Total Cost is <u>the total value of costs required to provide all customers with power including regulated and deregulated sectors in the cost calculation period^{*1} based on the premise plans.
One of the premise plans, the <u>Business Efficiency Plan is also reflected in the Total Cost.</u>
The scope of calculation is stipulated under the Rate Calculation Rules^{*2} as being the "value obtained by subtracting the value of exempted revenue from the total of operating cost and business return."
</u>

- Cost Dive (Total Cost) method is used widely in other public utility rates such as resilvery, and
- •Cost-Plus (Total Cost) method is used widely in other public utility rates such as gas, railways, and water.



*1 : For future 3 years (FY2012-2014) based on the government-organized "Expert Meeting on Review of Electricity Rate System and Administration" comment in their report that be "appropriate, in principle, to be 3 years to incorporate sufficient efforts to achieve administrative efficiency."

*2: Public Power Business Power Supply Provisions Rate Calculation Rules (METI Ordinance)

*3: Exempted earnings: Earnings from sources other than electricity rates for electricity business (such as charge to sell power to external power companies, power business miscellaneous income).



*Please see the Consumer Affairs Agency website for information on other public utility rates.



It refers to costs for interest and dividends to ensure smooth financing required to construct and maintain power facilities such as power stations, transmission lines, and substations.
In order to ensure smooth financing through stock (and not only loans from financial institutions and issuing corporate bonds), dividends, which general companies pay from profits, are included from the onset in Total Cost as a required cost.





When including Business Return into Total Cost, <u>only an appropriate return (financing cost)</u> <u>calculated by a set formula is permitted because if this is high, it would be excessive profit as a monopoly company and if it is too low, it would lead to loss of capital.</u> In the past, the sum of interest payments, dividend amount, and profit reserves was used, but the following "Rate Base System" which starts from the business asset value as shown below, has been adopted based on the 1958 Electricity Rate System Investigation Committee Report due to weaknesses in encouraging operators to reduce financing costs. * This is a regulatory method established in the US for regulating utilities. Aside from electricity, it has been adopted in Japan in

infrastructure-related public utilities that require high levels of capital investment such as gas, railways, and water.



(1) Business asset value (Rate Base): The value of the amount invested into the business (true and effective assets), and is the total value for specified fixed assets, assets under construction, nuclear fuel assets, operating capital, and others. Excessive standby equipment, loaned equipment, and non-business equipment is not included.

(2) Rate of Return: A rate that would allow the electricity operators to secure required financing to own these assets (ex. equipment) and achieve rational development. It is 3.0% for both current and submitted rates.

*For both 1 and 2, calculation methods are stipulated in the rate calculation rules.



• Breakdown of Business Assets (Rate Base) The scope of rate base when calculating Business Return and calculation methods are stipulated in the Rate Calculation Rules as following.

Specified fixed assets	 Operating power plants, transmission grid (including appropriate standby equipment)
Assets under construction	 Power plants and transmission grids under construction (1/2 of construction-in-process account)
Nuclear fuel assets	 Pre-load nuclear fuel, reprocessing related nuclear fuel
Specified investments	 Long-term investments for R&D and resource development
Working capital	• 1.5 months of operating fee, etc.
Deferred depreciation assets	Deferred depreciation assets

*For construction of power plants, transmission lines, substations and other facilities, the system does not allow construction of unnecessary or excessive facilities because utilities are required to develop and submit a "Supply Plan" to the Minister of Economy, Trade and Industry each year according to Article 29 of the Electricity Utilities Industry Law.

*Working capital is the capital invested as operating fee. Normally, this invested capital is dormant during the required period from the time the company supplied power to the customer until fees are received (about 1.5 months), thus necessitating a surplus of equivalent capital. The regulations allow such equivalent amount to be included in the rate base.



(2) Specific calculation method for Rate of Return

According to Article 4 Paragraph 4 of the *Public Power Business Power Supply Provisions Rate Calculation Rules*, the Rate of Return is stipulated as being a weighted average rate where shareholder capital rate of return and outside capital rate of return is weighted 30 to 70. The shareholder capital rate of return is calculated with the maximum value being the value equivalent to the actual rate of shareholders' capital profit rate of all industries excluding all public power operators and the minimum being the actual value of public corporation bond yields such as government and regional bonds. The outside capital rate of return is to be the average interest-bearing debt of all public power operators.

When calculating the actual shareholders' capital rate of return, the beta value, which is the elastic value of power company shares against the stock value of the overall market, is used as an indicator expressing the administrative risks of the power business. This allows use of the weighted average between shareholders' capital of all industries excluding all public power operators and actual value of public corporation bond yields.

Business rate of return = value of power business assets (rate base) x rate of return

Rate of return = [Shareholders' capital rate of return x shareholders' capital ratio (30%)] + [outside capital rate of return x outside capital ratio (70%)]

-Shareholders' capital rate of return = (public corporation bond yield actual value x (1-beta) + All industry (excluding all power companies) shareholder capital profit rate x beta)

*beta value (Electric power business administration risk. Generally, the average rate of increase of power business stock when the stock value of the overall market increases 1%.)

