

## Energy Preview

# Housing Characteristics 1993

## Selected Preliminary Estimates

The preliminary estimates of housing characteristics shown below are taken from the 1993 Residential Energy Consumption Survey (RECS), a national multistage probability sample survey that the Energy Information Administration (EIA) conducts every 3 years. The RECS gathers

data primarily by means of personal interviews with householders and a mail survey of those households' energy suppliers. The 1993 RECS sample included more than 7 thousand households and increased the subsample of new homes by nearly a factor of three over the 1990

**Table 1. Selected Household Characteristics by Climate Zone and Census Region, 1993**  
(Percent of Households)

Household Characteristic	Census Regions and Climate Zones										United States	
	Northeast		Midwest		South		West		Region	Region		
	≥5,500 HDD <sup>a</sup> Zone	<5,500 HDD Zone	Region	Region	<2,000 CDD Zone	≥2,000 CDD Zone	Region	Region				≥4,000 HDD Zone
<b>Year of Construction</b>												
Before 1940	33.6	35.8	34.5	31.8	14.4	7.1	10.5	15.4	12.1	13.3	21.1	
1940 through 1969	33.4	42.2	37.1	34.2	34.8	34.3	34.6	31.2	45.3	40.3	36.2	
1970 through 1993	32.9	22.1	28.3	34.0	50.8	58.6	55.0	53.3	42.6	46.4	42.7	
<b>Main Heating Fuel</b>												
Natural Gas	46.0	51.5	48.3	71.9	37.6	38.2	37.9	45.3	65.8	58.6	52.6	
Electricity	11.8	7.3	9.9	12.8	39.2	48.0	43.9	39.1	22.2	28.1	26.2	
Fuel Oil	33.9	39.2	36.1	5.8	7.8	1.2	4.3	5.2	0.3	2.0	10.6	
Wood	3.5	0.8	2.3	1.7	4.6	2.5	3.5	6.8	4.7	5.4	3.2	
Liquefied Petroleum Gases	2.0	NC	1.2	7.5	6.8	7.7	7.3	2.7	1.5	1.9	5.0	
Other/None	2.8	1.1	2.1	0.2	3.9	2.4	3.1	0.9	5.5	3.9	2.4	
<b>Air-Conditioning</b>												
Central Room	18.6	22.3	20.2	46.3	58.7	70.8	65.1	16.0	33.2	27.2	43.5	
Room	30.8	47.4	37.8	27.2	27.7	20.9	24.1	11.1	11.3	11.2	24.9	
<b>Use of Selected Appliances</b>												
Waterbed Heaters	9.7	3.6	7.1	17.8	11.2	13.1	12.2	16.7	8.0	11.1	12.3	
Personal Computers	23.5	24.6	23.9	22.8	18.7	22.1	20.5	28.2	27.9	28.0	23.3	
Laser Printers	4.4	5.3	4.8	4.5	5.5	5.1	5.3	6.0	8.6	7.7	5.5	
Air Cleaners	6.8	4.1	5.7	7.8	4.2	4.4	4.3	6.1	4.3	4.9	5.5	
Compact Fluorescent Lights	12.1	8.4	10.5	9.2	6.9	7.1	7.0	7.0	11.5	9.9	8.9	
<b>Demand-Side Management Programs</b>												
Knowledge of Availability	44.2	26.5	36.7	38.3	30.2	31.6	30.9	41.1	41.4	41.3	36.0	
Participation	10.7	5.2	8.3	8.2	8.7	5.6	7.0	9.1	8.4	8.6	7.9	
<b>Household Purchases</b>												
Space-Heating Equipment	12.1	9.1	10.8	10.1	13.1	10.7	11.8	5.6	7.5	6.8	10.2	
Influence of Energy Efficiency on Purchase Decision <sup>b</sup>												
Important	88.0	97.4	91.3	94.9	89.7	88.9	89.3	89.3	85.5	86.6	90.7	
Not Important/Don't Know	12.0	2.6	8.7	5.1	10.3	11.1	10.7	10.7	14.5	13.4	9.3	
Water Heater <sup>b</sup>	14.2	9.5	12.2	14.6	14.1	15.2	14.7	13.5	13.8	13.7	14.0	
Influence of Energy Efficiency on Purchase Decision <sup>b</sup>												
Important	83.5	84.3	83.8	87.1	84.1	89.9	87.3	82.6	88.7	86.6	86.5	
Not Important/Don't Know	16.5	15.7	16.2	12.9	15.9	10.1	12.7	17.4	11.3	13.4	13.5	

<sup>a</sup>HDD=Heating Degree-Days. CDD=Cooling Degree-Days. HDD and CDD are, respectively, measures of how cold and hot a location is over a period, compared with a base temperature (here, 65°F). Census regions are divided into climate zones defined by long-term weather conditions that affect heating and cooling loads in buildings. High HDD values imply generally colder areas, while high CDD values imply generally warmer areas.

