

# **Residential Propane Price Analysis 2008**

**Economics and Statistics Administration  
U.S. Department of Commerce**

## **SUMMARY**

Pursuant to the requirements of the Propane Education and Research Act of 1996 (PERA),<sup>1</sup> the Department of Commerce analyzed changes in propane prices relative to other energy sources. The report presents the relevant price data and concludes that propane prices have exceeded the threshold established by PERA. As a result, certain activities of the Propane Education and Research Council (PERC) are restricted. The Department of Commerce will conduct a new analysis 180 days after the beginning of the restrictions, as required by the Act.

## **BACKGROUND**

The PERC was established under PERA to enhance consumer and employee safety and training, to provide for research and development of clean and efficient propane utilization equipment, and to inform and educate the public about safety and other issues associated with the use of propane.

With regard to the Department of Commerce price analysis and restrictions, Section 9 of PERA provides as follows:

### **SEC. 9. MARKET SURVEY AND CONSUMER PROTECTION.**

(a) **PRICE ANALYSIS.**—Beginning 2 years after establishment of the Council and annually thereafter, the Secretary of Commerce, using only data provided by the Energy Information Administration and other public sources, shall prepare and make available to the Council, the Secretary of Energy, and the public an analysis of changes in the price of propane relative to other energy sources. The propane price analysis shall compare indexed changes in the price of consumer grade propane to a composite of indexed changes in the price of residential electricity, residential natural gas, and refiner price to end users of No. 2 fuel oil on an annual national average basis. For purposes of indexing changes in consumer grade propane, residential electricity, residential natural gas, and end user No. 2 fuel oil prices, the Secretary of Commerce shall use a 5-year rolling average price beginning with the year 4 years prior to the establishment of the Council.

(b) **AUTHORITY TO RESTRICT ACTIVITIES.**—If in any year the 5-year average rolling price index of consumer grade propane exceeds the 5-year rolling average price composite index of residential electricity, residential natural gas, and refiner price to end users of No. 2 fuel oil in an amount greater than 10.1

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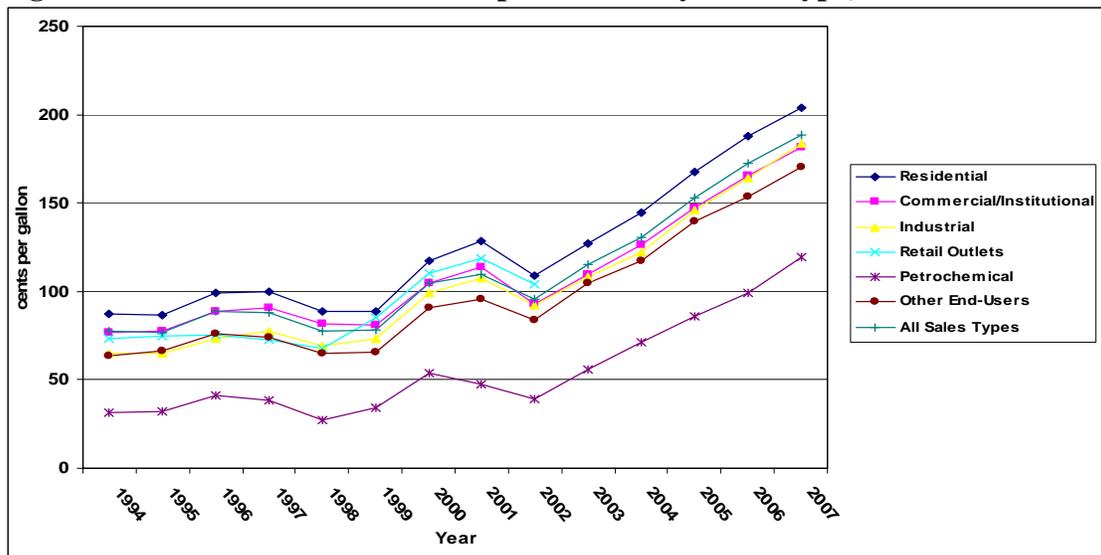
<sup>1</sup> See Pub. L. No. 104-284, 110 Stat. 3370 (1996).

percent, the activities of the Council shall be restricted to research and development, training, and safety matters. The Council shall inform the Secretary of Energy and the Congress of any restriction of activities under this subsection. Upon expiration of 180 days after the beginning of any such restriction of activities, the Secretary of Commerce shall again conduct the propane price analysis described in subsection (a). Activities of the Council shall continue to be restricted under this subsection until the price index excess is 10.1 percent or less.