-Outside capital rate of return = average interest-bearing debt interest rate of 10 power companies.*

*Interest-bearing debt interest rate = paid interest divided by outstanding interest-bearing debt (corporate bond + long-term loans + short term loans +CP)

*Calculation rules stipulated by 1995 Electric Power Company Review Committee Electric Fee System Working Group.

*Excerpt from METI 6th Expert Meeting on Review of Electricity Rate System and Administration (held March 15, 2012) Report (p34)



Brief

Difference in Earnings Between Household Customers (Regulated) and Corporate Customers (Deregulated)

There was newspaper and TV coverage that TEPCO "generates 90% of profits from regulated sector customers such as households." Here, we provide explanation on the difference in earnings by sector (sector-specific earnings).

Electricity rates are decided based on rules.

• Electricity rates for regulated and deregulated sectors are calculated based on METI Ordinance rules (<u>Public Power Business Power Supply Provisions Rate Calculation Rules</u>) by distributing projected costs.

• Sector-specific earnings calculated by distributing actual income and costs for regulated and deregulated sectors, respectively, are also submitted to the Minister of Economy, Trade and Industry every year with a auditing firm's certificate in accordance with METI rules. TEPCO also is subject to governmental administrative audits after submitting calculation results.

The major reasons why TEPCO's profit now tends to be generated more from households and other regulated sector customers is provided in the following slides.

1. Balance of profit from household customers and corporate customers varies by fiscal year

•The ratio of profit against sales (profit ratio) in deregulated sector (ex. companies) and regulated sector (ex. households) may be similar or very different depending on the year.

•This difference between sectors are due to different impact of fluctuations in fuel costs and facility costs. For example, when nuclear power plants shutdown and thermal power fuel costs increase dramatically, profit in the deregulated sector is compressed significantly in comparative terms.



0%

Profit rate

If there was no increase in fuel costs due to the earthquake (approx. 420 billion yen), profits would be balanced appropriately.

Current net profit

Sales

*Totals may not add up due to rounding.

Reference: Fluctuation of fuel prices

In the last 10 years, the energy market and the surrounding environment has changed drastically. Looking at the crude oil prices, it dipped below \$20/barrel in FY00, but with the strong global economy, it temporarily exceeded \$130/barrel in FY08. It decreased to \$40/barrel levels after the Lehman Crisis but has increased again to above \$110.

*Foreign trade statistical year average values

3. Why is the electricity rate for regulated sector (households) (23yen/kWh) higher than

for deregulated sector (companies) (15yen/kWh)? *Avg. rate price per sector (before revision)

<ratio (ex.="" actual="" among="" and="" between="" costs="" costs)="" facility="" fixed="" fuel)="" price="" rate="" the="" variable=""></ratio>					ì
Companies (deregulated) Extra-high voltage, high voltage: Households (regulated) Low voltage:	Fuel cost: 9yen	Facility cost: 6yen	<u>15 yen/kWh</u> ⁴	regulated sector (households)	
	Fuel cost: 10 yen	Facility cost: 13 yen		23 yen/kWh	

The reason why rate price for regulated sector exceeds deregulated sector (about 8yen/kWh) is because there are more facilities required to deliver electrical power to regulated sector (households) (about 6yen/kWh).

The remaining 2yen/kWh is because there is more transmission loss for regulated sector customers (households).

Delivery of electricity to customers

Terms: What is "sector-specific profit"?

Q1. What it is?

Because electricity is delivered to customers in general, it is not possible to physically differentiate which costs for power plants and transmission lines are spent on which customers. However, to clearly clarify profits between deregulated sector customers (companies) and regulated sector customers (households), costs for each fiscal year are separated using the same calculation methods as calculation rules for establishing electricity rate to verify profits for each sector. Calculation rules are stipulated by law and is submitted to the Minister after being audited.

Q2. Why is it calculated by sector?

The deregulated sector (companies) is a competitive market where customers can choose the operator from new utilities (PPS) and other electric power companies, thus creating concern concern that operators will dump so customers will choose them.

Therefore, this mechanism checks that the interest of regulated sector customers (households) are not adversely affected such as by increasing the electricity rate for regulated customers when the overall profit worsens.

Other "FAQs regarding Electricity Rate Increase"

For more information on Electricity Rate Increase

Regulated sector (households)

Deregulated sector (companies)

http://www.tepco.co.jp/e-rates/individual/kaitei2012/index-j.html

http://www.tepco.co.jp/e-rates/corporate/index-j.html

Reference: Concept of Profit Impact Due to Different Fuel Cost and Facility Cost Ratios

Power sold 40%:60%

*Ratio of fuel cost (variable costs) corresponding to power sold is proportional (fixed cost ratio is not proportional).