

SOLAR
PANELS

1.79 tCO₂e

HYBRID
CAR

3.65 tCO₂e

HANDS-
FREE
WOOD
PELLET
FURNACE

6.01 tCO₂e

Carbon Footprint Reduction of Common Green Energy Upgrades

SUPPORTING DATA:

tCO₂e: Tons of carbon dioxide equivalent, which is a measure that allows you to compare the emissions of other greenhouse gases relative to one unit of CO₂. It is calculated by multiplying the greenhouse gas's emissions by its 100-year global warming potential.

INSTALL PV SOLAR ARRAY TO REDUCE USE OF GRID POWER - **1.79 tCO₂e Annual Reduction**

(1.99 tCO₂e without solar to 0.198 tCO₂e with solar =
1.79 tCO₂e reduction)

Assumption:

- Average VT home uses 6,822.54 kWh^[4]

BUY A PRIUS TO REPLACE AN AVERAGE VERMONT VEHICLE - **3.65 tCO₂e Annual Reduction**

(5.74 tCO₂e average Vermont vehicle - 2.09 tCO₂e with Prius =
3.65 tCO₂e reduction)

Assumptions:

- Combined Prius MPG: 50^[1]
- Average LDV MPG 18.2^[2]
- Average VMT ~12,000^[3]

SWITCH FROM #2 HEATING OIL BOILER TO PELLETT BOILER = **6.01 tCO₂e Annual Reduction**

(7.18 tCO₂e with heating oil - 1.169 tCO₂e with pellets =
6.01 tCO₂e reduction)

Assumptions:

- Average VT home used 700 gallons heating oil^[5]
- 84.2% system efficiency for oil boiler
- 82% system efficiency for pellet boiler
- 16 MMBtu/short ton pellets
- Pellets required to offset oil consumption and meet existing
load: 5.85 tons
- Biomass Energy Resource Center emissions factor for pellets^[6]



sustainableheating.org

[1] <http://fueleconomy.gov>

[2] http://vtransplanning.vermont.gov/sites/aot_policy/files/VTEPAugust%2028%202013%20FINAL.pdf

[3] The Vermont Transportation Energy Profile. 2015 October. VT Agency of Transportation Highway Research Division. <http://vtrans.vermont.gov/sites/aot/files/planning/documents/planning/Vermont%20Transportation%20Energy%20Profile%202015.pdf>

[4] <https://www.eia.gov/tools/faqs/faq.cfm?id=97&t=3> (average residential electricity consumption)

[5] <http://www.eia.gov/consumption/residential/data/2009/index.cfm?view=consumption#end-use-by-fuel> ; CE4.16 End-use expenditures by fuel, Averages, U.S. homes

[6] <http://www.biomasscenter.org/pdfs/veic-carbon-emission-and-modern-wood-heating-summary.pdf>