. However, it should be noted that these measures were only aimed at consumers and that they did not contribute to reducing the burden on utility companies. As a result, since September 2022 TEPCO has been left with a structure in which it accumulates more losses the more electricity it sells under the regulated rate plan, and this situation has remained unresolved.

² "In order to Implement Measures to Alleviate Drastic Changes in Electricity and Gas Prices, Special Approval has been Granted to Discount Electricity and Gas Rates" on the Agency for Natural Resources and Energy website

Provided subsidies for electricity (7 yen/kWh for low voltage and 3.5 yen/kWh for high voltage) and city gas (30 yen/m³) to electricity and gas utility company consumers who received special approval, starting from January 2023 usage (February meter reading).

<https://www.meti.go.jp/press/2022/12/20221216004/20221216004.html>

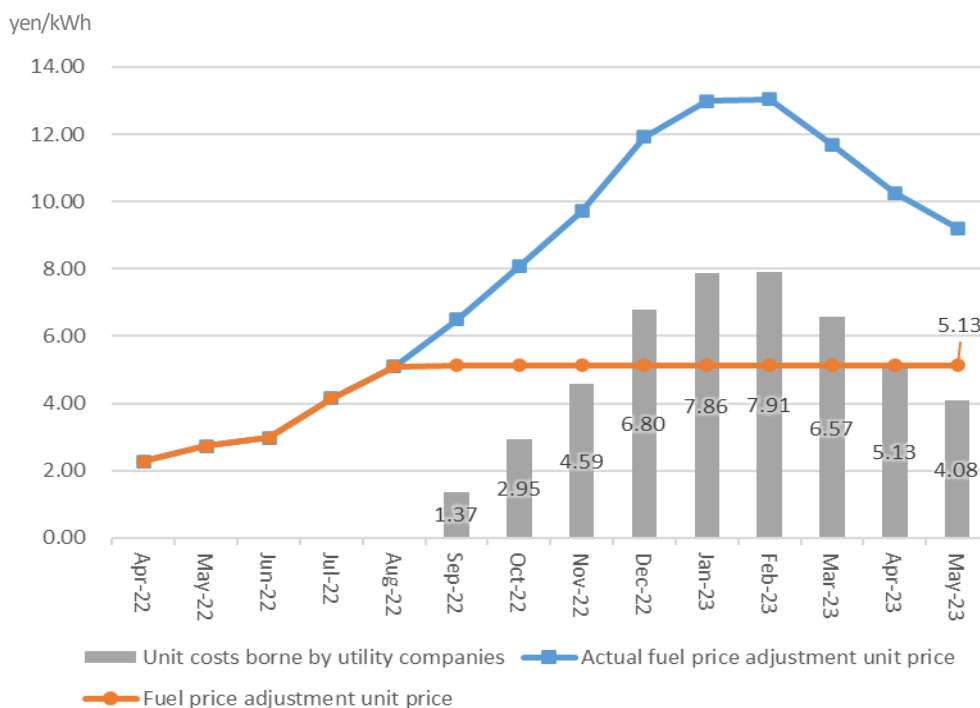


Figure 3: Trends in fuel price adjustment unit prices and unit costs borne by utility companies
(Source: Created by the author from the TEPCO website)

Figure 4 shows an estimate of these monthly costs that are being borne by utility companies, calculated by multiplying the sales volume of regulated rate plans in the TEPCO area. Although this is only a rough estimate based on publicly available statistics, the monthly burden on utility companies has been increasing since September 2022, resulting in a monthly burden of approx. 30 billion yen in January and February 2023, the peak period for heating use. The cumulative burden on utility companies from September 2022 to February 2023 was 101.6 billion yen. This amount accounts for 36% of the TEPCO Group's overall ordinary loss of 285.3 billion yen³ for FY2022. Estimates were only able to be made up until February due to the publication of statistics, but if the figures for March are taken into account, then the burden could increase even further by 10s of billions of yen. Considering that the average ordinary income of the entire TEPCO Group is approx. 210 billion yen/year,⁴ the accumulated burden up to February is just under 50% of TEPCO's ordinary income for a typical year. The results of these estimates have a strong impact on management, and it is easy to understand why utility companies so strongly wanted the rate revisions.

