

**APPENDIX O. GLOSSARY OF VARIABLES AND THEIR VALUES
FROM EIA'S RECS 2001**

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**APPENDIX O. GLOSSARY OF VARIABLES AND THEIR VALUES
FROM THE ENERGY INFORMATION AGENCY’S RECS 2001**

O.1 RESIDENTIAL ENERGY CONSUMPTION SURVEY (RECS) 2001 VARIABLES USED IN LCC ANALYSIS

Using Microsoft ACCESS, the Department created a database containing a subset of the records and variables from DOE’s Energy Information Administration (EIA)’s RECS 2001.¹ The Department used this RECS subset in the life-cycle cost (LCC) analysis of the Residential Furnace and Boiler Rulemaking. This appendix explains the variable name abbreviations and provides definitions of the variable values. For the entire RECS 2001 dataset, refer to <http://www.eia.doe.gov/emeu/recs/recs2001/publicuse2001.html>.

The Department divided the RECS sample by product classes, using different classification algorithms based on fuel type, home type, (the presence of) central air conditioning, etc. (Table O.1.1). The variables can be categorized into five classifications: location, house characteristics, equipments characteristics, householder characteristics, and energy use.

Table O.1.1 RECS 2001 Variables Used in Life-Cycle Cost Analysis

Location	House Characteristics	Equipment Characteristics	Householder Characteristics	Energy Use
Census Region	Housing Type	Heating Equipment Type	YearX for Senior-Only Determination	Annual Heating Energy
Census Division	Year Made	Heating Equipment Age	Low Income	Annual Cooling Energy
Large State (NY, CA, TX, FL)	Square Foot	Heating Fuel	Renter	Gas Rate
Heating Degree Day 65	Weighting	Central Air Presence	Number of People in Household	Electricity Rate
Cooling Degree Day65		Central Air Age		Gallon of Fuel Oil
				Gallons of LPG
				Dollars of FO
				Dollars of LPG

O.2 RECS 2001 DATABASE

The glossary below lists the variable names alphabetically. A brief explanation of the variable name as it appears in the database file follows the name. Definitions of the variable's values follow below the name.

AGECENAC AGE OF CENTRAL A/C EQUIP

LESS THAN 2 YEARS OLD = 1
2 TO 4 YEARS OLD = 2
5 TO 9 YEARS OLD = 3
10 TO 19 YEARS OLD = 4
20 YEARS OR OLDER = 5
AS OLD AS THE HOME (IF VOLUNTEERED) = 6
DON'T KNOW = 96
NOT APPLICABLE = 99

BTUELCOL ELEC AIR COND USE EST IN THOUSANDS OF BTU 9999999 = NOT APPLICABLE

BTUFOSPH FO SPACE HEAT USE EST THOUSANDS OF BTU 9999999 = NOT APPLICABLE

BTULPSPH LPG SPACE HEAT USE EST IN KS OF BTU 9999999 = NOT APPLICABLE

BTUNGSPH NAT GAS SPACE HEAT USE EST THOUSANDS OF BTU 9999999 = NOT APPLICABLE

CDD65 COOLING DD TO BASE 65 1-97 TO 12-97

COOLING DEGREE DAYS ARE THE NUMBER OF DEGREES THE AVERAGE DAILY TEMPERATURE IS ABOVE THE BASE TEMPERATURE.
TO CALCULATE DEGREE DAYS:
AVERAGE DAILY TEMPERATURE (ADT) =
HIGH TEMPERATURE FOR DAY PLUS THE LOW DIVIDED BY 2.
COOLING DEGREE DAY (CDD) = ADT - BASE TEMPERATURE. IF HDD OR CDD = OR < 0, DEGREE DAY (DD) = 0.
CUMULATED DEGREE DAYS ARE IN WHOLE DAYS.

