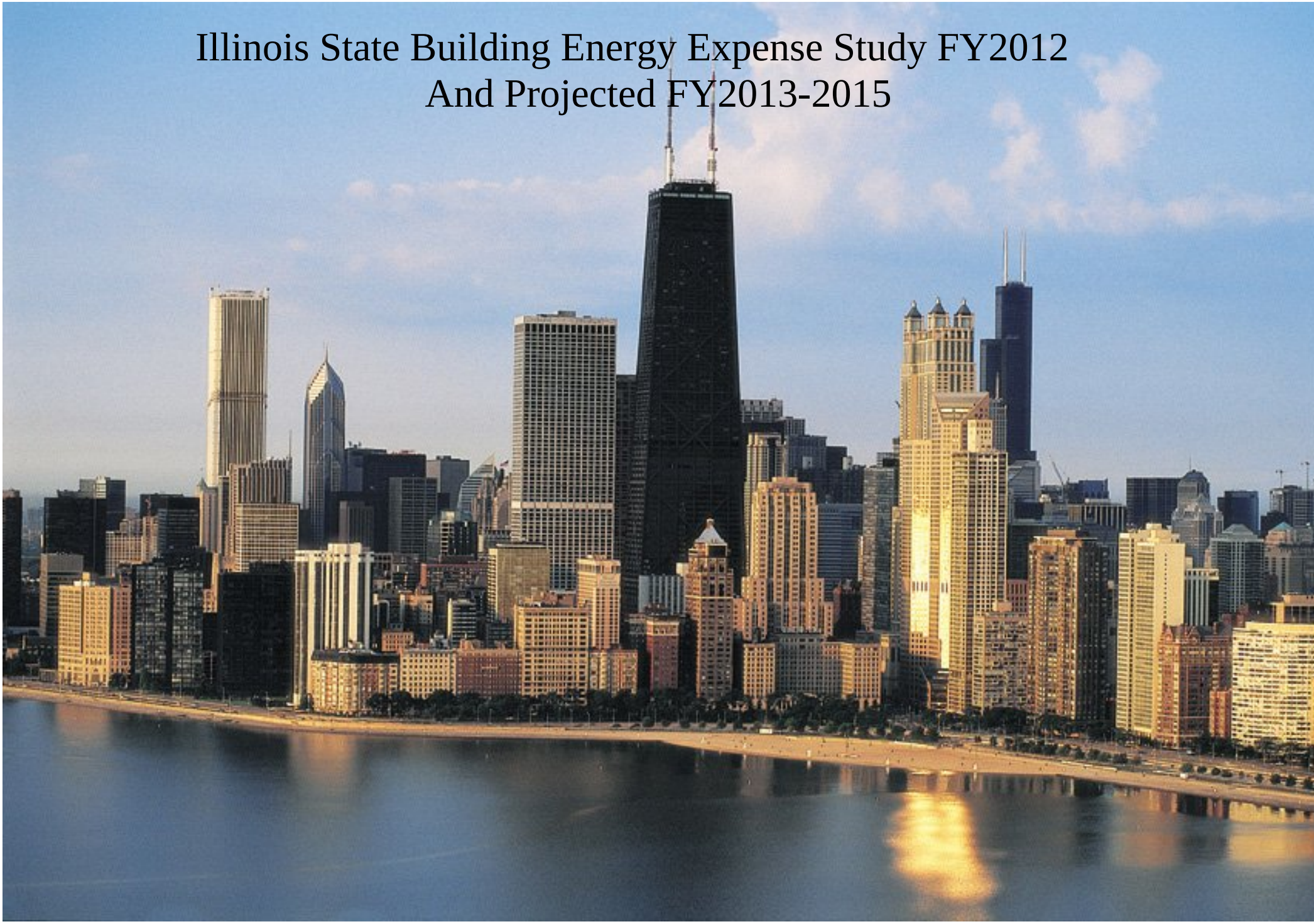
# Illinois State Building Energy Expense Study FY2012 And Projected FY2013-2015



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# Executive Summary

During FY12, the State of Illinois spent $194,912,010 for natural gas, electricity, coal, oil, propane, and steam (there was no purchased steam reported in FY12) to operate state-owned and leased buildings, this is an 8.40 percent decrease from FY11. Energy consumption for FY12 was 16,141,907 MMBtu (Million Btus); which is a 13.6 percent decrease from FY11.

The decrease in energy consumption can be attributed to the State of Illinois aggressive moves in energy consumption and agency and building consolidation. The State of Illinois through its agencies have enacted many measures in lowering heating and cooling consumption, by lowering temperatures in winter and raising them in summer. In addition there are other measures such as performance contracting, retrocommisioning, continuous auditing of state buildings and energy efficiency grants and rebates, through USDOE & through the utility companies operating in Illinois, that provide natural gas and electric incentives based on energy savings.

The decrease in energy costs can be attributed to significant decrease in natural gas consumption, not weather adjusted for all State agencies, 12.71 percent decrease from FY11, while electricity decreased by 4.72 percent, coal and oil decreased by 24.81% and 2.16% respectively. Also, the State of Illinois decreased its contribution to the universities by 2.8% (67.2% in FY11 to 64.4% in FY12). There was 11.4 percent increase in cooling degree days from FY11, and a decrease of 22.9 in heating degree days from FY11. The cooling degree days for FY12 were 40.7% above the normal cooling degree days, and a decrease of 21.1% from the normal heating degree days.

Energy prices were mitigated by several factors. The State has continued to consolidate large purchases of natural gas. In the last four years, aggregated purchasing of electricity has continued for all large users in the Commonwealth Edison and Ameren service territories. This has had a dramatic impact on stabilizing energy costs for the State well below the private sector.

Energy costs are projected to increase to as much as $233 million by FY13 due to increasing fuel prices; however, due to the recent volatility in commodity prices, this projection is highly uncertain. Natural gas prices are expected to remain volatile for the next few years, and assuming normal weather. Electric deregulation which took effect January 1, 2007 will have a significant impact on electric rates throughout the State. The Department of Commerce and Economic Opportunity (DCEO) is actively working with state building managers to decrease energy consumption. Energy Performance Contracting (EPC) projects and energy programs over the past ten years have resulted in cost savings of over $73 million.

The Department of Central Management Services, under the Facilities Management, Internal Auditing and Staff Legal functions Executive Order, assumed control of smaller agencies' facility operations beginning in FY05. This included payment of utility bills. The result is a large increase in the utility expenditures reported to the Comptrollers office for Central Management Services. The ability to separate these expenditures by agency is not available at this time.

In this report, DCEO identifies energy costs for Illinois state buildings, by fuel type and by agency, for FY08 through FY12. It also projects energy costs for FY13 through FY15 based on expenditures of representative state agencies.

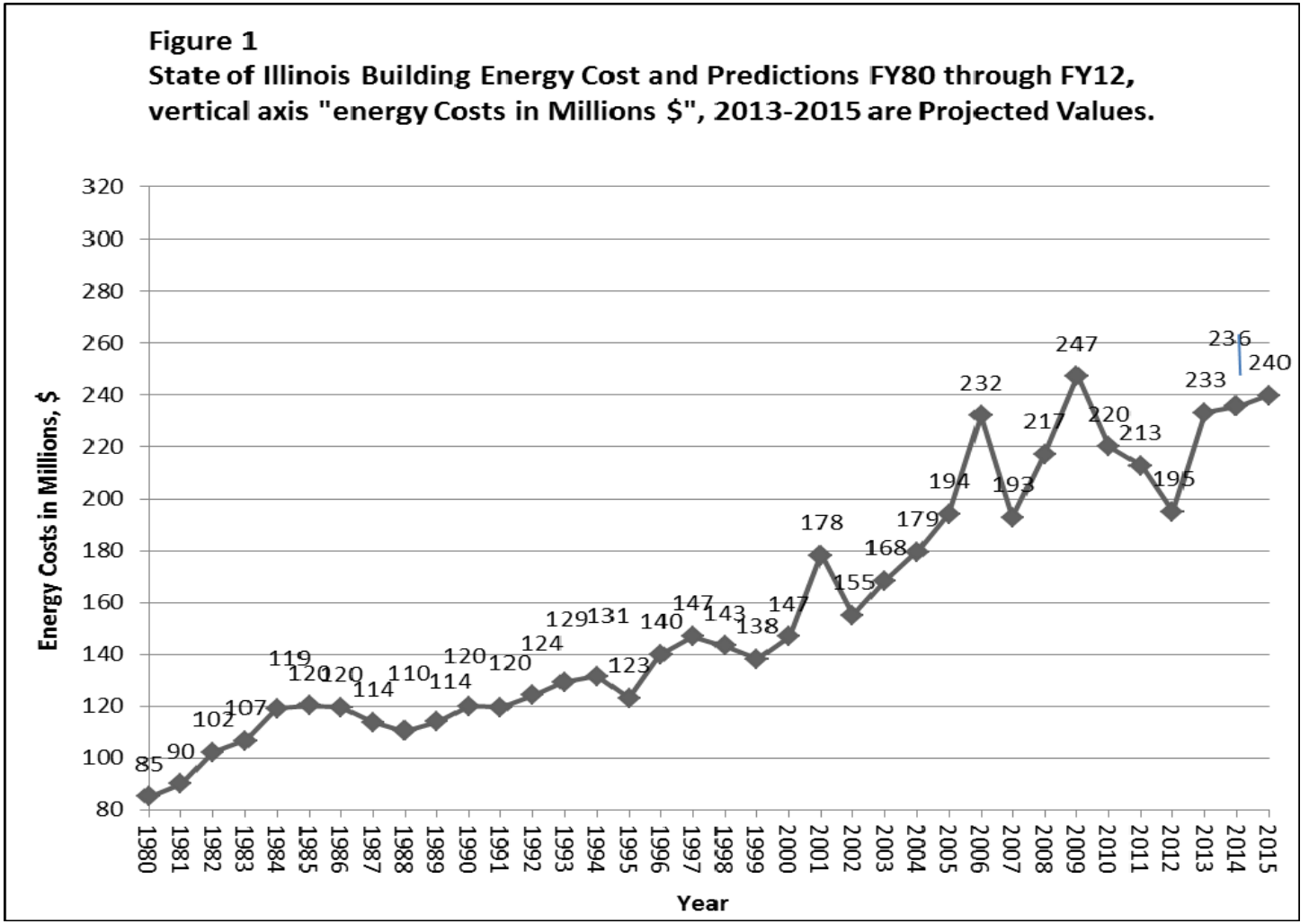
**F**igure 1 illustrates the energy cost history for Illinois state buildings from FY80 through FY12 with cost projections for FY13-15. State buildings' energy expenditures steadily increased from FY80 through FY84. From FY84 through FY86 the costs were essentially level due to falling fossil fuel prices. FY87 and FY88 building costs decreased because of some lower utility rates and energy conservation.

