



Central AC Retrofit – Residential Building

The DOE Buildings Performance Database is a decision-support platform comprised of a database and data analysis tools that enables engineering and financial practitioners to evaluate energy efficiency products and services in commercial and residential buildings.

The scenarios described below highlight the Database's ability to evaluate residential energy efficiency projects. They are based on the residential building data currently contained in the database and will demonstrate the capabilities of the energy performance and financial forecasting tools. As additional building performance data is added to the Database, additional scenarios will be developed to assist users in making informed investment decisions in energy efficiency projects.

Residential Cooling Efficiency Retrofit

Select the following input parameters to generate an energy usage forecast and financial forecast analysis on a residential cooling efficiency retrofit.

Classification Screen Selection

Energy Usage Forecast

Financial Risk Management Analysis

Location Screen Selection

Zone: 2A (27786)

Building Information Selection

Square Footage

Residence Type	Single Family
Square Footage (Sq. Ft.)	Min. 1,200 Max 1,500
Cooling Fuel Type	Electric
Cooling System Type	Residential Central A/C

Retrofits Page Selection

Cooling Efficiency

Retrofit Type	Cooling Efficiency
Pre-Retrofit Characteristics	Min. 9.9 Max. 10.1
Post-Retrofit Characteristics	Min. 11.9 Max. 12.1

Financial Information Page Selection

Investment Amount (USD)	1000*
Investment Date	February 2012
Time Horizon (# of Years)	15
Construction Duration (Mos.)	1
Discount Rate (%)	5

Energy Price Page Selection

Electricity Pricing Model	EIA Price Prediction
Electricity Pricing Region	South Atlantic
Gas Pricing Model	EIA Price Prediction
Gas Pricing Region	South Atlantic

* This represents incremental cost for the retrofit, i.e., from a SEER of 10 to a SEER of 12.

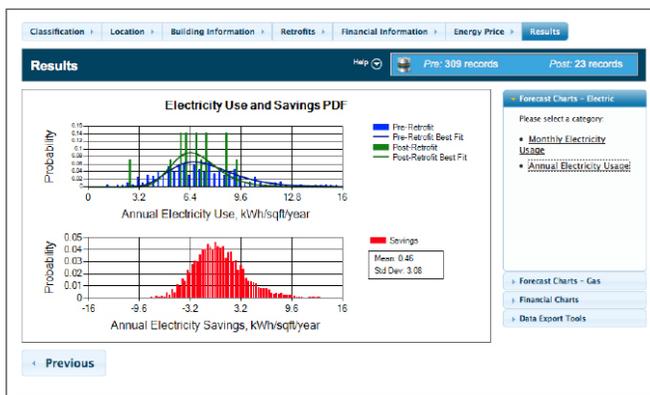
Results

After selecting the designated inputs, the Results tab displays a series of helpful charts based on your search parameters and building specifications. Here we examine Annual Electricity Usage and Rate of Return Distribution results.

Energy Savings—Annual Electric Usage

The chart below represent the annual electricity savings for the cooling efficiency retrofit. The top chart shows the probability distribution of the energy consumption for the pre-retrofit consumption (blue line) and post-retrofit consumption (green line). The bottom chart shows the net savings—a convolution of the pre- and post-consumption graphs. If there were more data points in the Database that comprise this retrofit scenario the graphs would be smoother.

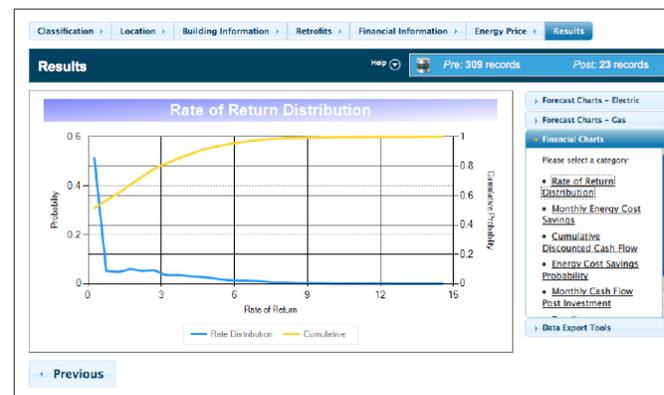
Energy Savings—Annual Electric Usage



Rate of Return Distribution

The Rate of Return chart shows the distribution of the return from this retrofit based on the investment parameters and energy savings distribution. The blue line shows the probability that each rate of return will be achieved, while the yellow line is a cumulative return graph.

Rate of Return Distribution



For more information visit: <http://www.commercialbuildings.energy.gov/bpd.html>