

## **Comparing measures of residential energy consumption from two surveys for 2001, 2005, and 2009**

This article compares estimates of utility expenditures from the Bureau of Labor Statistics Consumer Expenditure Survey (CE) and the Department of Energy's Residential Energy Consumption Survey (RECS). The article updates comparisons for 2001 and 2005 and reports on new comparisons for 2009.<sup>1</sup> RECS is conducted every 4 years, and the most recent data available, for 2009, were released in 2013.

### **Findings:**

- The results show the same patterns in 2009 as in previous years; CE estimates are consistently higher than RECS estimates, except those for fuel oil and liquefied petroleum gas (LPG).
- The difference in comparable total expenditures for selected energy items reported by the two surveys was 10 percent in 2009. The CE reported \$235.9 billion in spending for electricity, natural gas, fuel oil, and LPG, compared with \$213.5 billion reported by the RECS.

### **Detailed Results:**

Among the energy components, CE/RECS ratios were higher for electricity and natural gas and lower for fuel oil and LPG, which dropped from 0.99 in 2001 to 0.76 in 2009. (See table 1.) This drop can be attributed to a 74-percent increase in the RECS estimate for fuel oil and LPG from 2001 to 2009, while the CE estimate only increased 34 percent. Both surveys showed spending declined on fuel oil and LPG between 2005 and 2009.

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<sup>1</sup> For a comparison of data for 2001 and 2005, see "Household energy spending: two surveys compared," *Focus on Prices and Spending*, November 2010, available online at [http://www.bls.gov/opub/focus/volume1\\_number12/cex\\_1\\_12.pdf](http://www.bls.gov/opub/focus/volume1_number12/cex_1_12.pdf).

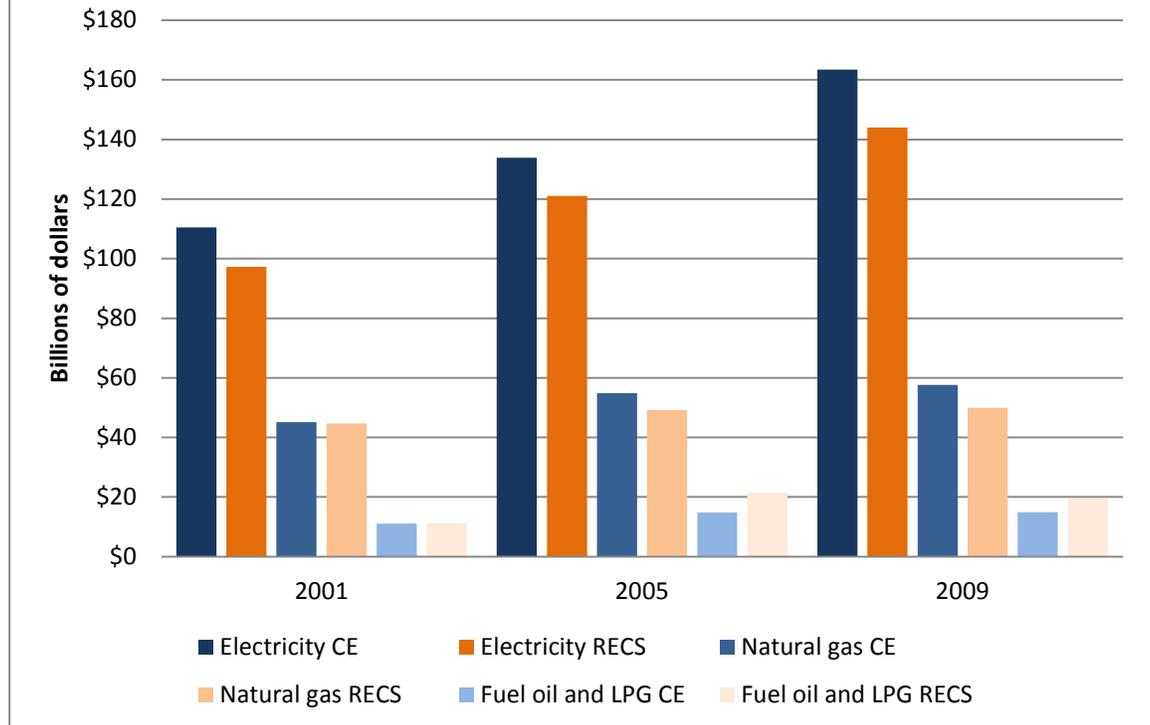
The small sample size of households using fuel oil and LPG could explain the volatility of the ratios for these fuels.