## ANALYSIS

This report used annual energy prices from the Energy Information Administration (EIA) to compare residential consumer grade propane prices to the composite energy price for residential electricity, residential natural gas, and refiner price to end users of No. 2 fuel oil. While propane prices are higher for residential users than for other users,<sup>2</sup> prices for all propane users have risen rapidly in recent years (Figure 1). Energy prices for residential propane consumers increased an average of 13.5 percent per year from 2003 to 2007, a period of rapid growth in energy prices. This was slightly less than the percentage increase in the average price for all propane consumers, which was 14.6 percent during the same time period. Since 1996, when the PERC was established, the residential propane price has increased 106.1 percent, with a majority of the growth occurring between 2003 and 2007. Total price increases from 1996 to 2007 for all other uses of propane were substantially more than for residential propane, except the price increase for commercial/institutional users, which was 105.2 percent.<sup>3</sup> The total increase in propane prices for all sales types was 113.1 percent from 1996 to 2007.

**Figure 1. U.S. Consumer Grade Propane Prices by Sales Type, 1994 to 2007**



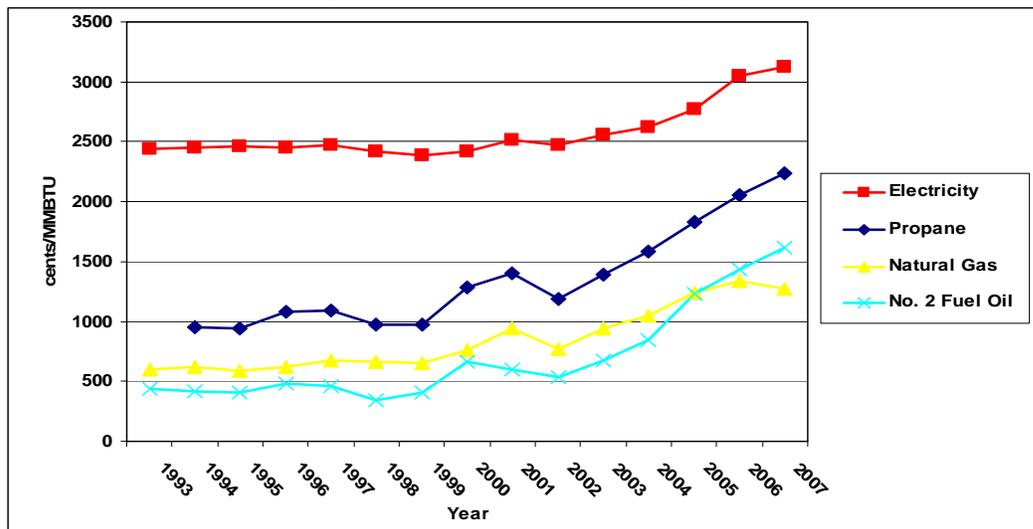
Source: Energy Information Administration, 2009.

<sup>2</sup> Price data for propane sales to end-users include residential, commercial/institutional, industrial, retail outlets, petrochemical, and other end-users. The “other end-users” category includes agricultural users and utilities. For more details on definitions for end-users of propane, see [http://www.eia.doe.gov/pub/oil\\_gas/petroleum/survey\\_forms/eia782bip4.pdf](http://www.eia.doe.gov/pub/oil_gas/petroleum/survey_forms/eia782bip4.pdf), pp. 3-4.