Except for FY95, when there was a dip in natural gas prices, expenditures for fuels increased from FY91 through FY97 due to steadily increasing fuel prices and the addition of new buildings. Electricity and natural gas prices declined at state facilities in FY98 and FY99. The spikes in energy costs in FY01 and FY03 through FY06 are a result of natural gas and electrical price fluctuations. FY09 has seen a huge spike in all energy prices. FY10 through FY12 has seen a decrease in energy costs due to the State's efforts to reduce energy consumption.

- **Figure 1**

The graph presented in Figure 1 is based on data from Table A-3 (State Building Energy Costs and Projections), which details costs for various fuel sources.

For simplicity in calculation it was assumed that the amount of energy consumed, in terms of Btus, would remain constant from FY13 to FY15 (assuming normal weather conditions). Energy usage and weather data since FY81 were used to determine how much energy the State would have used if the weather during FY12 had been normal (6,828 heating and cooling degree days). This value was then used in the projections. The description of Table A-3 explains the methodology.



Tables 1 and 2 lists the building energy cost, and consumption figures for the 10 Illinois agencies that incurred the highest energy costs during FY12. Universities, the Department of Corrections (DOC), and the Department of Central Management Services (CMS) were the three largest users of energy, expending 46.0 percent, 14.2 percent and 11.2 percent of the total state building energy costs, respectively.

Electricity accounted for nearly 64.2 percent of the total energy cost, but only 30.5 percent of the total energy consumed (see Figures 3 and 4). At the same time, natural gas accounted for 31.4 percent of the total energy cost and 49.7 percent of the total energy consumed. This illustrates that electricity costs are considerably more per unit of energy than natural gas.

Figure 2, 3, and 4 display the same information graphically.

- **Table 1**

The energy expenditures in this study are taken from the Comptroller's Data Warehouse for FY12. The energy consumption of 83 state agencies, which utilize over 117 million square feet of buildings, is included. The state agencies that are listed individually in this report were chosen because each one accounts for approximately 1 percent or more of the total state buildings energy costs in each year. The remainder is listed under "All Others." Those energy expenditures made by leased facilities that pay a constant rental charge, but do not pay for utilities directly, are not included in this report.

Table 1 shows the amount of money (excluding gasoline expenditures) that was spent on energy by the State. The energy costs incurred by Universities are taken directly from Board of Higher Education report. The remainder is taken from the FY12 Comptroller's Data Warehouse. The specific accounts, from which expenditures are included, are listed below.

**Account 1251 – Natural Gas**

The account includes charges for natural gas furnished by public utilities. This excludes repair, maintenance, rental or equipment sales.

**Table 1**

## State of Illinois FY12 Building Energy Cost ($)[1]

| Agency [2] | Natural Gas | Electricity | Coal | Fuel Oil | Purchased Steam | Total Building Energy Cost [3] | % of Total Building Energy Cost |
|---|---|---|---|---|---|---|---|
| Universities [4] | 42,279,308 | 42,446,748 | 4,660,821 | 77,924 | *** | 89,464,802 | 45.9 |
| Corrections | 7,498,572 | 19,853,188 | 591,286 | 72,262 | *** | 28,015,309 | 14.4 |
| Human Services | 3,532,045 | 7,787,983 | 1,692,904 | 17,876 | *** | 13,030,809 | 6.7 |
| Central Management Services [5] | 2,334,455 | 19,356,388 | *** | 10,817 | *** | 21,701,660 | 11.1 |
| Transportation | 769,425 | 8,971,670 | *** | 141,032 | *** | 9,882,127 | 5.1 |
| Secretary of State | 1,180,844 | 9,598,347 | 331,526 | 9,148 | *** | 11,119,865 | 5.7 |
| Illinois Tollway | 530,156 | 3,600,580 | *** | 0 | *** | 4,130,736 | 2.1 |
| Natural Resources | 158,766 | 2,530,375 | *** | 349,134 | *** | 3,038,275 | 1.6 |
| Military Affairs | 1,008,685 | 2,512,564 | *** | 167,556 | *** | 3,688,805 | 1.9 |
| State Police | 167,883 | 1,236,524 | *** | 17,550 | *** | 1,421,957 | 0.7 |
| All Others [6] | 1,624,410 | 7,323,060 | 448,733 | 21,464 | *** | 9,417,666 | 4.8 |
| **Total** | **$61,084,549** | **$125,217,427** | **$7,725,270** | **$884,763** | **$0** | **$194,912,010** | **100.0** |

[1] Based on FY12 Comptroller's Data Warehouse records. Natural Gas numbers based on account 1251; Electricity - 1252; Coal - 1341; and Fuel Oil - 1342.

[2] The agencies in this category expended approximately 1 percent or more of the State's total building energy costs.

[3] Gasoline not included.

[4] Based on FY12 data from Board of Higher Education.

[5] CMS expenditures and energy use contain data from multiple agencies.

**Account 1252 – Electricity**
The account includes charges for electric power furnished by public utilities. This excludes repair, maintenance, rental or equipment sales.

**Account 1254 – University Central Plant Services**
Payments by a university to a central service organization for purchased steam, including maintenance of these buildings. Using information from the Board of Higher Education, other fuel types have been separated from this account and added to their respective columns. Other agencies may purchase steam; however, it is impossible to distinguish steam costs with accounting data alone.

**Account 1341 – Coal and Coke**
These are charges for purchasing coal and coke including related freight or switching charges.

**Account 1342 – Fuel Oil and Bottled Gas**
These are charges for acquisition of oil or bottled gas for use as fuel in power or heating plants or oil stoves, including related freight or switching charges. The column in Table 1 titled "Fuel Oil" includes the relatively small amount of bottled gas purchased by state agencies.

- **Table 2**

Table 2 shows the amount of energy (in millions of Btus) consumed by state agencies. Those figures were developed by converting the cost per year data from Table 1 to consumption. When possible, actual agency energy consumption and cost data were used (e.g. Universities, Human Services and Corrections). If not, The Department of Human Services price averages were used since these were assumed to be representative of prices paid by other state facilities.

The price of oil was based only on the University price, because reliable Human Services data were not available.

The fuel prices and conversion factors are listed in the Table 2 footnotes. Table A-2 lists unit energy cost by fuel type.

