

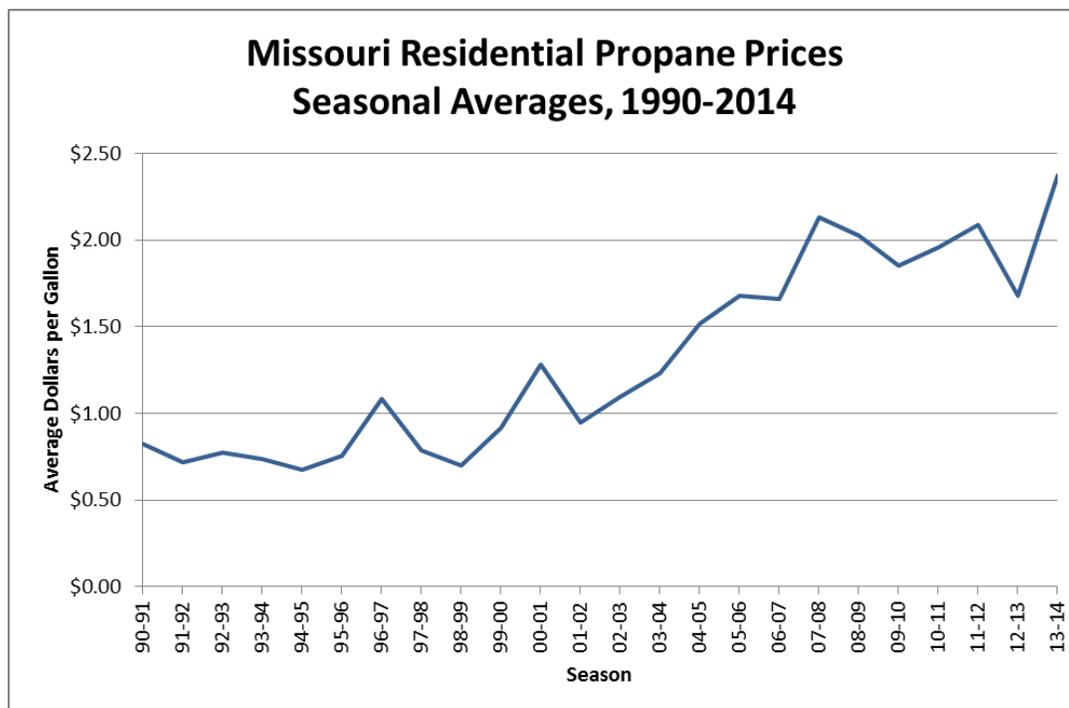


## Missouri Propane at a Glance

### About Propane

Propane is a hydrocarbon (C<sub>3</sub>H<sub>8</sub>) and is sometimes referred to as liquefied petroleum gas, LP-gas, or LPG. Propane is produced from both natural gas processing and crude oil refining in roughly equal amounts from each source. Nearly 97 percent of propane consumed in the United States is produced in North America. It is non-toxic, colorless, and virtually odorless. As with natural gas, an identifying odor is added so the gas can be readily detected.

**Figure 1: Missouri Residential Propane Prices, 1990-2014**



Source:

[http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=W\\_EPLLPA\\_PRS\\_SMO\\_DPG&f=W](http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=W_EPLLPA_PRS_SMO_DPG&f=W)

## Propane Costs

Missouri's average price per gallon of propane increased by 4.51 percent (compound annual growth rate) from 1990 to 2014. Price per gallon during that time frame ranged from an average of \$0.67 per gallon during the 1994-1995 heating season, to an average of \$2.37 per gallon during the 2013-2014 heating season (see figure 1).<sup>1</sup>

Propane costs are variable due to a number of unpredictable factors that affect demand, supply, and price. The demand pattern for propane is highly seasonal. Residential demand peaks during the winter heating season, and crop drying (the major agricultural use for propane) occurs in the autumn. Adequate inventories entering the heating season are critical to keep prices from increasing sharply. Price volatility can be induced by swings in the price of crude oil as well as changes in demand due to unusually mild or severe weather.

The exceptionally high propane prices during the winter of 2013-2014 were precipitated by a number of factors:

- 1.) An unexpected increase in agricultural demand for propane for crop drying.
- 2.) Sustained total propane demand from the end of the crop drying season to the beginning of the space-heating season.
- 3.) The inability of the industry to transport adequate supplies of propane due to: a) distribution bottlenecks and chokepoints, b) unprecedented and prolonged propane demand, c) record levels of propane exports, and d) the closure of the Cochin Pipeline, a vital propane supply system to the Upper Midwest.

