

# Your Home Energy Index

Roger A. Peterson  
Extension Specialist Residential Energy  
University of Minnesota  
Agricultural Extension Service

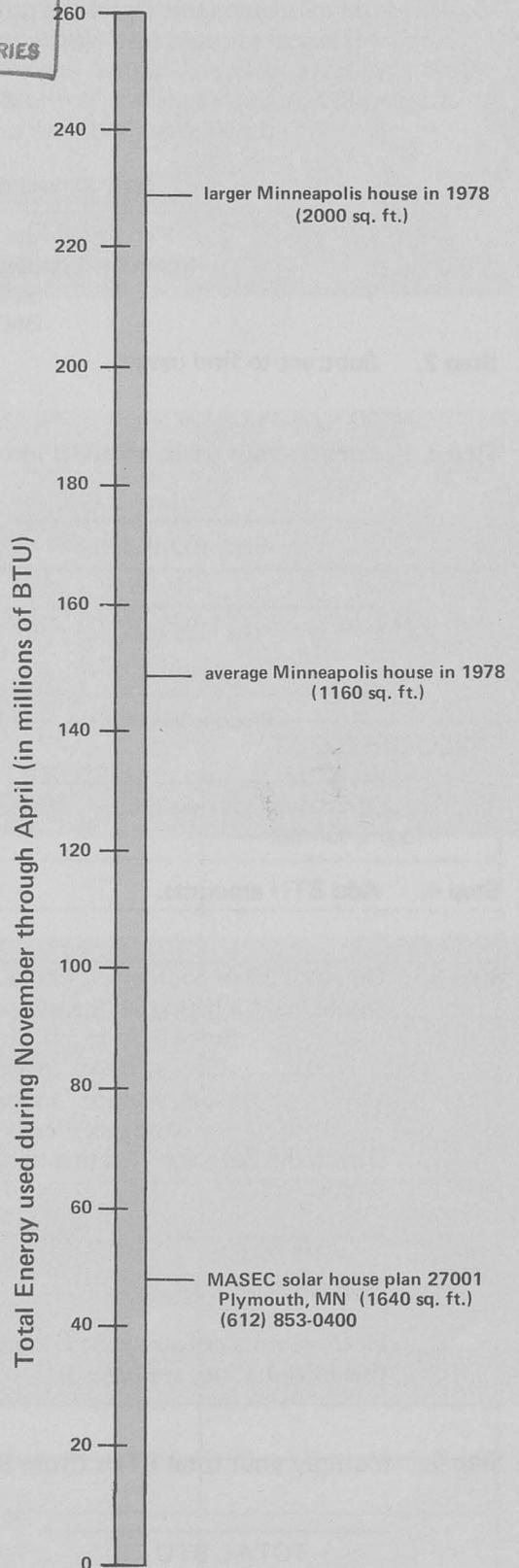
How much energy does it take to keep your house warm? Some houses take much more than others, just like some cars have poor gas mileage. The "home energy index" is a simplified method to measure the efficiency of your heating system, ability of your house to hold in heat, and your energy habits. If you are making home improvements such as insulation, weatherstrip, window covers, a new furnace, or a new water heater, the index will tell you how much energy you are saving compared to the season before improvement. The lower the index, the more you have improved.

## How To Find Your Index

The index is based on the amount of fuel and electricity used by your house during the six-month period from November 1 to April 30. All of the energy used during this period contributes to keeping your house warm or providing hot water. Page 2 of this folder show you step-by-step how to use your meter readings or fuel purchases to find the amount of energy you have used, and how to adjust for the coldness of the winter season.

## Meaning of the Index

The scale on the right is marked with several index examples. After you have calculated your index using the steps on page 2, mark your house on the scale and see how you compare. To see if you are making progress in your energy conservation efforts, mark your index each season. If you decide to sell your house, a low index will be a valuable sales feature. Energy-wise homebuyers will use the index to compare the efficiency of your house versus others. Save your fuel and electric bills to verify the figures you use in calculating your index, or ask your utility to send you a letter stating meter readings used for your index.



**Calculating Your Home Energy Index**  
(Season of 19\_\_ - 19\_\_)

**Step 1.** Read your electric and gas meter on November 1 and April 30. A few days late will not matter. If you use oil or propane, figure the gallons used during November through April only. Gas readings should be in "hundred cubic feet" (CCF or HCF). Call your electric or fuel company if you need help.

	<b>Electric</b>		<b>Natural Gas</b>
April 30 reading _____	KWH	_____	HCF
November 1 reading _____	KWH	_____	HCF

**Step 2.** Subtract to find usage \_\_\_\_\_ KWH \_\_\_\_\_ HCF

**Step 3.** Convert your usage amounts into BTU's.

_____	X	3,413 =	_____	BTU
Elec. used (KWH)				
_____	X	100,000 =	_____	BTU
Gas used (CCF)				
_____	X	92,000 =	_____	BTU
Propane used (gal)				
_____	X	140,000 =	_____	BTU
Oil used (gal)				

**Step 4.** Add BTU amounts. TOTAL = \_\_\_\_\_ BTU

**Step 5.** On April 30 or soon after, find a newspaper and turn to the weather section. Minneapolis papers, for example, have a listing of "heating units" as follows:

Since July 1:  
 This season: xxxx  
 Last season: xxxx  
 Average: xxxx

Divide the "average" heating units by "this season" heating units to find your "weather adjustment factor."

$$\frac{\text{AVERAGE HEATING UNITS}}{\text{THIS SEASON HEATING UNITS}} = \frac{\text{WEATHER ADJUSTMENT FACTOR}}{(19\_\_ - 19\_\_)}$$

Heating-units are also called "degree-days" in some newspapers. If your local newspaper does not print this information, see page 3.