**Table 2**

## State of Illinois FY12 Building Energy Consumption ($10^6$ Btu)

| Agency [1] | Natural Gas | Electricity | Coal | Fuel Oil | Purchased Steam | Total Building Consumption | % of Total Building Consumption |
|---|---|---|---|---|---|---|---|
| Universities [2] | 5,389,232 | 2,044,947 | 1,414,803 | 3,579 | *** | 8,852,561 | 54.8 |
| Corrections [3] | 1,286,673 | 693,308 | 331,734 | 5,383 | *** | 2,317,098 | 14.4 |
| Human Services | 416,348 | 271,970 | 949,782 | 1,332 | *** | 1,639,432 | 10.2 |
| Central Management Services [4] | 275,179 | 675,959 | *** | 806 | *** | 951,944 | 5.9 |
| Transportation | 90,698 | 313,307 | *** | 10,506 | *** | 414,511 | 2.6 |
| Secretary of State | 139,195 | 335,191 | 185,999 | 681 | *** | 661,066 | 4.1 |
| Illinois Tollway | 62,493 | 125,739 | *** | 0 | *** | 188,232 | 1.2 |
| Natural Resources | 18,715 | 88,365 | *** | 26,008 | *** | 133,088 | 0.8 |
| Military Affairs | 118,901 | 87,743 | *** | 12,482 | *** | 219,126 | 1.4 |
| State Police | 19,790 | 43,182 | *** | 1,307 | *** | 64,279 | 0.4 |
| All Others | 191,481 | 255,734 | 251,756 | 1,599 | *** | 700,570 | 4.3 |
| **Total** | **8,008,705** | **4,935,445** | **3,134,074** | **63,683** | **0** | **16,141,907** | **100.0** |

[1] Energy consumption for all agencies, except Universities and Corrections, is based on adjusted average Human Services FY12 unit energy costs as follows:

**Human Services unit costs**

| | | | |
|---|---|---|---|
| Natural Gas | $0.8483/therm | or | $8.483/$10^6$ Btu (1 therm = 100,000 Btu) |
| Electricity | $0.0977/kwh | or | $28.635/$10^6$ Btu (1 kwh = 3,413 Btu) |
| Coal | $39.277/ton | or | $1.782/$10^6$ Btu (1 lb. = 11,018 Btu) |
| Oil (#2) | $96.59/gal | or | $13.42/$10^6$ Btu (1 gal = 138,974 Btu) |

[2] University unit costs:

**Universities Unit costs**

| | | | |
|---|---|---|---|
| Natural Gas | $0.785/therm | or | $7.8/$10^6$ Btu (1 therm = 100,000 Btu) |
| Electricity | $0.0708/kwh | or | $20.75/$10^6$ Btu (1 kwh = 3,413 Btu) |
| Coal | $72.59/ton | or | $3.29/$10^6$ Btu (1 lb. = 11,190 Btu) |
| Oil & Propane | $21.78/mmBtu | or | $160.05/$10^6$ Btu (1 gal = 136,049 Btu) |
| Steam | No steam purchase was reported (1 lb. steam = 1,000 Btu) | | |

[3] Corrections Natural Gas $0.5703/therm or $5.703/$10^6$ Btu (1 therm = 100,000 Btu)

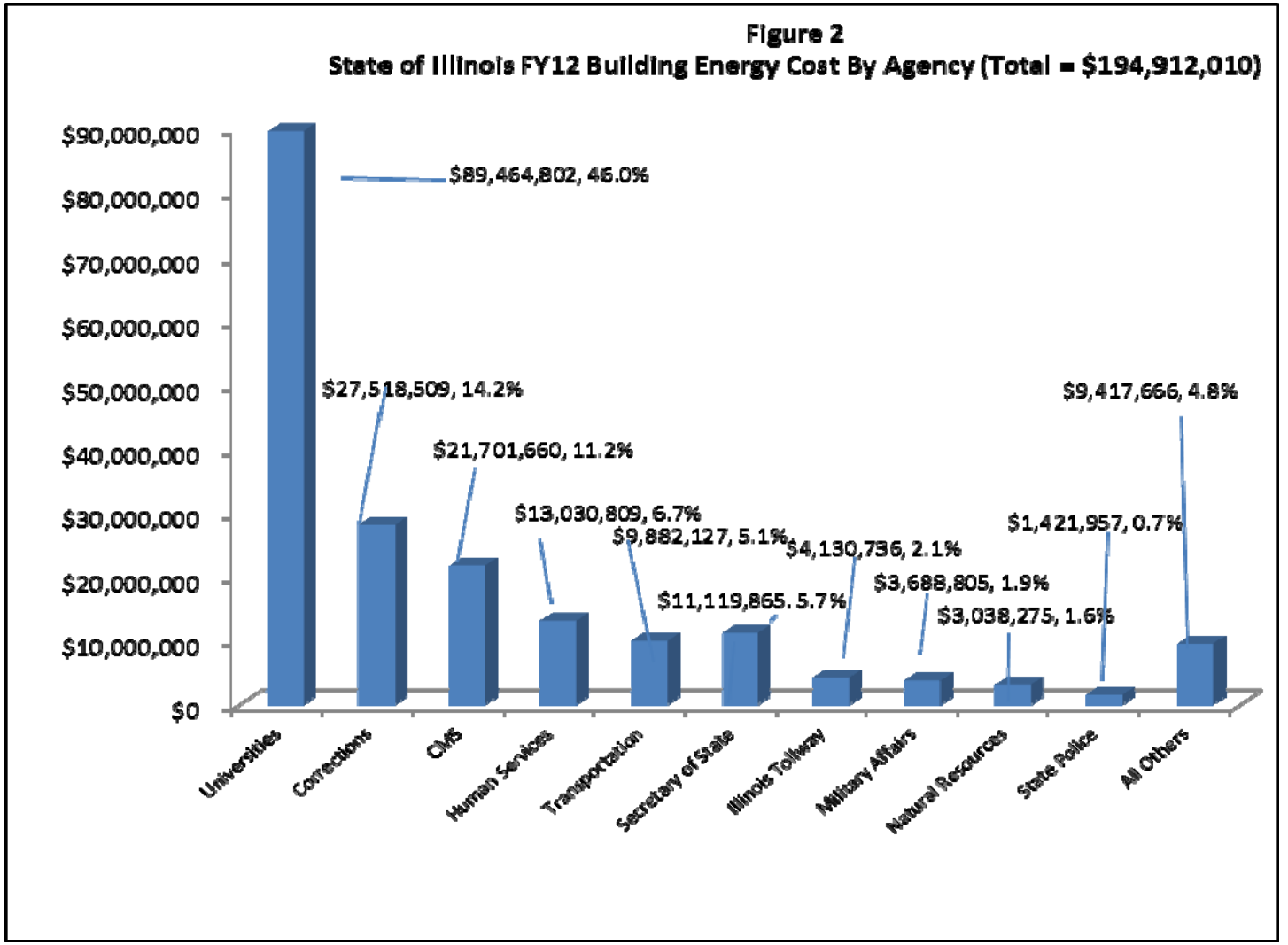
[4] CMS expenditures and energy use contain data from multiple agencies.

Figure 2 illustrates building energy cost for the ten (10) Illinois agencies that incurred the highest energy costs for FY12. Universities, the Department of Corrections, and the Department of Central Management Services were the three largest single users of energy, expending 46.0 percent, 14.2 percent, and 11.2 percent of the total state building energy costs, respectively.

- **Figure 2**

The energy expenditures in this study are taken from the Comptroller's Data Warehouse for FY12. The state agencies that are listed individually in this report were chosen because each one accounts for approximately 1 percent or more of the total state buildings energy costs in each year. The remainder is listed under "All Others." Those energy expenditures made by leased facilities that pay a constant rental charge, but do not pay for utilities directly, are not included in this report.

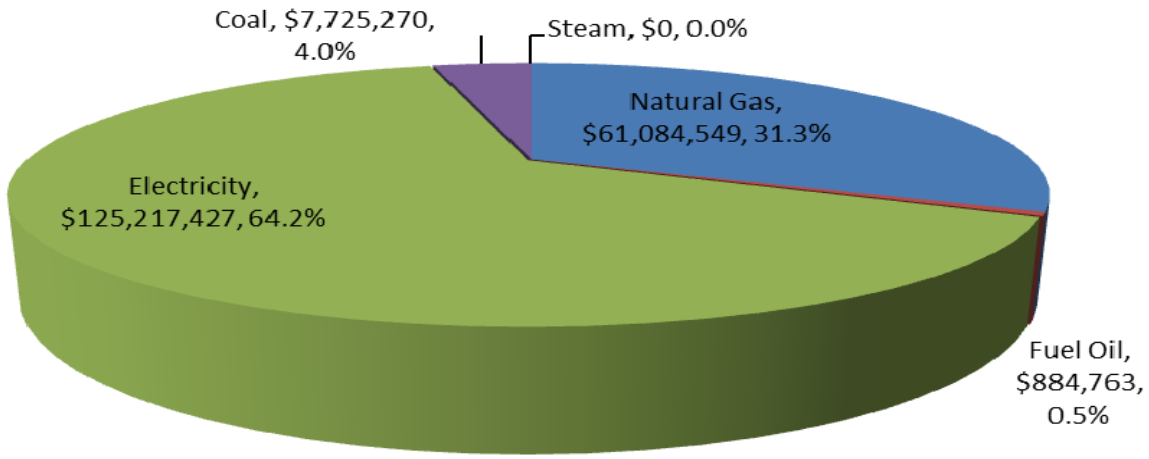
Expenditures by CMS contain data from multiple agencies.