³ "Financial Results for the Fiscal Year Ended March 2023" on the TEPCO website
<https://www.tepco.co.jp/about/ir/library/results/pdf/2303q4gaiyou-j.pdf>

⁴ Estimated from "Consolidated Statement of Income " on the TEPCO website. Calculated the average for the nine-year period from FY2013 to FY2021, excluding FY2011 and FY2012, when TEPCO incurred losses due to the incident at the nuclear power plant.
<https://www.tepco.co.jp/corporateinfo/illustrated/accounting/statement-income-consolidated-j.html>

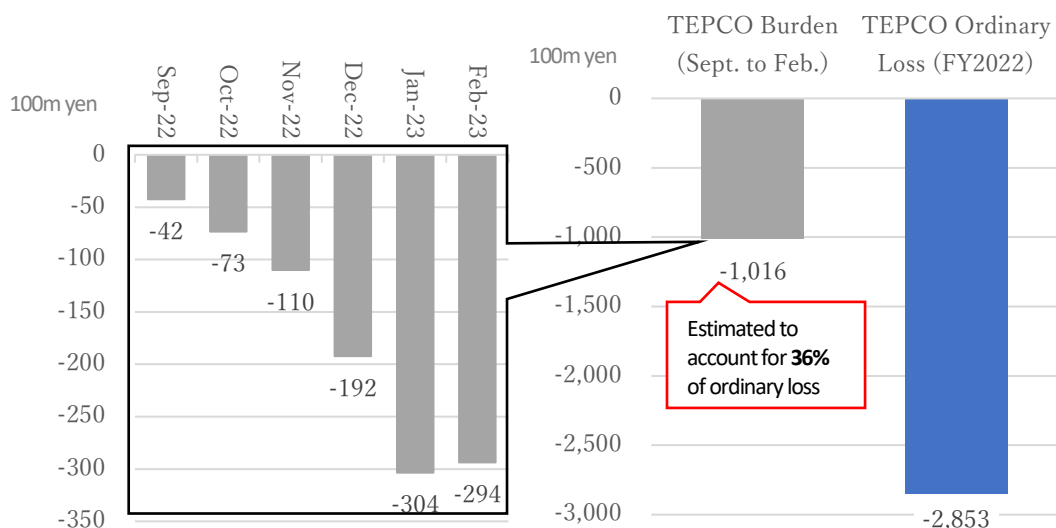


Figure 4: Estimate of the burden on TEPCO, derived from the price ceiling for regulated rates (Source: Created by the author from TEPCO's website and the Electricity Trading Report)⁵

3. Impressions for the Future in Response to the Regulated Rate Review

Based on the results of the estimates in the second section, it is clear that the burden on utility companies, which is derived from the price ceiling for regulated rates, is a major contributor to expanding deficits at utility companies. The estimates in this paper looked at TEPCO, but it can be assumed that a similar situation is occurring at the other six utility companies that revised their prices this time. In light of this, one point that can be commended is that the rate revisions for all seven of the utility companies that applied for approval have been accepted and will be applied as of June 1, thereby reducing the excessive burden on the utility companies resulting from the price ceiling.

However, we recognize that several issues that should be considered in the future have become apparent in the recent regulatory rate revisions. The heated debate on raising regulated rates this time delayed the application of the new rate plans, which resulted in increased losses for the utility companies. Against the background of soaring fuel costs, there are also limits to utility companies' efforts to reduce costs. It seems necessary to design a system that will enable more flexible responses if a similar situation occurs in the future, at least regarding the fuel cost adjustment system and the price ceiling. Additionally, there were also reports⁶ of a reversal phenomenon in which the regulated rates were cheaper than freely-set rates which do not impose a limit on passing on fuel costs to consumers. If the presence or absence of a legally mandated price ceiling becomes an incentive for consumers to choose regulated rates, then this could be a reversal of the market liberalization efforts that have been pursued to date. Taking this rate revision as an opportunity, it may be necessary to concretely reexamine the question of how long regulated rates should remain in the free market, along with measures to protect consumers that do not rely on regulated rates.

In any case, as indicated in Figure 2, fuel prices continue to remain high, and future trends are even more uncertain because they are influenced by developments in Russia and the global economy. Bearing in mind that similar situations may occur in the future, it may be necessary to sort out the direction of the electricity market as a whole, including the state of regulated rates. This seems like something that should be addressed as soon as possible, and the author will keep a close eye on future discussions on the system.

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⁵ For estimation purposes, all regulated rate sales volumes in the Electricity Trading Report were calculated by assuming that all sales volumes were for metered contracts.

⁶ "Reversal Phenomenon in Electricity Prices: Liberalized Rates More Expensive Due to Soaring Fuel Costs" in the Sankei Shimbun <https://www.sankei.com/article/20220812-2Z4VED7PS5L4HLSTRFLAVOLRKM/>