

How BLS Measures Price Change in the Consumer Price Index for Household Fuels

The household fuels index, a component of the fuel and other utilities index, is included in the housing group of the Consumer Price Index (CPI). Together with the index for motor fuels, it makes up the special energy index. The household fuels index measures the price movement of residential energy items used for heating, cooling, lighting, cooking, and running appliances.

The Bureau of Labor Statistics (BLS) each month publishes the aggregate index for household fuels and its component indexes for electricity and natural gas, as well as the combined gas and electricity index, at the U.S. level, and for all areas for which CPI data are published. The component indexes for fuel oil and for other household fuels, as well as the combined fuel oil and other household fuels index, are published each month at the U.S. level and for many of the areas for which CPI data are available.

The base period weight of the fuels indexes represents the out-of-pocket expenditures on household fuels, as reported in the Consumer Expenditure Survey (1982-84). Therefore, the expenditures by consumers during the 1982-84 period established the importance each item was given in the CPI calculation.

The individual items which comprise the household fuels index, together with their relative importance values within the U.S. city average of the CPI for All Urban Consumers (CPI-U), as of December 1995, follows:

<i>Item</i>	<i>Relative importance</i>
All items	100.000
Housing	41.346
Household fuels	3.792
Fuel oil246
Other household fuels (propane, kerosene, firewood, etc.)110
Electricity	2.395
Natural (piped) gas	1.041
Energy	6.700
Household fuels	3.792
Motor fuels	2.908

The same data used in the electricity, natural gas, and fuel oil indexes are also used in the CPI average price series for the price per therm of natural gas, the price per KWH of electricity, and the price per gallon of fuel oil. Average prices also are provided for fixed consumption amounts of 40 therms

and 100 therms of natural gas, and 500 KWH of electricity. Average price data are published at the U.S. city average level, and at the regional and regional/size-class level, the U.S. city average size-class level, and for 15 'A-size' cities when sample sufficiency criteria are met. BLS collects additional data for the fixed consumption average price series.

The monthly change in the household fuels index is determined by the price changes reported for selected energy items in selected outlets, utility companies, and other suppliers of these items. CPI selects the outlets and the items with a probability sampling method so that all outlets and items are represented. Applicable taxes are also included in reported prices.

The outlets from which prices are obtained, and the consumption amounts assigned to those outlets within a CPI pricing area remain constant until they are reselected, which occurs at 5-year intervals.

The selection of the outlets to be used for the electricity and natural gas indexes is made by one of two methods. In the first, the Consumer Expenditure Survey is used to derive the sample of outlets. Respondents to this survey report the name of the company from which they purchase their household energy, the monthly dollar amount of their purchases, and the total units of energy purchased.

When outlets are selected in a pricing area, the CPI uses a full year of the data reported for the area and draws a sample of monthly household bills, using a probability-proportional-to-expenditure method. The outlet associated with each selected bill is assigned an observation or "quote" for pricing. If the outlet is selected more than once, then multiple quotes are assigned to that outlet.

The selected outlets, and their quote assignments, are supplied to the field staff. Through a series of disaggregation steps,¹ the field agent selects quote characteristics, such as type of rate schedule (general residential, heating, nonheating, air conditioning, hot water heating, etc.), appropriate discounts, applicable tax jurisdictions, and other unique billing conditions and price-determining characteristics which affect that quote's billing (summer/winter versus year-round rate schedule, peak/off-peak, time-of-day billing, etc.).

A number of CPI areas do not have their electricity and natural gas index samples selected from the Consumer Ex-

¹ Disaggregation is a probability-based sampling method used to select a specific detailed item for pricing within an outlet.

penditure Survey. They have outlets assigned using a second method of selection.

From a universe created from other sources,² the name of the outlet is selected using probability sampling with selection proportional to population of the area and the number of residential customers of the eligible companies. The field agent is then notified of the selected outlet. Using disaggregation procedures, the field agent then selects an area for pricing and a representative bill from the outlet for the selected area. The price-determining characteristics from this selected bill are assigned to that quote for initiation into the CPI sample.

The selection of outlets to be priced for the fuel oil and the other household fuels indexes uses the Continuing Point of Purchase Survey.

The consumption amounts which are priced at the selected outlets are assigned in several ways. Consumption amounts for the natural gas and for the electricity indexes either reflect Consumer Expenditure Survey reported household bill amounts, or are arrived at by a disaggregation at the outlet when the quote is initiated. Disaggregation at the outlet is also used to select amounts of consumption for the fuel oil index, and for the other household fuels (propane, kerosene, firewood, etc.) index.

Once the sample has been selected and initiated, it is priced

² Data obtained from the U.S. Department of Energy, Energy Information Administration publications, were used to draw a universe of electricity outlets. Brown's Directory of Natural Gas Companies in North America was used for the universe of natural gas outlets.

on a monthly basis to track any and all price movements. Generally, data are collected on the following items:

- Service charge—a fixed charge per bill.
- Consumption charges—for total monthly energy usage.
- Additional charges and/or credits reported for natural gas and electricity billings for the purchase of energy and/or fuels used by the utility to produce energy to fulfill that month's total demand.
- Refunds—from past overcharges.
- Discounts
- Taxes

Notes

For the household fuels samples, the number of occupants and consumption amounts are held constant from pricing period to pricing period.

Because household fuels generally always are available, there are no substitutions due to item unavailability, and no quality adjustments in the household fuels sample.

	<i>Number of quotes</i>
Electricity	1,302
Natural gas	1,035
Fuel oil	222
Other fuels	137
500 KWH of electricity	449
100 therms of natural gas	300
40 therms of natural gas	302