➢ **Figure 3**

Figure 3 illustrates the state buildings energy cost for FY12 presented graphically by fuel type. Data from Table 1 was used use to show that electricity accounts for the greatest energy cost: 64.2 percent of the total of all buildings energy costs. Natural gas cost accounts for 31.3 percent of the total energy costs followed by coal, fuel oil and steam which account for 4.0 percent, 0.5 percent, and 0 percent, respectively.

**Figure 3**
**State of Illinois FY12 Building Energy Cost by Fuel Type (Total = $194,912,010)**




➢ **Figure 4**

Figure 4 illustrates the state buildings energy consumption for FY12 presented graphically by fuel type. Data from Table 2 was used to show that natural gas accounts for the highest fuel consumption: 49.6 percent of the total of all buildings' energy consumption. Electricity consumption accounts for 30.6 percent of the total buildings' energy consumption followed by coal, fuel oil and steam which account for 19.4 percent, 0.4 percent, and 0 percent, respectively.

**Figure 4**
**State of Illinois FY12 Building Energy Consumption by Fuel Type (Total = 16,141,907 x $10^6$ Btu)**

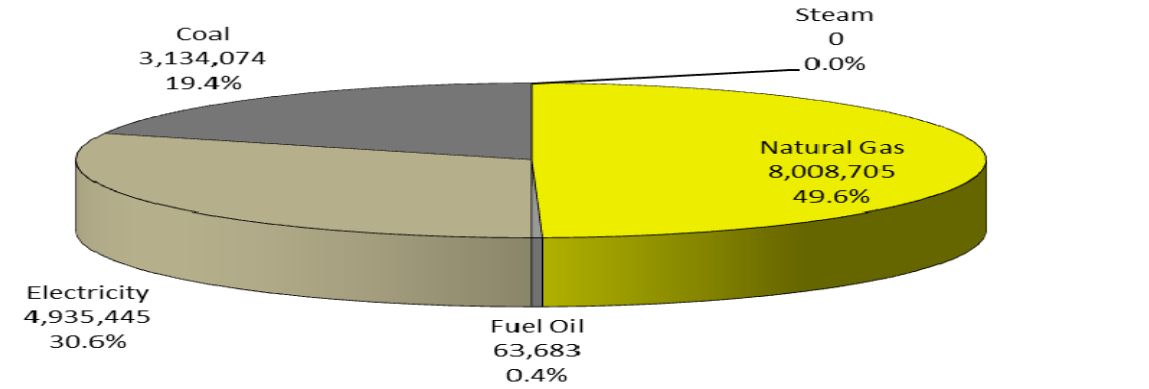


Table 3 lists the 10 agencies' energy and cost index numbers, which can be used for monitoring the progress of an energy conservation program. The building area figures used to generate these index numbers are only estimates because accurate agency totals are not readily available. The wide range of energy index numbers is due to the various types and uses of buildings by the different agencies.

- **Table 3**

In Table 3, cost index numbers and energy index numbers are generated by using information from Tables 1 and 2 and gross building area data from each state agency. The gross building area figures are obtained directly from the agencies and compared to Capital Development Board records. The energy and cost index numbers that appear in Table 3 include some energy charges for leased buildings for which the State pays the utility costs.

Many of the building area table figures are updated from previous reports as new and more accurate information becomes available. Agency-to-agency facility transfers and closings and new building openings all contribute to overall building inventory changes. Changes in agency gross area can mean similar differences in both cost and energy index numbers when compared from year to year. Such changes can yield discontinuity from year to year and can alter significantly the current energy cost and use position of those affected.

**Table 3**

## State of Illinois FY12 Building Energy Index Number Data

| Agency | Fuel Cost Total | Energy Use Total ($\times 10^6$ Btu) | Building Area [4] ($\times 10^6$ Sq. Ft ) | Energy Index [2] Btu/Sq. Ft /Yr. | Cost Index [3] $/Sq. Ft /yr. |
|---|---|---|---|---|---|
| **Universities** | 89,464,802 | 8,852,561 | 76.55 | 115,644 | 1.17 |
| **Corrections** | 28,015,309 | 2,317,098 | 15.46 | 149,877 | 1.81 |
| **Human Services** | 13,030,809 | 1,639,432 | 9.10 | 180,157 | 1.43 |
| **Central Management Services** [5] | 21,701,660 | 951,944 | ***[1] | ***[1] | ***[1] |
| **Transportation** | 9,882,127 | 414,511 | 2.23 | 185,879 | 4.43 |
| **Secretary of State** | 11,119,865 | 661,066 | 3.79 | 174,424 | 2.93 |
| **Illinois Tollway** | 4,130,736 | 188,232 | 3.82 | 49,275 | 1.08 |
| **Natural Resources** | 3,038,275 | 133,088 | 0.90 | 147,876 | 3.38 |
| **Military Affairs** | 3,688,805 | 219,126 | 4.02 | 54,542 | 0.92 |
| **State Police** | 1,421,957 | 64,279 | 0.78 | 81,955 | 1.81 |
| **All Others** | 9,417,666 | 700,570 | ***[1] | ***[1] | ***[1] |
| **Total** | **$194,912,010** | **16,141,907** | *** | *** | *** |

[1] Accurate building area figure not available.

[2] Energy Index = Amount of energy used per square foot per year.

[3] Cost Index = cost of energy used per square foot per year.

[4] These figures are estimates based on best available data and may change from year to year as current data becomes available. See Table 3 description for further clarification.

[5] CMS expenditures and energy use contain data from multiple agencies.

Tables 4 and 5 show State of Illinois buildings energy cost and consumption comparisons for FY08 through FY12. The data show a total cost decrease of 8.4 percent from FY11 to FY12 and a consumption decrease of 13.6 percent for the same period.

➢ **Table 4**

Table 4 gives a five-year energy cost history for the different agencies reported and then compares each year's cost to the previous year's to give a percentage cost change. The data in the five columns are taken from the various cost tables from this report.

Cost variations from year to year can be attributed to several factors that are listed below.

1. *Fuel Prices*
   Fuel prices for the last seven years have had drastic increases as compared to the relatively stable prices in the 80's and 90's. These increases have been mitigated by purchasing programs instigated by CMS. Changing fuel prices significantly affect the total yearly energy costs.

2. *Weather Conditions*
   As noted in the footnote to Table 4, no attempt has been made to adjust the results to reflect climatic variations from year to year and climatic differences from north to south.

3. *Facility Changes*
   In recent years factors such as economics have caused the closing or opening of facilities in some agencies. This would have an effect on energy cost from year to year that is not taken into account in this report.

4. *Conservation*
   The drastically increasing fuel prices in the past seven years, has again prompted a nationwide awareness of the need for energy conservation. This renewed public awareness has encouraged the state to adopt measures to conserve energy. While the conservation factor is disregarded for cost projections, it has affected the energy cost totals of Table 4.

**Table 4**

## State of Illinois FY08 through FY12 Building Energy Cost Comparison[1]

| Agency | FY08 Energy Cost (x $1000) | [2] | FY09 Energy Cost (x $1000) | | FY10 Energy Cost (x $1000) | | FY11 Energy Cost (x $1000) | | FY12 Energy Cost (x $1000) | |
|---|---|---|---|---|---|---|---|---|---|---|
| Universities | 114,448.8 | (12.8) | 114,508.7 | (0.1) | 97,530.2 | (-14.8) | 95,113.2 | (-2.5) | 89,464.8 | (-5.9) |
| Corrections | 27,445.4 | (-9.6) | 37,833.1 | (37.8) | 33,583.8 | (-11.2) | 31,168.7 | (-7.2) | 28,015.3 | (-10.1) |
| Human Services | 13,014.3 | (-0.9) | 18,846.6 | (44.8) | 16,944.6 | (-10.1) | 15,318.0 | (-9.6) | 13,030.8 | (-14.9) |
| Central Management Services [3] | 20,936.8 | (31.8) | 26,221.5 | (25.2) | 25,321.9 | (-3.4) | 23,709.2 | (-6.4) | 21,701.7 | (-8.5) |
| Transportation | 11,400.0 | (32.3) | 11,877.4 | (4.2) | 11,650.0 | (-1.9) | 11,221.7 | (-3.7) | 9,882.1 | (-11.9) |
| Secretary of State | 6,717.2 | (32.3) | 10,552.7 | (57.1) | 10,832.8 | (2.7) | 11,255.6 | (3.9) | 11,119.9 | (-1.2) |
| Illinois Tollway | 4,365.8 | (6.0) | 5,096.8 | (16.7) | 4,732.8 | (-7.1) | 4,858.6 | (2.7) | 4,130.7 | (-15.0) |
| Natural Resources | 3,351.4 | (35.6) | 3,407.0 | (1.7) | 3,567.1 | (4.7) | 3,419.4 | (-4.1) | 3,038.3 | (-11.1) |
| Military Affairs | 3,962.8 | (34.8) | 4,432.9 | (11.9) | 4,022.8 | (-9.3) | 4,189.9 | (4.2) | 3,688.8 | (-12.0) |
| State Police | 1,482.0 | (23.8) | 1,788.4 | (20.7) | 1,582.7 | (-11.5) | 1,654.8 | (4.6) | 1,422.0 | (-14.1) |
| Children & Family Services [3] | *** | *** | *** | *** | *** | *** | *** | *** | *** | *** |
| All Others [3] | 10,045.5 | (41.6) | 12,595.9 | (25.4) | 10,243.3 | (-18.7) | 10,867.9 | (6.1) | 9,417.7 | (-13.3) |
| **Total** | **217,170.1** | **(12.9)** | **247,161.0** | **(13.8)** | **220,012.0** | **(-11.0)** | **212,776.9** | **(-3.3)** | **194,912.0** | **(-8.4)** |

[1] Due to diverse weather conditions in Illinois, no attempt has been made to adjust the results to reflect climate severity from year to year and climatic differences from north to south. Representative weather data are shown on Table 5.