**Step 6.** Multiply your total BTUs (from Step 4) by the weather adjustment factor (from Step 5):

$$\frac{\text{TOTAL BTU (from Step 4)}}{\text{WEATHER ADJUSTMENT FACTOR (from Step 5)}} = \text{YOUR ENERGY INDEX (round off to nearest million)}$$

## TIPS AND COMMENTS

- Step 1. Some utilities use "CCF" or "therm" to mean the same as HCF. For instructions on reading meters, see page 4. Do not count electric power used in farm buildings, yard lights, or engine heaters. Use past bills or call your utility if you wish to check your index of previous years.
- Step 5. If your newspaper does not print heating units or degree-days (same meaning), you may be able to obtain "average" and "this season" from a local weather station or electric coop. For general accuracy purposes, the adjustment factor for any location in Minnesota can be calculated using the daily Minneapolis newspaper. Season-to-season variation in coldness is relatively similar throughout Minnesota. For past years, the weather adjustment factors for Minnesota have been as follows:

<u>Season</u>	<u>Weather Adjustment Factor</u>
1976 - 77	1.009
1977 - 78	.943
1978 - 79	.928
1979 - 80	1.048

You may wish to use the form below to record your monthly use and costs. The record will be useful if you decide to sell your house. Save your bills to verify your record.

### ENERGY RECORD 19\_\_

	FUEL USED GAL-HCF	FUEL COST (incl. taxes, surcharges, service chgs.)	ELECTRIC USED KWH	ELECTRIC COST (incl. taxes, surcharges, service chgs.)
JANUARY				
FEBRUARY				
MARCH				
APRIL				
MAY				
JUNE				
JULY				
AUGUST				
SEPTEMBER				
OCTOBER				
NOVEMBER				
DECEMBER				
TOTAL				

## Using The Index To Compare Houses For Sale

If you wish to compare two houses in their "as is" condition, the method below can be used:

$$\frac{\text{INDEX OF HOUSE "A"}}{\text{INDEX OF HOUSE "B"}} = \frac{\text{DIFFERENCE BETWEEN "A" \& "B"}}{\text{INDEX OF HOUSE "A"}}$$

For either house "A" or "B", your index (wintertime energy use) may be higher or lower than the estimate. The following factors could make your energy use higher:

- If your family sets the thermostat higher than the previous owner, your energy use will be 2-3 percent higher for each degree (°F) that you increase the setting.
- If your family uses twice as much hot water as the previous owners, your energy use will be 5-30 percent higher than the estimate. Your summer energy use may be almost double.
- If your family opens doors more often, your use may be 5-10 percent higher than the estimate.
- If the previous family used plastic covers, shades, or insulating panels on windows, your consumption may be considerably higher than the estimate if you do not continue doing the same.
- If the previous family was on vacation for a week or more during the period for their index, your use may be higher.

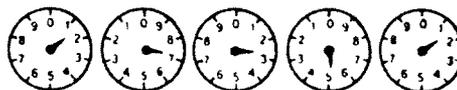
In summary, your consumption cannot be precisely predicted. You may use up to 50 percent more energy than the previous family, or you may use less, depending on your family energy habits. You may wish to ask each seller about their energy habits. The index is useful for comparing different houses if you have some knowledge of the habits of the former occupants.

## FUTURE ENERGY COSTS

Electricity rates in Minnesota are expected to rise approximately in step with inflation (about 10 percent per year) according to the Minnesota Energy Agency Forecasting Division. Natural gas, however, is expected to have price increases of 15-20 percent per year. Fuels such as oil and LP or propane gas are expected to have price increases at 12-15 percent per year. Call the Minnesota Energy Agency 296-5175 or toll-free 1-800-652-9028 for specific up-to-date forecasts.

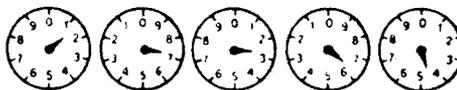
## HOW TO READ YOUR ELECTRIC METER

When reading a meter, always read the number the hand has just passed (the smaller number). For example:



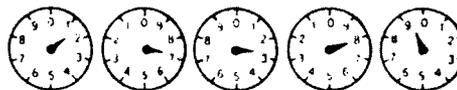
these dials read 17251.

Note that every other dial reads counterclockwise. Read the dials from left to right and write down the last number each hand has passed. When the hand is between two numbers, record the smaller one. Example:



this reading is 17264.

When a hand is over a number, check the hand to the right to see if it has passed 0. If not, the reading on the dial to the left is one less than the number the hand points to. For example:



this reading is 17279.

The energy used between these figures is:

$$\begin{array}{r} 17279 \\ -17264 \\ \hline 15 \text{ KWH} \end{array}$$