

Fuel Switching Request Calculations Worksheet

Iowa Weatherization Program

This form should be used in conjunction with the Fuel Switching Request form when requesting approval to switch heating unit fuel sources for efficiency reasons. Complete one calculation sheet per heating unit.

Client Name: _____ File Number: _____

Address: _____ City, State: _____

SECTION A

(complete fields for existing unit efficiency and proposed unit efficiency)

Fuel Source

Existing Proposed

Electric	_____	x 292 =	/ _____ =	_____
	<i>Fuel cost per kWh</i>		<i>Efficiency as a decimal</i>	<i>Cost per Million Btu's</i>
Natural Gas	_____	x 10 =	/ _____ =	_____
	<i>Fuel cost per therm</i>		<i>Efficiency as a decimal</i>	<i>Cost per Million Btu's</i>
Fuel Oil	_____	x 7.14 =	/ _____ =	_____
	<i>Fuel cost per gallon</i>		<i>Efficiency as a decimal</i>	<i>Cost per Million Btu's</i>
Propane	_____	x 11.1 =	/ _____ =	_____
	<i>Fuel cost per gallon</i>		<i>Efficiency as a decimal</i>	<i>Cost per Million Btu's</i>
Air-to-Air Heat Pump	_____	x 292 =	/ _____ =	_____
	<i>Fuel cost per kWh</i>		<i>Efficiency as a decimal</i>	<i>Cost per Million Btu's</i>

SECTION B

1. **MILLION** Btu's (MBtu's) used in the last 12 months* _____ (used 1,000 gallons fuel oil) (1 gal fuel oil = 135,000 Btu's)
 _____ (1,000 gallons x 135,000 Btu's = 135,000,000 Btu's or 135 MBtu)

(This information is obtained from the client utility usage report or bill AND converted into Million Mbtu's using the Btu Conversion Factors below)

(Make sure the conversion is to **MILLION** Btu's)

(* NOTE: If this is an **ALL-ELECTRIC** home, only indicate Btu's used from the October through May)

2. Fuel Cost (existing system) x **MILLION** MBtu's _____ (fuel oil cost per MBtu = \$27.46) (\$27.46 x 135 = \$3,707.10)

Existing system fuel cost per Million Btu's (from Section A above) x Million Mbtu's used last winter (from Section B Line 1)

3. Fuel Cost (proposed system) x **MILLION** MBtu's _____ (natural gas cost per MBtu = \$9.68) (\$9.68 x 135 = \$1,306.80)

Proposed system fuel cost per Million Btu's (from Section A above) x Million Mbtu's used last winter (from Section B Line 1)

Savings: _____

_____ / _____ = _____ (If the payback is less than 15 years, it is cost effective to switch fuels)

*Total installation cost

Savings

Payback in years

*Includes cost of appliance, ductwork, etc.

Appliance Efficiency Key

Appliance	Efficiency Range	Efficiency as a Decimal
Electric	100%	1
Natural Gas or Propane	70% - 98%	.70 - .98
Oil	70% - 80%	.70 - .80
Air-to-Air Heat Pump	100% - 180%+	1.0 - 1.8+

Btu Conversion Factors

Electric	1 kWh	=	3,400 Btu's
Natural Gas	1 CCF	=	100,000 Btu's
Natural Gas	1 therm	=	100,000 Btu's
Propane	1 gallon	=	91,300 Btu's
Fuel Oil	1 gallon	=	135,000 Btu's