[2] Brackets denote percentage change from previous year.

[3] CMS expenditures and energy use contain data from multiple agencies. Starting in FY05, Children & Family Services and some smaller

➢ **Table 5**

Table 5 presents a five-year energy consumption history for the agencies listed, and then compares each year's use to the previous year's to give percentage consumption change. The data in the five columns are taken from the various consumption tables in this report.

Consumption variations from year to year can be attributed to the same factors that affected the cost variations in Table 4 (except fuel prices.)

An indication of weather variation over the last five years is given by the Heating Degree Day and Cooling Degree Day lines at the bottom of the table. A Heating or Cooling Degree Day is a unit, based on temperature difference and time, used in estimating fuel consumption and specifying the nominal heating/cooling load of a building.

The degree day data shown are based on Peoria weather, which is considered to be representative of the state. These data should be used only for identifying weather trends. No attempt should be made to normalize the consumption data given in order to compensate for weather differences.

**Table 5**

## State of Illinois FY08 through FY12 Building Energy Consumption Comparison [1]

| Agency | FY08 Energy Consumption ($10^9$ BTU) | [2] | FY09 Energy Consumption ($10^9$ BTU) | | FY10 Energy Consumption ($10^9$ BTU) | | FY11 Energy Consumption ($10^9$ BTU) | | FY12 Energy Consumption ($10^9$ BTU) | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Universities** | 11,796.6 | (19.9) | 10,300.1 | (-12.7) | 10,065.6 | (-2.3) | 9,964.4 | (-1.0) | 8,852.6 | (-11.2) |
| **Corrections** | 2,913.7 | (8.8) | 2,970.9 | (2.0) | 2,945.5 | (-0.9) | 2,727.8 | (-7.4) | 2,317.1 | (-15.1) |
| **Human Services** | 1,715.9 | (-0.4) | 2,460.9 | (43.4) | 2,381.6 | (-3.2) | 2,079.7 | (-12.7) | 1,639.4 | (-21.2) |
| **Central Management Services** [3] | 1,333.5 | (34.8) | 1,428.9 | (7.2) | 1,180.3 | (-17.4) | 1,093.6 | (-7.3) | 951.9 | (-12.9) |
| **Transportation** | 668.0 | (38.1) | 606.2 | (-9.3) | 511.9 | (-15.6) | 485.8 | (-5.1) | 414.5 | (-14.7) |
| **Secretary of State** | 586.9 | (36.2) | 886.0 | (51.0) | 686.0 | (-22.6) | 706.2 | (2.9) | 661.1 | (-6.4) |
| **Illinois Tollway** | 281.8 | (-6.4) | 278.6 | (-1.1) | 266.9 | (-4.2) | 242.4 | (-9.2) | 188.2 | (-22.3) |
| **Natural Resources** | 202.9 | (42.6) | 177.1 | (-12.7) | 166.2 | (-6.2) | 156.3 | (-6.0) | 133.1 | (-14.8) |
| **Military Affairs** | 351.0 | (264.3) | 336.2 | (-4.2) | 263.2 | (-21.7) | 268.0 | (1.8) | 219.1 | (-18.2) |
| **State Police** | 100.6 | (28.1) | 100.8 | (0.2) | 79.0 | (-21.6) | 84.0 | (6.3) | 64.3 | (-23.5) |
| **Children & Family Services** [3] | *** | *** | *** | *** | *** | *** | *** | *** | *** | *** |
| **All Others** [3] | 899.3 | (45.3) | 1,069.5 | (18.9) | 999.1 | (-6.6) | 872.6 | (-12.7) | 700.6 | (-19.7) |
| **Total** | **20,850.3** | **(20.0)** | **20,615.3** | **(-1.1)** | **19,545.3** | **(-5.2)** | **18,680.7** | **(-4.4)** | **16,141.9** | **(-13.6)** |
| **HDD** [4] | 5,857.0 | (3.7) | 5,986.0 | (2.2) | 6,017.0 | (0.5) | 5,954.0 | (-1.0) | 4,593.0 | (-22.9) |
| **CDD** | 1,279.0 | (20.1) | 1,000.0 | (-21.8) | 753.0 | (-24.7) | 1,241.0 | (64.8) | 1,382.0 | (11.4) |

[1] Due to diverse weather conditions in Illinois, there has been no attempt made to adjust the results to reflect climatic variations from year to year and the climatic differences from north to south. Representative weather data are shown on Table 5

[2] Brackets denote percentage change from previous year.

[3] CMS expenditures and energy use contain data from multiple agencies. Starting in FY05, Children & Family Services and some smaller agencies in the All Others group are included in the CMS data.

[4] HDD/CDD refers to the Heating Degree Days and Cooling Degree Days for Peoria (Normal HDD = 5,846 and Normal CDD = 982). These numbers should be used for comparing weather trends only. Further discussion on their interpretation is given in the appendix, under Table 5 description.

# Appendix

➢ **Table A-1**
This table is prepared using data from Global Insight, Inc., U.S. Economic Outlook January, 2007. The numbers are average fuel price multipliers for the years identified.

**TABLE A-1**

# Unit Energy Cost Projection Multipliers[1]

| Energy Source | 2013/2012 | 2014/2012 | 2015/2012 |
|---|---|---|---|
| Natural Gas | 1.2118 | 1.0062 | 1.0007 |
| Electricity | 1.1207 | 1.2396 | 1.2735 |
| Coal | 1.0026 | 1.0067 | 1.0117 |
| Oil (#2) | 1.0215 | 1.0086 | 1.0528 |
| Oil (#6) | 1.0261 | 1.0502 | 1.0554 |
| Steam | 1.0026 | 1.0067 | 1.0117 |

[1] Projection multipliers are found by averaging the quarterly Global Insight indices to obtain fiscal year indices and determining the percent change from the base year.

➢ **Table A-2**

Table A-2 shows the unit energy prices for FY08 through FY15. FY08 through FY12 are actual fuel costs and FY13 through FY15 are projected costs. The projection method used was to multiply the FY12 fuel price by its respective price multiplier from Table A-1, to obtain the specific fuel price for FY13 through FY15. That is current price X projection multiplier = projected price.

This table is prepared using data from the Illinois Board of Higher Education, Distributional Analysis of Energy Usage and Cost FY12 report and the Illinois State Water Survey, Power Plant Efficiency FY10 report. The energy rates for corrections and mental health facilities were not available for FY11; therefore FY10 rates were multiplied by the proper inflation factors.

**Table A-2**

# Unit Energy Costs by Fuel Type

| | Actual | | | | | Projected[1] | | |
|---|---|---|---|---|---|---|---|---|
| **Energy Source** | **FY08** | **FY09** | **FY10** | **FY11** | **FY12** | **FY13** | **FY14** | **FY15** |
| **Natural Gas (¢/therm)** | | | | | | | | |
| **Human Services** | 75.60 | 82.80 | 83.01 | 85.07 | 84.83 | **102.80** | **85.36** | **84.90** |
| **Universities** | 87.80 | 94.70 | 75.86 | 71.82 | 78.45 | **95.07** | **78.94** | **78.51** |
| **Electricity (¢/kwh)** | | | | | | | | |
| **Human Services** | 7.28 | 8.28 | 9.61 | 9.79 | 9.77 | **10.95** | **12.11** | **12.45** |
| **Universities** | 7.47 | 7.82 | 7.55 | 7.72 | 7.08 | **7.94** | **8.78** | **9.02** |
| **Coal ($/ton)** | | | | | | | | |
| **Human Services** | 42.75 | 39.44 | 38.76 | 39.26 | 39.28 | **39.38** | **39.54** | **39.74** |
| **Universities** | 51.32 | 65.33 | 77.11 | 78.97 | 72.59 | **72.78** | **73.08** | **73.45** |
| **Oil ($/gal)** | | | | | | | | |
| **Human Services** | 1.84 | 1.85 | 1.85 | 1.80 | 1.80 | **1.84** | **1.81** | **1.89** |
| **Universities** | 2.73 | 1.63 | 1.31 | 1.31 | 1.31 | **1.34** | **1.37** | **1.38** |
| **Steam ($/1000 lb.)** | | | | | | | | |
| **Universities** | 14.60 | 14.60 | 14.60 | 14.60 | 14.60 | **14.64** | **14.70** | **14.77** |

[1] Projected prices obtained by multiplying FY12 price by its respective projection multiplier (Table A-1).

