

Energy Consumption and Energy Cost in Office Buildings (September 2015)

The price per unit is down, the cost is down, and the consumption is flat.

December 9, 2015

Xymax Real Estate Institute has been studying the energy consumption and energy cost of office buildings in the Greater Tokyo area on a continuous basis. The report covering the results for the period from January 2010 to June 2015 was released in September. The latest report covering the results for the period ending September 2015 is available now.

Findings from Research for Period Ending September 2015 (Figure 1)

■ Energy Consumption

The level in 2011 continued. Remained nearly flat.

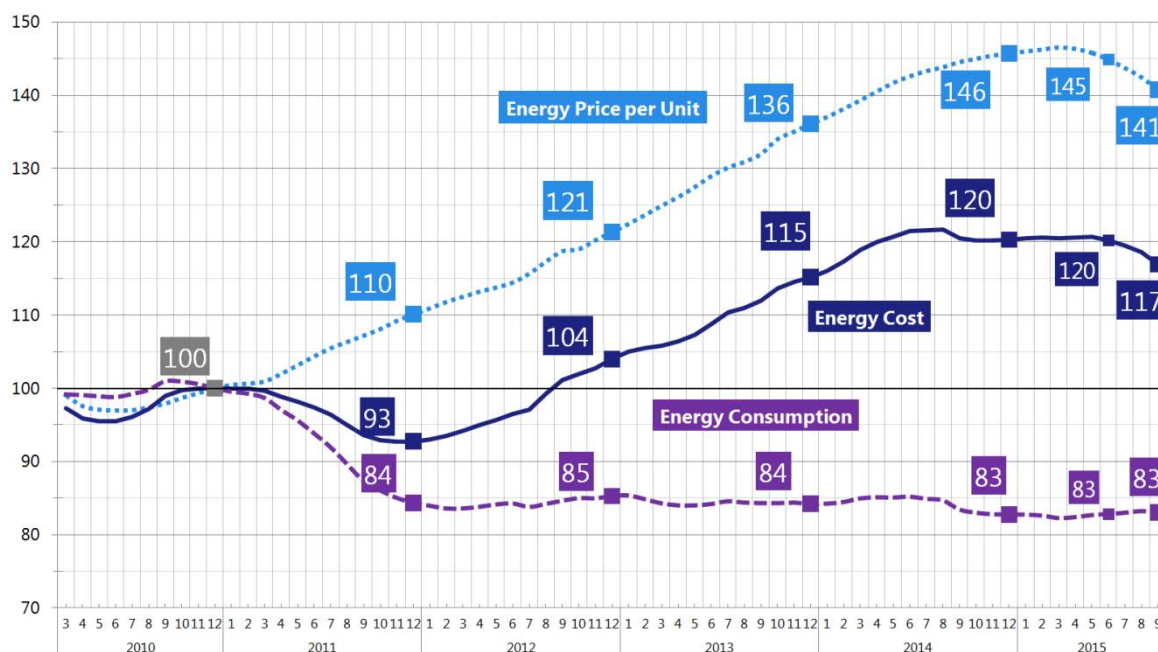
■ Energy Price per Unit

Started to fall in March 2015. Four points down from previous study (June 2015)

■ Energy Cost

Decreased following the price drop. Three points down from previous study (June 2015)

Figure 1: 12-month Average Energy Consumption / Price / Cost



- The figures for each month are not based on the actual amount of a particular single month. They are the average of the past 12 months.
- Indexed based on December 2010 = 100
- Energy consumption is converted to mega joule (MJ) (amount of primary energy)
- Consumption and cost are calculated based on per sqm and indexed.
- Cost = Price per Unit × Consumption

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Monthly Energy Consumption, Price per Unit and Cost

Figure 2: Energy Consumption (MJ/sqm/month)

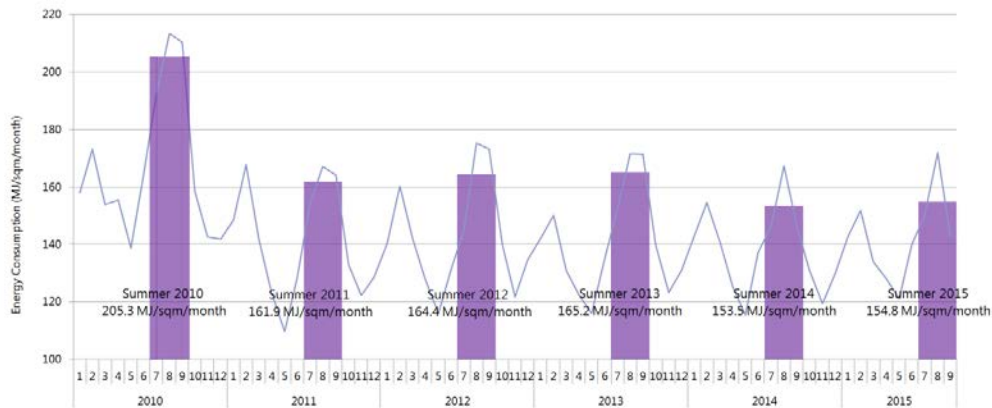


Figure 3: Energy Price per Unit (yen/MJ)

