

Average Annual Energy Savings for SmartStat Users

The SmartStat Energy Modeling team spent 18 months creating a model capable of predicting energy consumption based upon data supplied by the SmartStat Thermostat, our weather service and our customers. We took into account elements such as the size of home, number of occupants, type of HVAC system, solar radiation, weather and geographical coordinates. We then selected a sample of smartstat user's homes and used the data to compare to the same residential locations running a 72 degree hold on their thermostat. This analysis delivered a result of 24% savings on their heating and 21% savings on their cooling per average SmartStat user in the test group.

To calculate the smartstat annual energy savings in a dollar value, we took into account the U.S. average annual energy expenditure per single family (owned) home of \$2,372.00. We then multiplied the average of U.S. annual HVAC energy usage of 54% against the \$2,372.00. This returned the result of \$1,281.00 for the annual cost of HVAC versus whole home energy use.

The next step was to take into account that the average North American home is 2,551 square feet, while the average smartstat user's home is 4,802 square feet, resulting in a 188.2 % difference. We took the overall home energy cost for HVAC of \$1,281.00 and multiplied it by the sq ft differential of 188.2%. This delivered the average annual smartstat home owners energy costs of \$2,410.84.

To determine the average annual energy savings for an smartstat user in a dollar amount, we took the average heating and cooling energy savings of 22.5% and multiplied it by the \$2,410.84 energy costs, thereby delivering the result that the average smartstat user saves \$542.44 on their energy costs on an annual basis.

1 Energy Information Administration, Office of Energy Consumption and Efficiency Statistics, Forms EIA-457 A and C-G of the 2009 Residential Energy Consumption Survey, Table CE1.1 Summary of Household Consumption and Expenditures in the U.S – Totals and Intensities, 2009, British Thermal Units (BTU) and Dollars, Preliminary.

1 US Department of Energy, 2011 Buildings Energy Data Book, Prepared for the Buildings Technologies Program, Energy Efficiency and Renewable Energy. Chapter 2, Section 2.1, 'Residential Site Energy Consumption by End Use'
<http://buildingsdatabook.eren.doe.gov/ChapterIntro2.aspx>

1 EIA (Energy Information Administration), Office of Energy Consumption and Efficiency Statistics, Forms EIA-457 A and C-G of the 2009 Residential Energy Consumption Survey.
[(2372 \$/household) ÷ (0.93 \$/sq foot) = 2551 sq ft/household]
1 ecobee Smart thermostat user registration data