➢ **Table A-3**

Table A-3 lists energy costs and projections from FY08 to FY15, by fuel types, FY08 through FY12 figures are actual figures and FY13 through FY15 figures are projected. In past reports (pre-FY85), projected costs were obtained by simply multiplying the current utility cost by its respective price multiplier (Table A-1). However, these projections were made assuming that the same amount of energy would be used each year, regardless of weather differences. If the weather during the current year happened to be mild (below normal, as it was in 1985), this led to conservative projections. The weather during the current year was extreme (above normal, as it was in 1984), and then the projections would be over-estimated. To avoid these problems a projection method, which attempts to de-emphasize the weather effect, has been implemented.

The method used to obtain weather-normalized base year cost, for projections, is as follows:

1. Perform a linear regression on consumption totals against total degree days (heating plus cooling) for FY81 through FY12 to obtain the equation for the best fitting line through the data.
2. Substitute the current-year (5,975 DD) degree day number into the equation for the line obtained in step 1.
3. Substitute the normal-year (6,828 DD) degree day number into the equation for the line obtained in step 2.
4. The weather-adjusted normal consumption is the current-year usage plus the usage found in step 3 minus the usage found in step 2. (16,141,907 MMBtu + 18,233,918 MMBtu – 17,489,443 MMBtu = 16,883,943 MMBtu.)
5. Break the weather-adjusted normal consumption (16,883,943 MMBtu) down by fuel types using the percentages from Figure 4.
6. Multiply each of these by its respective fuel cost in Table 1 divided by the respective fuel consumption in Table 2 to get current normalized dollar totals. (Natural Gas = $63,892,577; Electricity = $130,973,612; Coal = $8,081,397; Oil = $925,435; and Steam - $0).
7. Project from these totals, using the multipliers from Table A-1.

**Table A-3**

# State Building Energy Costs and Projections (x $1000)

| | Actual | | | | | Projected[1] | | |
|---|---|---|---|---|---|---|---|---|
| **Energy Source** | **FY08** | **FY09** | **FY10** | **FY11** | **FY12** | **FY13** | **FY14** | **FY15** |
| **Natural Gas** | 89,998 | 93,232 | 72,590 | 69,980 | 61,085 | **77,424** | **64,290** | **63,940** |
| **Electricity** | 116,590 | 140,998 | 135,087 | 131,416 | 125,217 | **146,784** | **162,350** | **166,801** |
| **Coal** | 9,021 | 11,832 | 11,138 | 10,275 | 7,725 | **8,101** | **8,134** | **8,175** |
| **Oil** | 1,560 | 1,098 | 1,198 | 1,107 | 885 | **945** | **934** | **974** |
| **Steam** | 5,959 | 0 | 0 | 0 | 0 | **0** | **0** | **0** |
| **Total** | **179,422** | **194,089** | **232,005** | **192,873** | **194,912** | **233,255** | **235,708** | **239,890** |

[1] Projected costs obtained by multiplying FY12 weather-adjusted utility cost by its respective projection multiplier (Table A-1)

Current weather-adjusted utility costs are: Natural Gas- $63,892,577; Electricity $130,973,612; Coal - $8,080,397; Oil - $925,435; Steam - $0; total = $203,872,021. A complete discussion of the procedure used is given in the following text.

➢ **Table A-4**

This table presents the expenditures on energy by the State for the Fiscal Year as reported in the respective Comptroller's Data Warehouse records. The same description and preparation methods as were used in Table 1 apply.

**Table A-4**

# State of Illinois FY11 Building Energy Cost ($)[1]

| Agency [2] | Natural Gas | Electricity | Coal | Fuel Oil | Purchased Steam | Total Building Energy Cost [3] | % of Total Building Energy Cost |
|---|---|---|---|---|---|---|---|
| Universities [4] | 44,243,539 | 44,195,491 | 6,622,358 | 51,811 | 0 | 95,113,200 | 44.7 |
| Corrections | 9,726,834 | 20,781,386 | 594,813 | 65,693 | *** | 31,168,725 | 14.6 |
| Human Services | 5,136,372 | 8,035,906 | 2,127,798 | 17,888 | *** | 15,317,964 | 7.2 |
| Central Management Services [5] | 3,214,954 | 20,469,998 | *** | 24,198 | *** | 23,709,150 | 11.1 |
| Transportation | 1,044,417 | 9,972,351 | *** | 204,884 | *** | 11,221,652 | 5.3 |
| Secretary of State | 1,310,652 | 9,546,572 | 389,333 | 9,035 | *** | 11,255,592 | 5.3 |
| Illinois Tollway | 880,188 | 3,974,499 | *** | 3,928 | *** | 4,858,614 | 2.3 |
| Natural Resources | 209,126 | 2,709,892 | *** | 500,383 | *** | 3,419,401 | 1.6 |
| Military Affairs | 1,392,749 | 2,625,457 | *** | 171,713 | *** | 4,189,919 | 2.0 |
| State Police | 306,757 | 1,324,252 | *** | 23,758 | *** | 1,654,767 | 0.8 |
| All Others [6] | 2,513,975 | 7,780,411 | 540,273 | 33,246 | *** | 10,867,905 | 5.1 |
| **Total** | **$69,979,564** | **$131,416,213** | **$10,274,576** | **$1,106,537** | **$0** | **$212,776,889** | **100.0** |

[1] Based on FY11 Comptroller's Data Warehouse records. Natural Gas numbers based on account 1251; Electricity - 1252; Coal - 1341; and Fuel Oil - 1342.

[2] The agencies in this category expended approximately 1 percent or more of the State's total building energy costs.

[3] Gasoline not included.

[4] Based on FY11 data from Board of Higher Education.

[5] CMS expenditures and energy use contain data from multiple agencies.

[6] All remaining state agencies.

➢ **Table A-5**

This table shows the amounts of energy consumed, in millions of Btus, by the State, for the Fiscal Year, respectively. The same description and preparation methods as were used in generating Table 2 apply.

**Table A-5**

## State of Illinois FY11 Building Energy Consumption ($10^6$ Btu)

| Agency [1] | Natural Gas | Electricity | Coal | Fuel Oil | Purchased Steam | Total Building Consumption | % of Total Building Consumption |
|---|---|---|---|---|---|---|---|
| Universities [2] | 6,160,616 | 1,953,043 | 1,847,984 | 2,780 | *** | 9,964,423 | 53.3 |
| Corrections [3] | 1,664,366 | 724,706 | 333,883 | 4,882 | *** | 2,727,837 | 14.6 |
| Human Services | 603,774 | 280,235 | 1,194,386 | 1,329 | *** | 2,079,724 | 11.1 |
| Central Management Services [4] | 377,914 | 713,847 | *** | 1,798 | *** | 1,093,559 | 5.9 |
| Transportation | 122,770 | 347,764 | *** | 15,226 | *** | 485,760 | 2.6 |
| Secretary of State | 154,065 | 332,916 | 218,543 | 671 | *** | 706,195 | 3.8 |
| Illinois Tollway | 103,465 | 138,602 | *** | 292 | *** | 242,359 | 1.3 |
| Natural Resources | 24,583 | 94,502 | *** | 37,187 | *** | 156,272 | 0.8 |
| Military Affairs | 163,716 | 91,557 | *** | 12,761 | *** | 268,034 | 1.4 |
| State Police | 36,059 | 46,180 | *** | 1,766 | *** | 84,005 | 0.4 |
| All Others | 295,514 | 271,325 | 303,269 | 2,471 | *** | 872,579 | 4.7 |
| **Total** | **9,706,842** | **4,994,677** | **3,898,065** | **81,163** | **0** | **18,680,747** | **100.0** |

[1] Energy consumption for all agencies, except Universities and Corrections, is based on adjusted average Human Services FY11 unit energy costs as follows:

**Human Services unit costs**

| | | | |
|---|---|---|---|
| Natural Gas | $0.851/therm | or | $8.51/$10^6$ Btu (1 therm = 100,000 Btu) |
| Electricity | $0.0979/kwh | or | $28.676/$10^6$ Btu (1 kwh = 3,413 Btu) |
| Coal | $38.257/ton | or | $1.781/$10^6$ Btu (1 lb. = 11,018 Btu) |
| Oil (#2) | $96.82/gal | or | $13.46/$10^6$ Btu (1 gal = 138,974 Btu) |

[2] University unit costs:

**Universities Unit costs**

| | | | |
|---|---|---|---|
| Natural Gas | $0.718/therm | or | $7.1/$10^6$ Btu (1 therm = 100,000 Btu) |
| Electricity | $0.0772/kwh | or | $22.63/$10^6$ Btu (1 kwh = 3,413 Btu) |
| Coal | $78.97/ton | or | $3.58/$10^6$ Btu (1 lb. = 11,190 Btu) |
| Oil & Propane | $18.58/mmBtu | or | $93.43/$10^6$ Btu (1 gal = 136,049 Btu) |
| Steam | No steam purchase was reported (1 lb. steam = 1,000 Btu) | | |

[3] Corrections Natural Gas $0.5703/therm or $5.703/$10^6$ Btu (1 therm = 100,000 Btu)

[4] CMS expenditures and energy use contain data from multiple agencies.

