

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

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

March 4, 2016

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, which covers the results for the period from January 2010 to September 2015, was released in December last year. The latest report, which covers the results for the period ending December 2015, is available now.

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

■ Energy Consumption

The level in 2011 continued. Remained nearly flat.

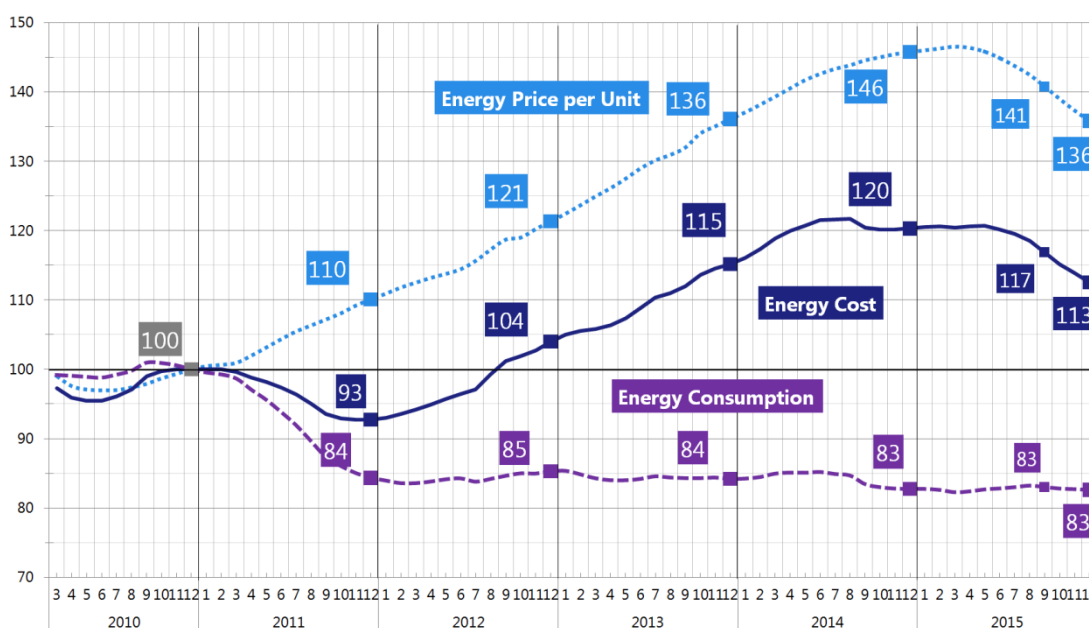
■ Energy Price per Unit

Started to fall in March 2015. Five points down from previous study (Sep. 2015).

■ Energy Cost

Decreased following the price drop. Four points down from previous study (Sep. 2015).

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



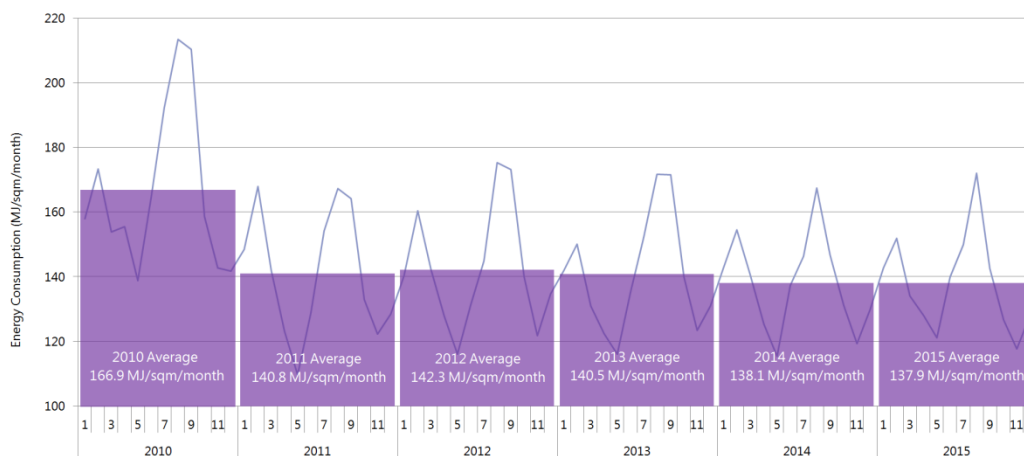
- The figures for each month are not based on the actual amount of a particular single month. They are the average of the past 12 months.
- Indexed based on December 2010 = 100
- Energy consumption is converted to mega joule (MJ) (amount of primary energy)
- Consumption and cost are calculated based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



After some reviews, data of 2013 and after are revised from the numbers in the previous release.