<sup>3</sup> This does not include propane price increases for retail outlets. This data series ended in 2002.

Very similar to prices for residential propane, the prices of the energy sources that comprise the composite residential price index have also increased (Figure 2). Prices for refiner end-user No. 2 fuel oil have increased much more rapidly than residential propane prices since PERC came into existence, while residential electricity prices have risen only modestly. Residential electricity prices grew 4.8 percent per year on average from 2003 to 2007, or a total of 22.1 percent over the last five years. In contrast, residential natural gas and No. 2 fuel oil prices increased on average about 11 and 25.4 percent, respectively, between 2003 and 2007, or a total of 106 and 140.2 percent during that time period.

**Figure 2. Residential Consumer Grade Propane and Residential Electricity, Residential Natural Gas, and No. 2 Fuel Oil Prices, 1993 to 2007**



Source: Energy Information Administration, 2009.

Table 1 presents the ratio of the 5-year rolling average residential propane price to the residential composite energy price index covering the years 2000 to 2007. As noted above, to calculate this, EIA’s price data for residential electricity, residential natural gas, No. 2 fuel oil, and residential consumer grade propane were used.<sup>4</sup> Each energy source was then converted to MMBTUs, or million British Thermal Units. The composite energy price index for residential electricity, residential natural gas, and No. 2 fuel oil was weighted by household expenditures on each energy source. Data to calculate the weights that were applied to the 5-year rolling average composite price index were from EIA’s 2005 Residential Energy Consumption Survey (RECS) (see Appendix 1 for more information on the energy price data, conversion rates, and composite energy price index weights used in this propane price analysis). The RECS is conducted every 4 years. The

<sup>4</sup> PERA states that “the price of consumer grade propane” should be compared to a composite index of other energy prices, but it does not stipulate which consumer grade propane price to use—that is, residential, industrial, commercial/institutional, petrochemical, or average consumer price. As most of the energy prices in the composite index were mandated to be residential prices, the residential price of consumer grade propane were used in this analysis and in prior analyses.

weights are recalculated whenever new data become available. The latest data from 2005 were published in 2009 and were used to calculate the weights for this analysis.

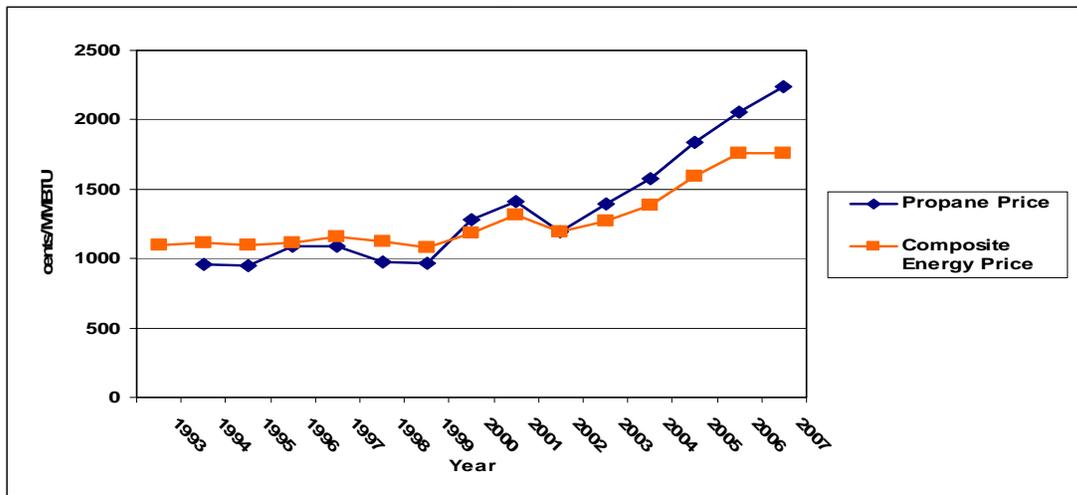
This propane price analysis concludes that the ratio of the 5-year rolling average price index of residential consumer grade propane relative to the composite index of other residential energy sources increased from 0.96 in 2000 to 1.17 in 2007. This ratio is now greater than the threshold of 1.101 mandated under Section 9 of PERA. As Figure 3 shows, since 2001, residential propane prices have increased at a greater rate than the residential composite energy price index, thus leading to the current finding that the threshold has been exceeded and PERC activities will be restricted.