➢ **Table A-6**

This table presents the expenditures on energy by the State for the Fiscal Year as reported in the respective Comptroller's Data Warehouse records. The same description and preparation methods as were used in Table 1 apply.

**Table A-6**

# State of Illinois FY10 Building Energy Cost ($)[1]

| Agency [2] | Natural Gas | Electricity | Coal | Fuel Oil | Purchased Steam | Total Building Energy Cost [3] | % of Total Building Energy Cost |
|---|---|---|---|---|---|---|---|
| Universities [4] | 46,421,793 | 44,245,270 | 6,784,481 | 78,641 | 0 | 97,530,186 | 44.3 |
| Corrections | 9,875,441 | 22,887,334 | 687,814 | 133,165 | *** | 33,583,755 | 15.3 |
| Human Services | 5,498,466 | 8,954,774 | 2,460,991 | 30,352 | *** | 16,944,582 | 7.7 |
| Central Management Services[5] | 3,303,660 | 22,007,188 | *** | 11,100 | *** | 25,321,949 | 11.5 |
| Transportation | 1,065,307 | 10,393,570 | *** | 191,111 | *** | 11,649,988 | 5.3 |
| Secretary of State | 1,238,653 | 9,216,277 | 367,073 | 10,802 | *** | 10,832,805 | 4.9 |
| Illinois Tollway | 1,159,257 | 3,564,668 | *** | 8,837 | *** | 4,732,762 | 2.2 |
| Natural Resources | 229,875 | 2,840,526 | *** | 496,701 | *** | 3,567,102 | 1.6 |
| Military Affairs | 1,338,840 | 2,519,954 | *** | 164,052 | *** | 4,022,847 | 1.8 |
| State Police | 253,411 | 1,302,923 | *** | 26,402 | *** | 1,582,736 | 0.7 |
| All Others [6] | 2,205,178 | 7,154,532 | 837,221 | 46,395 | *** | 10,243,326 | 4.7 |
| **Total** | **$72,589,882** | **$135,087,016** | **$11,137,581** | **$1,197,559** | **$0** | **$220,012,038** | **100.0** |

[1] Based on FY10 Comptroller's Data Warehouse records. Natural Gas numbers based on account 1251; Electricity - 1252; Coal - 1341; and Fuel Oil - 1342.

[2] The agencies in this category expended approximately 1 percent or more of the State's total building energy costs.

[3] Gasoline not included.

[4] Based on FY10 data from Board of Higher Education.

[5] CMS expenditures and energy use contain data from multiple agencies.

[6] All remaining state agencies.

➢ **Table A-7**

This table shows the amounts of energy consumed, in millions of Btus, by the State, for the Fiscal Year, respectively. The same description and preparation methods as were used in generating Table 2 apply.

**Table A-7**

## State of Illinois FY10 Building Energy Consumption ($10^6$ Btu)

| Agency [1] | Natural Gas | Electricity | Coal | Fuel Oil | Purchased Steam | Total Building Consumption | % of Total Building Consumption |
|---|---|---|---|---|---|---|---|
| Universities [2] | 6,119,345 | 2,001,248 | 1,938,738 | 6,304 | *** | 10,065,635 | 51.5 |
| Corrections [3] | 1,731,689 | 812,744 | 390,990 | 10,081 | *** | 2,945,504 | 15.1 |
| Human Services | 662,362 | 317,990 | 1,398,956 | 2,298 | *** | 2,381,606 | 12.2 |
| Central Management Services [4] | 397,969 | 781,490 | *** | 840 | *** | 1,180,299 | 6.0 |
| Transportation | 128,330 | 369,082 | *** | 14,467 | *** | 511,879 | 2.6 |
| Secretary of State | 149,212 | 327,276 | 208,663 | 818 | *** | 685,969 | 3.5 |
| Illinois Tollway | 139,648 | 126,584 | *** | 669 | *** | 266,901 | 1.4 |
| Natural Resources | 27,691 | 100,869 | *** | 37,600 | *** | 166,160 | 0.9 |
| Military Affairs | 161,281 | 89,485 | *** | 12,419 | *** | 263,185 | 1.3 |
| State Police | 30,527 | 46,268 | *** | 2,201 | *** | 78,996 | 0.4 |
| All Others | 265,642 | 254,062 | 475,920 | 3,512 | *** | 999,136 | 5.1 |
| **Total** | **9,813,696** | **5,227,098** | **4,413,267** | **91,209** | **0** | **19,545,270** | **100.0** |

[1] Energy consumption for all agencies, except Universities and Corrections, is based on adjusted average Human Services FY09 unit energy costs as follows:

**Human Services unit costs**

Natural Gas $0.830/therm or $8.30/$10^6$ Btu (1 therm = 100,000 Btu)
Electricity $0.0961/kwh or $28.161/$10^6$ Btu (1 kwh = 3,413 Btu)
Coal $38.765/ton or $1.759/$10^6$ Btu (1 lb. = 11,018 Btu)
Oil (#2) $1.85/gal or $13.21/$10^6$ Btu (1 gal = 138,974 Btu)

[2] University unit costs:

**Universities Unit costs**

Natural Gas $0.759/therm or $7.59/$10^6$ Btu (1 therm = 100,000 Btu)
Electricity $0.0755/kwh or $22.11/$10^6$ Btu (1 kwh = 3,413 Btu)
Coal $66.33/ton or $2.96/$10^6$ Btu (1 lb. = 11,190 Btu)
Oil & Propane $12.71/gal or $93.43/$10^6$ Btu (1 gal = 136,049 Btu)
Steam No steam purchase was reported (1 lb. steam = 1,000 Btu)

[3] Corrections Natural Gas $0.5703/therm or $5.703/$10^6$ Btu (1 therm = 100,000 Btu)

[4] CMS expenditures and energy use contain data from multiple agencies.

➢ **Table A-8**

This table presents the expenditures on energy by the State for the Fiscal Year as reported in the respective Comptroller's Data Warehouse records. The same description and preparation methods as were used in Table 1 apply.

**Table A-8**

# State of Illinois FY09 Building Energy Cost ($)[1]

| Agency [2] | Natural Gas | Electricity | Coal | Fuel Oil | Purchased Steam | Total Building Energy Cost [3] | % of Total Building Energy Cost |
|---|---|---|---|---|---|---|---|
| Universities [4] | 58,862,904 | 47,888,719 | 7,582,481 | 174,547 | 0 | 114,508,650 | 46.3 |
| Corrections | 13,808,128 | 23,287,134 | 583,674 | 154,152 | *** | 37,833,088 | 15.3 |
| Human Services | 7,564,076 | 9,185,494 | 2,091,737 | 5,322 | *** | 18,846,629 | 7.6 |
| Central Management Services[5] | 4,375,232 | 21,832,530 | *** | 13,715 | *** | 26,221,477 | 10.6 |
| Transportation | 1,349,342 | 10,355,494 | *** | 172,554 | *** | 11,877,390 | 4.8 |
| Secretary of State | 272,412 | 9,201,868 | 1,072,251 | 6,139 | *** | 10,552,670 | 4.3 |
| Illinois Tollway | 858,624 | 4,229,720 | *** | 8,440 | *** | 5,096,784 | 2.1 |
| Natural Resources | 282,194 | 2,711,235 | *** | 413,587 | *** | 3,407,016 | 1.4 |
| Military Affairs | 1,886,013 | 2,444,870 | *** | 102,014 | *** | 4,432,897 | 1.8 |
| State Police | 327,852 | 1,431,525 | *** | 29,072 | *** | 1,788,449 | 0.7 |
| All Others [6] | 3,645,007 | 8,429,855 | 502,191 | 18,877 | *** | 12,595,930 | 5.1 |
| **Total** | **$93,231,785** | **$140,998,444** | **$11,832,334** | **$1,098,418** | **$0** | **$247,160,981** | **100.0** |

[1] Based on FY09 Comptroller's Data Warehouse records. Natural Gas numbers based on account 1251; Electricity - 1252; Coal - 1341; and Fuel Oil - 1342.

[2] The agencies in this category expended approximately 1 percent or more of the State's total building energy costs.

[3] Gasoline not included.

[4] Based on FY09 data from Board of Higher Education.

[5] CMS expenditures and energy use contain data from multiple agencies.

[6] All remaining state agencies.

➢ **Table A-9**

This table shows the amounts of energy consumed, in millions of Btus, by the State, for the Fiscal Year, respectively. The same description and preparation methods as were used in generating Table 2 apply.