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

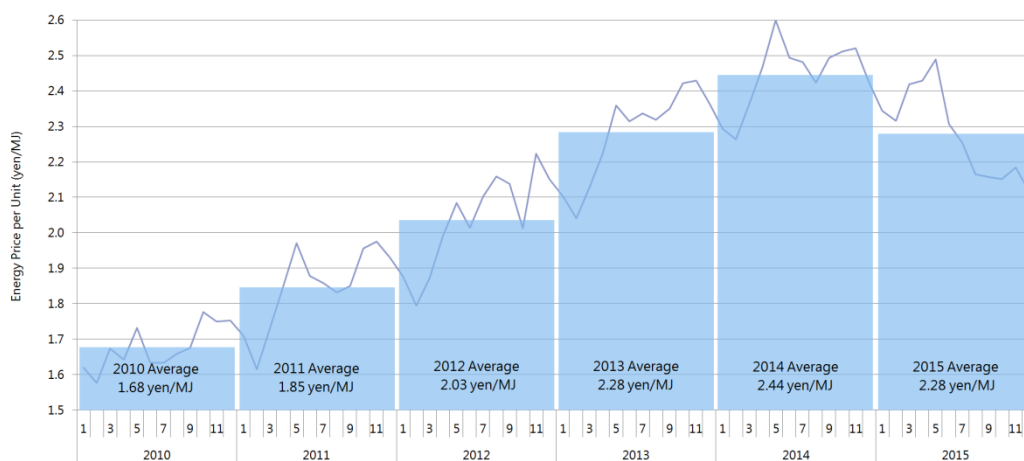
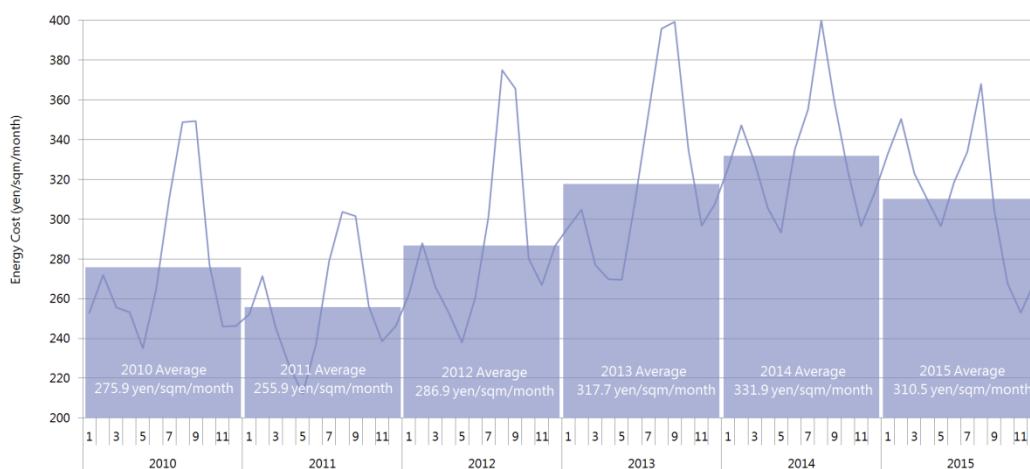


Figure 4: Energy Cost (yen/sqm/month)



After some reviews, data of 2013 and after are revised from the numbers in the previous release.

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Figure 2 shows changes in energy consumption. Similar to the previous year, the consumption was lower than that of 2010 by approximately 17%.

Figure 3 shows changes in energy price per unit. Since we started this survey in 2010 the price per unit kept on rising until 2014 and then began to decrease in 2015. The price per unit is now equivalent to that of 2013. This is considered largely due to the decreased fuel adjustment charges of electricity and gas started in April 2015. The share of the electricity sold by new electric power suppliers is expanding gradually. We will keep an eye on this trend too.

Figure 4 shows changes in energy cost. Until last year, the cost was on the rise in line with the increase in energy price per unit. This year, the cost decreased year-on-year by 6.5% following the decrease in price per unit.

Research Overview

Period	April 2009 – December 2015 (81 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 amounts of consumption in 1 to mega joule (MJ) (amount of primary energy) based on the following coefficients, 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 (September 2015) released on December 9, 2015. <https://www.xymax.co.jp/english/research/images/pdf/20151209-02.pdf>

For questions on this report, please contact us.

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