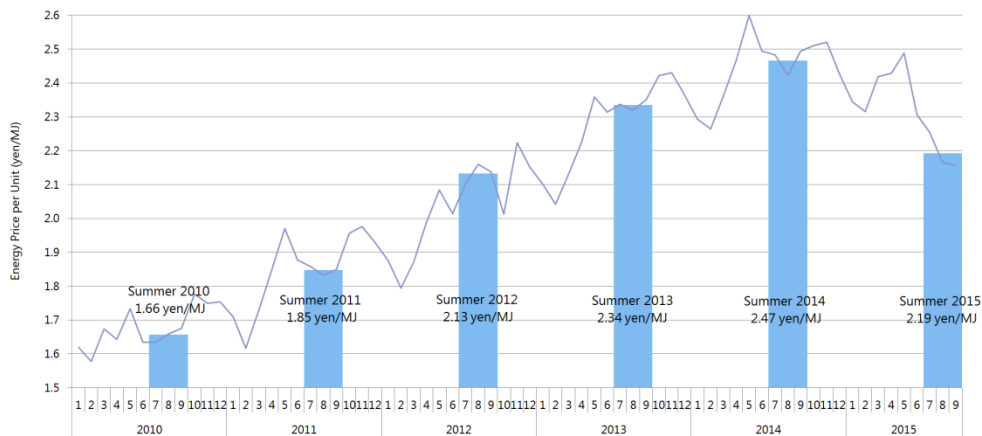


Figure 4: Energy Cost (yen/sqm/month)

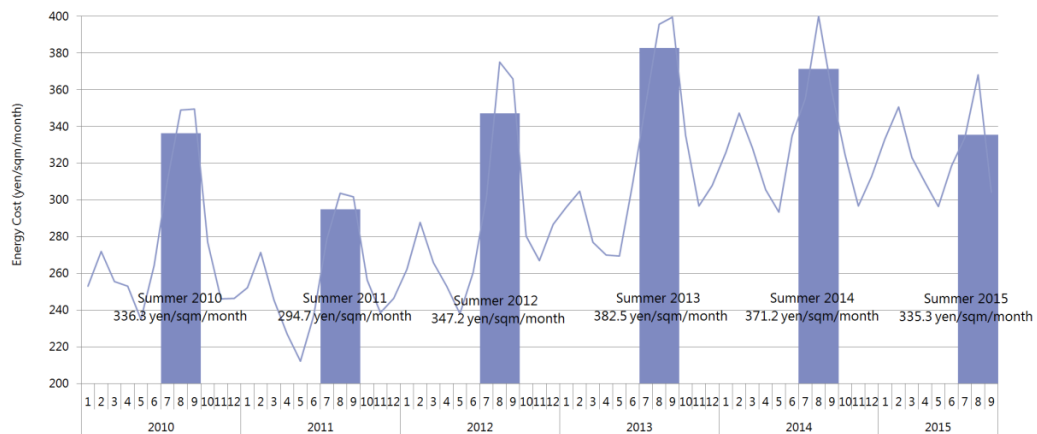


Figure 2 shows energy consumption. The summer of 2015 was 50.5 MJ/sqm/month lower than the summer of 2010 before the 3.11 earthquake. The level has not changed from 2011, remaining nearly flat.

Figure 3 shows energy price per unit. The price had a year-over-year decrease of 0.28 yen/MJ or 11%, influenced by the decreased fuel adjustment charges of electricity and gas since April 2015.

Figure 4 shows energy cost. As a result of changes in consumption and price, the summer of 2015 had a year-over-year decrease of 35.9 yen/sqm/month or 9.7%, below the level seen in 2010 before the 3.11 earthquake.

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Research Overview

Period	April 2009 – September 2015 (78 months)
Subject Data	Of typical tenant-occupied office buildings in Greater Tokyo managed by Xymax Group, we obtained valid data from approx. 100 buildings.
How to Calculate	<p>Monthly data are estimated as follows:</p> <ol style="list-style-type: none"> 1) Gather the amount of consumption of and cost paid for (excl. tax) the electricity, gas, heat and oil in each building. 2) Convert the amount of consumption in 1 to mega joule (MJ) (amount of primary energy) based on the following coefficient and add all the results. Electricity: 9.76 MJ/kWh City Gas: 45 MJ/m³ Cool/hot water, steam: 1.36 MJ/MJ Open Steam: 2.68 MJ/kg Bunker A: 39.1 MJ/L 3) A: Energy Consumption (MJ/sqm/month) → Divide the total consumption calculated in 2 by the gross floor area (excluding vacant space). B: Energy Price per Unit (Japanese yen/MJ) → Divide the total cost calculated in 1 by the total consumption calculated in 2. C: Energy Cost (Japanese yen/sqm/month) → Divide the total cost calculated in 1 by the gross floor area (excluding vacant space) 4) Calculate the average of all the valid data for preceding A, B and C.
Notes	<ul style="list-style-type: none"> • "Month" in this study is based on the date of the meter reading, which differs by building and by the energy supplier. • To represent the continuity and accuracy of the data, the gross floor area excluding the vacant space is applied in this study.

For the previous report, please refer to Energy Consumption and Energy Cost in Office Building (June 2015) released on September 2, 2015. <https://www.xymax.co.jp/english/research/images/pdf/20150902-02.pdf>

For questions on this report, please contact us.

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