Table 1. Consumer expenditures on total energy and selected household energy items, adjusted for renters' energy costs, Consumer Expenditure Survey and Residential Energy Consumption Survey, 2001, 2005, and 2009 (in billions of nominal dollars)

YEAR	TOTAL			ELECTRICITY			NATURAL GAS			FUEL OIL & LPG		
	CE	RECS	CE/ RECS RATIO	CE	RECS	CE/ RECS RATIO	CE	RECS	CE/ RECS RATIO	CE	RECS	CE/ RECS RATIO
2009	\$235.9	\$213.5	1.10	\$163.5	\$144.0	1.14	\$57.6	\$49.9	1.15	\$14.9	\$19.5	0.76
2005	203.7	191.7	1.06	133.9	121.1	1.11	54.9	49.2	1.12	15.1	21.4	0.71
2001	166.7	153.4	1.09	110.5	97.2	1.14	45.1	44.7	1.01	11.1	11.2	0.99

Chart 1 shows the total expenditures reported by the CE and the RECS for selected energy items. The CE total expenditure estimates for electricity consistently exceed those reported by the RECS. Electricity consistently accounts for the majority of utility expenditures in both the CE and RECS: In 2001 electricity accounted for 66 percent of total utility expenditures; 2005, electricity accounted for 63 percent of total utility expenditures; while in 2009 electricity accounted for 68 percent of total utility expenditures.

**Chart 1. Residential Energy Expenditures,  
Consumer Expenditure Survey and  
Residential Energy Consumption Survey,  
2001, 2005, and 2009**



**Technical Notes:**

There are many differences between the CE and the RECS, and the data from both surveys have been adjusted to make them more comparable for this analysis:

- The CE and the RECS treat renters whose rent payments include home energy costs differently.
- The CE does not attempt to estimate the cost of home energy included in the rent and instead assigns the total contract rental payment to the rent of dwellings category.

- In 2009, 14.5 percent of all renters in the CE reported that electricity was included in their rental payment and 19.2 percent reported that natural gas was included. In contrast, RECS field representatives visit rental agents or building management representatives to determine the actual energy expenditures attributable to the sampled rented housing unit.
- The CE apportions energy costs from homeowners' association, co-operative, and condominium fees where owners pay for utilities such as electricity, natural gas, and water as part of the organization's monthly fee. In contrast, RECS works with building management and service providers to estimate the energy expenditures for individual housing units.
- The CE collects energy expenditure data attributable to vacation and second homes while the RECS does not.

For the purposes of this comparison, the published CE data were first adjusted to make them more comparable to the RECS published expenditure data. Since RECS does not collect vacation home data, the comparison above excludes expenditures reported by the CE for owned or rented vacation homes. The CE collects data for all energy types, including coal, wood, and other fuels, while the RECS collects expenditure data only for electricity, natural gas, fuel oil, LPG, and kerosene. As a result of a coding change implemented by the CE in 2005, it was no longer possible to identify kerosene expenditures. For continuity and comparability, coal, wood, and kerosene expenditures from both surveys were excluded for all years.

The RECS data were also adjusted to remove energy expenditures paid indirectly through rent and condominium fees. Table 1 shows the 2001, 2005, and 2009 results,

minus the estimated amount renters paid implicitly through rental contracts. Additionally, CE data have been adjusted to exclude utility payment made through condominium fees to match the RECS variable. Because contract rents and utilities paid indirectly cannot be estimated for years prior to 2001, the RECS data cannot be adjusted to compare them with CE data for years prior to 2001. Note that a change in the RECS documentation on condominium fees required the 2001 and 2005 CE estimates to be recalculated. This change accounts for the discrepancies in the 2005 CE statistics that appear in this article with those that appear in the [2010 Focus on Prices and Spending article](#).