

## Residential Energy Efficiency

### CT Residential Building

**Table 1. Fuel Properties**

<b>Fuel</b>	<b>On Site Conversion</b>	<b>Cost</b>	<b>CO2 Emission</b>
Electricity	3413 Btu/kWh	\$0.20/kWh	0.70 lb/kWh
Heating Oil	0.139 MBtu/gal	\$2.50/gal	22 lb/gal

**Table 2. Standard CT Residential Household Annual Energy Use**

<b>End Use</b>	<b>Fuel</b>	<b>Consumption</b>	<b>Cost(\$)</b>
Space Heating	Heating Oil	719 gallons	\$1,800
Water Heating	Electricity	7325 kWh	\$1,465
Air Conditioning	Electricity	586 kWh	\$117
Refrigeration	Electricity	1172 kWh	\$234
Lighting	Electricity	1172 kWh	\$234
Other Appliances	Electricity	3413 kWh	\$683
Total			\$4,533

### Inexpensive Energy Reduction

In order to reduce energy costs, the owner of the *standard* residence makes the following changes.

1. **Building Envelope.** Adds insulation to ceiling, reduces infiltration, adds digital thermostat, sets thermostat lower, and replaces some windows. Cost is \$2000. Reduces space heating and air-conditioning energy consumption by 40%.
2. **Lighting.** Switches to CFL and installs motion sensors for exterior lighting. Cost is \$100. Reduces annual lighting consumption by 500 kWh.
3. **Refrigeration and other Appliances.** Switches to Energy Star units as units are being replaced. Total additional cost for efficient models is \$200 and total annual energy reduction in these two areas is 500 kWh.
4. **Hot Water Consumption Reduction.** Adds low flow shower heads and adopts a hot water conservation strategy. Cost is \$33 and hot water use drops by 40%.

**Table 3. Upgraded CT Residential Household Annual Energy Use**

<b>End Use</b>	<b>Fuel</b>	<b>Consumption</b>	<b>Cost(\$)</b>
Space Heating	Heating Oil	431 gallons	\$1,080
Water Heating	Electricity	4395 kWh	\$879
Air Conditioning	Electricity	352 kWh	\$70
Refrigeration	Electricity	922 kWh	\$184
Lighting	Electricity	672 kWh	\$134
Other Appliances	Electricity	3163 kWh	\$633
Total			\$2,980

## Financial Incentives

### CT Incentive Programs

(<http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=CT&RE=1&EE=1>)

#### Sales Tax Exemption

[Sales and Use Tax Exemption for Energy-Efficient Products](#)

#### State Loan Program

[CHIF - Energy Conservation Loan](#)

#### State Rebate Program

[OPM - Replacement Furnace Rebate Program](#)

#### Utility Rebate Program

[Connecticut Light & Power - Summer Saver Rewards](#)

### Federal Incentive Programs

(<http://www.dsireusa.org/library/includes/genericfederal.cfm?CurrentPageID=1&state=us&ee=1&re=1>)

#### Personal Exemption

[Residential Energy Conservation Subsidy Exclusion \(Personal\)](#)

#### Personal Tax Credit

[Residential Energy Efficiency Tax Credit](#)

## Buying Green Power

([http://www.eere.energy.gov/greenpower/buying/buying\\_power.shtml?state=CT](http://www.eere.energy.gov/greenpower/buying/buying_power.shtml?state=CT))

(<http://www.ctcleanenergyoptions.com/options.htm>)

State-Specific Retail Green Power Product Offerings <sup>1</sup> (last verified November 2006)				
State	Company	Product Name	Resource Mix <sup>2</sup>	Certification
CT	<a href="#">CL&amp;P/United Illuminating/Community Energy (CT Clean Energy Options Program)</a>	<a href="#">NewWind Energy/Landfill Gas 50% or 100% of usage</a>	50% new wind, 50% landfill gas	—
CT	<a href="#">CL&amp;P/United Illuminating/Sterling Planet (CT Clean Energy Options Program)</a>	<a href="#">Sterling Select 50% or 100% of usage</a>	33% new wind, 33% small hydro, 34% landfill gas	—
CT	<a href="#">Levco (CL&amp;P and UI customers only)</a>	<a href="#">100% Renewable Electricity Program</a>	100% CT Class II qualifying renewables	—

**Source:** National Renewable Energy Laboratory

These options allow you to buy green power, but they cost money. For example, the 100% option using Sterling Planet cost \$0.0115 / kWh.