<sup>b</sup>Percentages are based on the total number of households making a purchase or selecting a model between January 1990 and December 1993.

NC=No cases in sample.

Source: Energy Information Administration, Forms EIA-457 A, B, and C, 1993 Residential Energy Consumption Survey.

RECS subsample in order to better assess changes in energy-related building codes and the use of high-efficiency components and equipment in new home construction.

The scope of the 1993 RECS was broadened to include a number of new items, including an entire sequence of questions concerning indoor light usage. The survey also sought to collect more data concerning hot water usage and so asked respondents about their use of washing machines and dishwashers, as well as the number of showers or baths taken each week. Many new items, including several shown in the table, reflect EIA's efforts to better understand the role of energy efficiency in consumers' energy use behavior and purchases of furnaces, central air-conditioners, and appliances.

Final data will be published in EIA's *Housing Characteristics 1993*, planned for May 1995, and *Household Energy Consumption and Expenditures 1993*, planned for September 1995. Preliminary tables will be available in December 1994 from the National Energy Information Center (Telephone: 202-586-8800; Fax: 202-586-0727; Internet E-Mail: [infoctr@eia.doe.gov](mailto:infoctr@eia.doe.gov)).

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## The Human Face of Data Collection

The stark impersonality of the data appearing in the publications of the Energy Information Administration (EIA) belies the deeply human process of data collection. EIA surveys must sometimes adapt to the vicissitudes of geopolitics and natural disasters. The 1991 Residential Transportation Energy Consumption Survey, for example, was delayed for a few months because the Persian Gulf conflict coincided with the survey's commencement, and it was feared that questions about vehicle use patterns and motor gasoline demand might incite unnecessary concern about petroleum supplies.

The severe Northridge, California, earthquake of January 17, 1994, forced adaptations as well. As with other earthquakes, official and public concern rightfully focused on casualties and property damage, which news reports estimated at more than \$1 billion. But the Northridge disaster sent myriad other tremors racing through U.S. society, one of which reached as far as the seemingly unrelated world of energy surveys.

EIA conducts the Residential Energy Consumption Survey (RECS) to gather data describing the energy consumption and characteristics of U.S. residences. Los Angeles was one of the sampling sites for the 1993 RECS. By consulting special maps supplied by the Federal Emergency Management Agency (FEMA), EIA learned that the Northridge earthquake badly damaged several areas where RECS sample clusters of residences might possibly be located. Earthquake-damaged households' energy-use patterns would probably not resemble those of comparable households that escaped damage, and the loss of too many sample households could have compromised the sample's statistical representativeness. Consequently, RECS survey manager Wendel Thompson flew to Los Angeles in February 1994 to visit the damaged sample sites and determine whether the RECS data-collection efforts in those areas should continue. Thompson's report from that trip, excerpted below, offers a glimpse into the human processes behind the RECS.

"None of the RECS [sample] housing units were heavily damaged....One unit was moderately damaged, meaning it could not be occupied, but limited access was permitted and the structure could be repaired....The resident was living in [temporary quarters] bordering his...lot. He had an electrical line strung over the sidewalk and into the house. He disposed of his sewage by dumping it into a manhole. (Some people thought he was dumping into the water system, but he said when he removed the cover he knew by the smell that it was the right place!)

"Two RECS sample units were posted with green signs, indicating that the inspection showed minor damage. Another unit may have suffered damage. It was on the bottom of a two-story, nine-unit apartment building. Rubble was piled in the center of the apartment and the unit was vacant...but had been occupied when the first RECS interview had been refused....This unit would remain a 'refusal' since the manager did not know where the family had gone....The only disruption from the earthquake to our survey operations was our inability to locate [this] family.

"FEMA estimated that there were 18,000 homes that were destroyed or had moderate damage from the earthquake and another 19,000 that had minor damage. Since a RECS sample household represents roughly 15,000 homes, we might expect to find one RECS home destroyed or having [moderate] damage (we found one) and one home with minor damage (we found two homes). We found that the stress of the earthquake did not make people as resentful of outsiders (especially from the government!) as it might have. On the contrary, people were willing to talk to us, especially about how the earthquake affected them. One respondent showed us a picture book of the damage to her house before it was cleaned up.

"...[W]e called off the moratorium on further fieldwork on February 17 and made plans to complete the fieldwork in the earthquake zones."