COOLTYPE TYPE OF AC EQUIP CENTRAL SYSTEM = 1 INDIVIDUAL UNITS = 2 BOTH CENTRAL AND UNITS = 3 DON'T KNOW = 6 REFUSED = 7 NO ANSWER = 8 NOT APPLICABLE = 9

DIVISION CENSUS DIVISION NEW ENGLAND = 1 MIDDLE ATLANTIC = 2 EAST NORTH CENTRAL = 3 WEST NORTH CENTRAL = 4 SOUTH ATLANTIC = 5 EAST SOUTH CENTRAL = 6 WEST SOUTH CENTRAL = 7 MOUNTAIN = 8 PACIFIC = 9

DOEID DOE 4-DIGIT IDENTIFICATION NUMBER

DOLLARFO ESTIMATED COST OF FO IN DOLLARS 99999 = NOT APPLICABLE

DOLLARLP ESTIMATED COST OF LPG IN DOLLARS 99999 = NOT APPLICABLE

ELECRATE LOCAL ELECTRIC RATE FOR 1000KWH AVERAGE RESIDENTIAL RATE, IN CENTS PER KILOWATT, OF ELECTRICITY COMPUTED FROM 1997 TYPICAL ELECTRIC BILL DATA. WHERE DATA WERE NOT AVAILABLE, A RATE WAS IMPUTED FROM KNOWN RATES IN AREAS NEAR THE HOUSEHOLD WITH MISSING INFORMATION. DATA INCLUDES AN ERROR TERM.

FIELD CONTAINS ONE IMPLIED DECIMAL PLACE.
999 = NOT APPLICABLE

EQUIPAGE AGE OF MAIN HEATING EQUIP

LESS THAN 2 YEARS OLD = 1
2 TO 4 YEARS OLD = 2
5 TO 9 YEARS OLD = 3
10 TO 19 YEARS OLD = 4
20 YEARS OR OLDER = 5
AS OLD AS THE HOME (IF VOLUNTEERED) = 6
DON'T KNOW = 96
NOT APPLICABLE = 99

EQUIPM MAIN HOME HEATING EQUIPMENT

STEAM = 2
CENTRAL WARM-AIR FURNACE WITH DUCTS = 3
HEAT PUMP = 4
BUILT-IN ELECTRIC UNITS IN THE WALLS, Etc. = 5
BUILT-IN FLOOR = 6
ROOM HEATER BURNING GAS, OIL, OR KEROSENE = 7
HEATING STOVE = 8
FIREPLACE = 9
PORTABLE ELECTRIC HEATERS = 10
PORTABLE KEROSENE HEATERS = 11
COOKING STOVE (USED TO HEAT HOME) = 12
EQUIPMENT NOT LISTED = 21
NOT APPLICABLE = 99

FUELHEAT MAIN HOME HEATING FUEL CON 3

NATURAL GAS FROM UNDERGROUND PIPES = 1
BOTTLED GAS (LPG OR PROPANE) = 2
FUEL OIL = 3
KEROSENE = 4
ELECTRICITY = 5
WOOD = 7
SOLAR = 8
DISTRICT STEAM = 9
SOME OTHER FUEL = 21
DON'T HEAT HOME = 00

GALLONFO EST GALLONS OF FUEL OIL BOUGHT 999999 = NOT APPLICABLE

GALLONLP EST GALLONS OF LPG BOUGHT OBS 6
999999 = NOT APPLICABLE

HDD65 HEATING DD TO BASE 65 1-97 TO 12-97

HEATING DEGREE DAYS ARE THE NUMBER OF DEGREES THE AVERAGE DAILY TEMPERATURE IS BELOW THE BASE TEMPERATURE.

TO CALCULATE DEGREE DAYS:

AVERAGE DAILY TEMPERATURE (ADT) = HIGH TEMPERATURE FOR DAY PLUS THE LOW DIVIDED BY 2.

**HEATING DEGREE DAY (HDD) = BASE TEMPERATURE (E.G. 65 DEGREES) - ADT
IF HDD = OR < 0, DEGREE DAY (DD) = 0.**

CUMULATED DEGREE DAYS ARE IN WHOLE DAYS.