**Table A-9**

## State of Illinois FY09 Building Energy Consumption ($10^6$ Btu)

| Agency [1] | Natural Gas | Electricity | Coal | Fuel Oil | Purchased Steam | Total Building Consumption | % of Total Building Consumption |
|---|---|---|---|---|---|---|---|
| Universities [2] | 6,217,336 | 2,014,369 | 2,054,616 | 13,795 | *** | 10,300,116 | 50.0 |
| Corrections [3] | 1,673,712 | 959,424 | 326,075 | 11,669 | *** | 2,970,880 | 14.4 |
| Human Services | 913,536 | 378,440 | 1,168,568 | 403 | *** | 2,460,947 | 11.9 |
| Central Management Services [4] | 528,410 | 899,494 | *** | 1,038 | *** | 1,428,942 | 6.9 |
| Transportation | 162,964 | 426,644 | *** | 16,607 | *** | 606,215 | 2.9 |
| Secretary of State | 29,543 | 244,386 | 599,023 | 13,062 | *** | 886,014 | 4.3 |
| Illinois Tollway | 103,699 | 174,263 | *** | 639 | *** | 278,601 | 1.4 |
| Natural Resources | 34,081 | 111,702 | *** | 31,309 | *** | 177,092 | 0.9 |
| Military Affairs | 227,779 | 100,728 | *** | 7,722 | *** | 336,229 | 1.6 |
| State Police | 39,596 | 58,978 | *** | 2,201 | *** | 100,775 | 0.5 |
| All Others | 440,218 | 347,308 | 280,553 | 1,429 | *** | 1,069,508 | 5.2 |
| **Total** | **10,370,874** | **5,715,736** | **4,428,835** | **99,874** | **0** | **20,615,319** | **100.0** |

[1] Energy consumption for all agencies, except Universities and Corrections, is based on adjusted average Human Services FY09 unit energy costs as follows:

**Human Services unit costs**

Natural Gas $0.828/therm or $8.28/$10^6$ Btu (1 therm = 100,000 Btu)
Electricity $0.0828/kwh or $24.270/$10^6$ Btu (1 kwh = 3,413 Btu)
Coal $39.440/ton or $1.790/$10^6$ Btu (1 lb. = 11,018 Btu)
Oil (#2) $1.83/gal or $13.21/$10^6$ Btu (1 gal = 138,974 Btu)

[2] University unit costs:

**Universities Unit costs**

Natural Gas $0.947/therm or $9.47/$10^6$ Btu (1 therm = 100,000 Btu)
Electricity $0.0782/kwh or $22.90/$10^6$ Btu (1 kwh = 3,413 Btu)
Coal $66.33/ton or $2.96/$10^6$ Btu (1 lb. = 11,190 Btu)
Oil & Propane $12.71/gal or $93.43/$10^6$ Btu (1 gal = 136,049 Btu)
Steam No steam purchase was reported (1 lb. steam = 1,000 Btu)

[3] Corrections Natural Gas $0.825/therm or $8.250/$10^6$ Btu (1 therm = 100,000 Btu)

[4] CMS expenditures and energy use contain data from multiple agencies.

➢ **Table A-10**

This table presents the expenditures on energy by the State for the Fiscal Year as reported in the respective Comptroller's Data Warehouse records. The same description and preparation methods as were used in Table 1 apply.

**Table A-10**

# State of Illinois FY08 Building Energy Cost ($)[1]

| Agency [2] | Natural Gas | Electricity | Coal | Fuel Oil | Purchased Steam | Total Building Energy Cost [3] | % of Total Building Energy Cost |
|---|---|---|---|---|---|---|---|
| Universities [4] | 62,046,333 | 46,136,004 | 6,091,084 | 175,348 | 0 | 114,448,769 | 52.7 |
| Corrections | 11,118,578 | 15,618,362 | 498,841 | 209,618 | *** | 27,445,398 | 12.6 |
| Human Services | 4,578,971 | 6,900,614 | 1,524,569 | 10,182 | *** | 13,014,336 | 6.0 |
| Central Management Services[5] | 4,116,083 | 16,808,790 | *** | 11,903 | *** | 20,936,776 | 9.6 |
| Transportation | 1,489,826 | 9,690,808 | *** | 219,378 | *** | 11,400,012 | 5.2 |
| Secretary of State | 244,616 | 5,931,740 | 535,505 | 5,335 | *** | 6,717,196 | 3.1 |
| Illinois Tollway | 901,573 | 3,459,002 | *** | 5,253 | *** | 4,365,828 | 2.0 |
| Natural Resources | 317,388 | 2,387,086 | *** | 646,967 | *** | 3,351,441 | 1.5 |
| Military Affairs | 1,867,486 | 1,895,545 | *** | 199,809 | *** | 3,962,840 | 1.8 |
| State Police | 353,730 | 1,096,591 | *** | 31,699 | *** | 1,482,020 | 0.7 |
| All Others [6] | 2,963,665 | 6,665,625 | 371,189 | 44,992 | *** | 10,045,471 | 4.6 |
| **Total** | **$89,998,248** | **$116,590,167** | **$9,021,188** | **$1,560,483** | **$0** | **$217,170,086** | **100.0** |

[1] Based on FY08 Comptroller's Data Warehouse records. Natural Gas numbers based on account 1251; Electricity - 1252; Coal - 1341; and Fuel Oil - 1342.

[2] The agencies in this category expended approximately 1 percent or more of the State's total building energy costs.

[3] Gasoline not included.

[4] Based on FY08 data from Board of Higher Education.

[5] CMS expenditures and energy use contain data from multiple agencies.

[6] All remaining state agencies.

➢ **Table A-11**

This table shows the amounts of energy consumed, in millions of Btus, by the State, for the Fiscal Year, respectively. The same description and preparation methods as were used in generating Table 2 apply.

**Table A-11**

## State of Illinois FY08 Building Energy Consumption ($10^6$ Btu)

| Agency [1] | Natural Gas | Electricity | Coal | Fuel Oil | Purchased Steam | Total Building Consumption | % of Total Building Consumption |
|---|---|---|---|---|---|---|---|
| **Universities** [2] | 7,064,413 | 2,108,942 | 2,615,438 | 7,840 | *** | 11,796,633 | 56.6 |
| **Corrections** [3] | 1,908,441 | 732,294 | 257,134 | 15,868 | *** | 2,913,737 | 14.0 |
| **Human Services** | 605,684 | 323,547 | 785,860 | 771 | *** | 1,715,862 | 8.2 |
| **Central Management Services** [4] | 544,455 | 788,109 | *** | 901 | *** | 1,333,465 | 6.4 |
| **Transportation** | 197,067 | 454,370 | *** | 16,607 | *** | 668,044 | 3.2 |
| **Secretary of State** | 32,357 | 278,120 | 276,034 | 404 | *** | 586,915 | 2.8 |
| **Illinois Tollway** | 119,256 | 162,181 | *** | 398 | *** | 281,835 | 1.4 |
| **Natural Resources** | 41,983 | 111,923 | *** | 48,976 | *** | 202,882 | 1.0 |
| **Military Affairs** | 247,022 | 88,876 | *** | 15,126 | *** | 351,024 | 1.7 |
| **State Police** | 46,790 | 51,416 | *** | 2,400 | *** | 100,606 | 0.5 |
| **All Others** | 392,019 | 312,529 | 191,334 | 3,406 | *** | 899,288 | 4.3 |
| **Total** | **11,199,487** | **5,412,307** | **4,125,800** | **112,697** | **0** | **20,850,291** | **100.0** |

[1] Energy consumption for all agencies, except Universities and Corrections, is based on adjusted average Human Services FY08 unit energy costs as follows:

| | | | |
|---|---|---|---|
| Natural Gas | $0.756/therm | or | $7.56/$10^6$ Btu (1 therm = 100,000 Btu) |
| Electricity | $0.0728/kwh | or | $21.330/$10^6$ Btu (1 kwh = 3,413 Btu) |
| Coal | $42.750/ton | or | $1.940/$10^6$ Btu (1 lb. = 11,018 Btu) |
| Oil (#2) | $1.83/gal | or | $13.21/$10^6$ Btu (1 gal = 138,974 Btu) |

[2] University unit costs:

| | | | |
|---|---|---|---|
| Natural Gas | $0.878/therm | or | $8.78/$10^6$ Btu (1 therm = 100,000 Btu) |
| Electricity | $0.0747/kwh | or | $21.88/$10^6$ Btu (1 kwh = 3,413 Btu) |
| Coal | $51.79/ton | or | $2.33/$10^6$ Btu (1 lb. = 11,190 Btu) |
| Oil & Propane | $2.73/gal | or | $22.37/$10^6$ Btu (1 gal = 136,049 Btu) |
| Steam | No steam purchase was reported (1 lb. steam = 1,000 Btu) | | |

[3] Corrections Natural Gas $0.583/therm or $5.830/$10^6$ Btu (1 therm = 100,000 Btu)

[4] CMS expenditures and energy use contain data from multiple agencies.