**Table 1. Ratio of Residential Propane Prices to Composite Index of Residential Electric, Natural Gas, and Fuel Oil Prices (revised based on weights from 2005 residential expenditure data released in 2009)**

	2000	2001	2002	2003	2004	2005	2006	2007
<b>Propane price/ Composite price index</b>	0.96	0.98	0.99	1.03	1.08	1.09	1.12	1.17

The table above shows that the ratio in 2006 was 1.12, higher than the ratio of 1.09 for 2006 cited in the last report.<sup>5</sup> The change is the result of the use of newer data. The revised ratio indicates that the value of the propane price compared to the composite energy price index was over the threshold in 2006 and suggests that restrictions would have been imposed last year had the newer data been available for the analysis when the last report was prepared.

**Figure 3. Residential Consumer Grade Propane Price and the Composite Electric, Natural Gas and No. 2 Fuel Oil Price, 1993 to 2007**



Source: Energy Information Administration, 2008.

<sup>5</sup> The price analysis from last year is at [http://www.esa.doc.gov/PropanePriceAnalysis\\_011008.pdf](http://www.esa.doc.gov/PropanePriceAnalysis_011008.pdf).

**CONCLUSION**

The analysis shows that the threshold has been exceeded and the activities of PERC are to be restricted until the price index is 1.101 or less. The Department of Commerce will conduct a new price analysis upon the expiration of 180 days after the beginning of the restrictions.

## **Appendix 1: Energy Information Administration Data Sources for Energy Prices and Composite Energy Price Weights**

Residential Electricity Prices: Table 5.3. Average Retail Price of Electricity to Ultimate Customers: Total by End-Use Sector (cents per kilowatt hour), Electric Power Monthly, [http://www.eia.doe.gov/cneaf/electricity/epm/table5\\_3.html](http://www.eia.doe.gov/cneaf/electricity/epm/table5_3.html). The conversion rate used was 3,412 BTUs per kilowatt hour \* 1,000,000.

Residential Natural Gas Prices: Annual U.S. Natural Gas Residential Price (dollars per thousand cubic feet), Natural Gas Navigator, <http://tonto.eia.doe.gov/dnav/ng/hist/n3010us3a.htm>. The conversion rate was 1,026 BTUs per cubic foot \* 1,000.

Refiner Price to End Users of No. 2 Fuel Oil Prices: <http://tonto.eia.doe.gov/dnav/pet/hist/a213600002A.htm>, accessed November 2007. The conversion rate used was 5.285 BTUs per 42 gallons.

Residential Propane Prices: Table 14. U.S. Propane (Consumer Grade) Prices by Sales Type (cents per gallon excluding taxes), Petroleum Marketing Monthly, [http://tonto.eia.doe.gov/dnav/pet/pet\\_pri\\_prop\\_dcu\\_nus\\_a.htm](http://tonto.eia.doe.gov/dnav/pet/pet_pri_prop_dcu_nus_a.htm), accessed November 2007. The conversion rate was 3.836 BTUs per 42 gallons.

Household Energy Expenditure Weights: Expenditure weights were based on share of expenditures by households that either used electricity, natural gas, or fuel oil for space and water heating, from the 2005 Residential Energy Consumption Survey: Household Energy Consumption and Expenditures Tables (see [http://www.eia.doe.gov/emeu/recs/recs2005/c&e/detailed\\_tables2005c&e.html](http://www.eia.doe.gov/emeu/recs/recs2005/c&e/detailed_tables2005c&e.html)) The calculated expenditure shares for electricity, natural gas and fuel oil were 0.24, 0.60 and 0.16, respectively.