LRG+DIV LARGE STATE AND CENSUS DIVISION DESIGNATIONS

NEW ENGLAND = 1

MIDDLE ATLANTIC LESS NY = 2

EAST NORTH CENTRAL = 3

WEST NORTH CENTRAL = 4

SOUTH ATLANTIC LESS FL = 5

EAST SOUTH CENTRAL = 6

WEST SOUTH CENTRAL LESS TX = 7

MOUNTAIN = 8

PACIFIC LESS CA = 9

NEW YORK STATE = 10

CALIFORNIA = 11

TEXAS = 12

FLORIDA = 13

LRGSTATE LARGE STATE DESIGNATION

NEW YORK STATE = 1

CALIFORNIA = 2

TEXAS = 3

FLORIDA = 4

NHSLDMEM NUMBER OF HOUSEHOLD MEMBERS

DON'T KNOW = 96

REFUSED = 97

NO ANSWER = 98

NOT APPLICABLE = 99

NWEIGHT THE FINAL WEIGHT

THE FINAL WEIGHT (REFLECTING THE PRODUCT OF THE PRE-SECOND STAGE WEIGHT AND THREE ADJUSTMENTS)

POOR100 BELOW 100 PERCENT OF POVERTY

POVERTY DEFINED AS 100 PERCENT OF POVERTY LINE. POVERTY LINE VARIES WITH HOUSEHOLD SIZE (1-9), AGE AND HOUSEHOLD INCOME. FOR HOUSEHOLD SIZE OF :

1 - AGE 65 AND OVER, LESS THAN \$ 7,525

1 - AGE 64 AND UNDER, LESS THAN \$ 8,163

2 - AGE 65 AND OVER, LESS THAN \$ 9,491

2 - AGE 64 AND UNDER, LESS THAN \$ 10,507

3 - LESS THAN \$ 12,516

4 - LESS THAN \$16,036

5 - LESS THAN \$18,952

6 - LESS THAN \$21,389

7 - LESS THAN \$24,268

8 - LESS THAN \$27,091

9 OR MORE - LESS THAN \$31,971

POOR 100% = 1

NONPOOR = 0

NO ANSWER = 8

REGIONC CENSUS REGION

NORTHEAST = 1

MIDWEST = 2

SOUTH = 3

WEST = 4

SQFTREG MODEL-BASED EST. OF HEATED SQ FT

99999 = NOT APPLICABLE

**TYPEHUQ RESP REPORTED TYPE OF HOME
MOBILE HOME = 1**

SINGLE-FAMILY DETACHED = 2

SINGLE-FAMILY ATTACHED = 3

APARTMENT BUILDING WITH 2-4 UNITS = 4

APARTMENT BUILDING WITH 5 OR MORE UNITS = 5

UGASRATE LOCAL NATURAL GAS RATE
FOR MCF AVERAGE RESIDENTIAL RATE
FOR MCF OF NATURAL GAS COMPUTED
FROM 1997 TYPICAL NATURAL GAS BILL
DATA. WHERE DATA WERE NOT
AVAILABLE, A RATE WAS IMPUTED FROM
KNOWN RATES IN AREAS NEAR THE
HOUSEHOLD WITH MISSING
INFORMATION. DATA INCLUDES AN
ERROR TERM. HOUSEHOLDS THAT DO
NOT USE NATURAL GAS ARE CODED
9999 FOR NOT APPLICABLE.
FIELD CONTAINS TWO IMPLIED DECIMAL
PLACES.

YEARS4 ADULTS IN HH OVER 75
NOT APPLICABLE = 99

YEARMADE YEAR HOME BUILT
BEFORE 1940 = 1
1940-49 = 2
1950-59 = 3
1960-69 = 4
1970-76 = 5
1977-79 = 6
1980-86 = 7
1987-89 = 8
1990 = 9
1991 = 10
1992 = 11
1993 = 12
1994 = 13
1995 = 14
1996 = 15
1997 = 16
NOT APPLICABLE = 99

YEARS1 INFANTS IN HH UNDER 1
NOT APPLICABLE = 99

YEARS2 CHILDREN IN HH 1-12
NOT APPLICABLE = 99

YEARS3 ADULTS IN HH OVER 65
DON'T KNOW = 96
REFUSED = 97
NO ANSWER = 98
NOT APPLICABLE = 99

REFERENCES

1. U.S. Department of Energy - Energy Information Administration. *Residential Energy Consumption Survey: Household Energy Consumption and Expenditures 2001*. 2001. (Last accessed May 18, 2005.)
<<http://www.eia.doe.gov/emeu/recs/recs2001/publicuse2001.html>>