In addition, the winter of 2013-2014 was one of the coldest on record, which exacerbated the problem.

The price per gallon of propane rose from an average of \$1.68 during the 2012-2013 season to an average of \$2.37 during the 2013-2014 season. This represented an increase of 41 percent. A total of 8,513,000 barrels of propane at a cost of \$745.8 million were consumed in the state in 2011.<sup>2</sup> In that same year, Missouri was the 12<sup>th</sup> largest consumer of propane.<sup>3</sup>

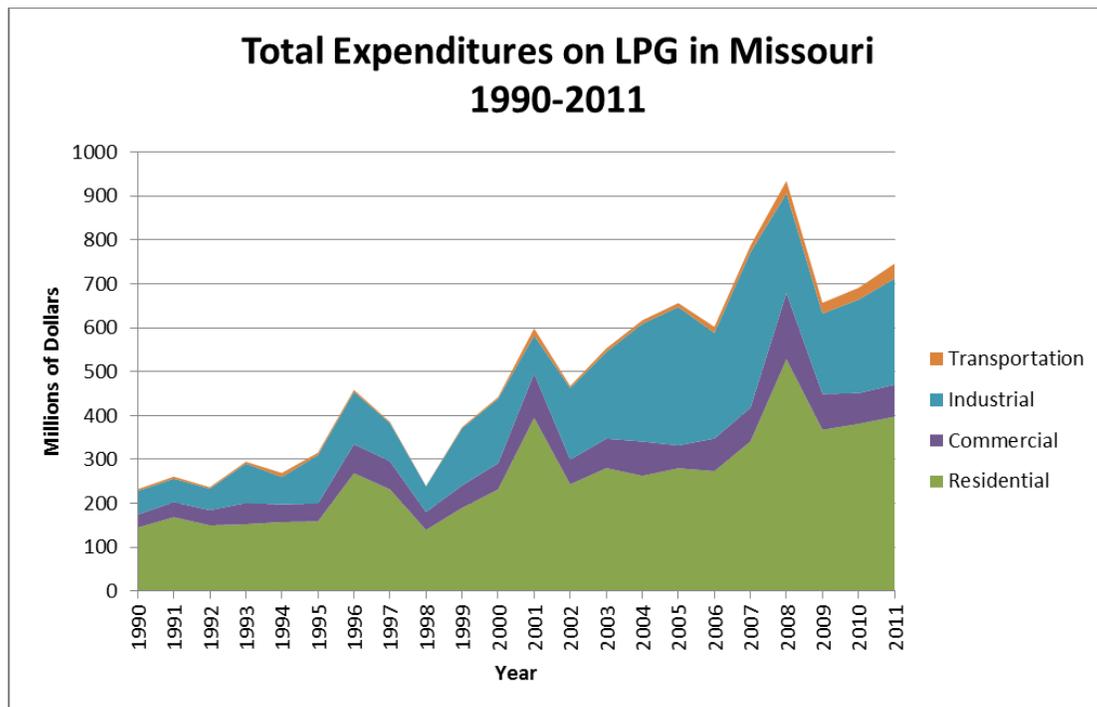
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<sup>1</sup> These seasonal averages were calculated by taking the averages of weekly prices over the course of the heating season (roughly October through mid-March).

<sup>2</sup> Sources: <http://www.eia.gov/state/seds/seds-data-complete.cfm?sid=MO#Prices & Expenditures> (Prices and Expenditures-->Prices and Expenditures); <http://www.eia.gov/state/seds/seds-data-complete.cfm?sid=MO#Consumption> (Consumption-->Sector). 2011 data is the latest available from the EIA.

<sup>3</sup> Source: <http://www.eia.gov/state/seds/seds-data-complete.cfm?sid=MO#Consumption> (Sector--> Total End-Use).

**Figure 2: Propane Expenditures by Sector**



Source: <http://www.eia.gov/state/seds/seds-data-complete.cfm?sid=MO#Prices & Expenditures>

(Prices and Expenditures-->Prices and Expenditures)

### Propane Consumption by Sector

Propane is the primary heating fuel for many Missouri households. Residential demand for propane peaks during the winter heating season and the extent of the demand for propane depends heavily on the severity of the winter. Missouri's average temperature for the winter of 2013-2014 was just over 27°F, which made it the coldest winter since the late 1970s.<sup>4</sup> Since 2000, only two winters have had average temperatures below 29°F.<sup>5</sup> Overall, the winter of 2013-2014 was the 10<sup>th</sup> coldest on record.<sup>6</sup>

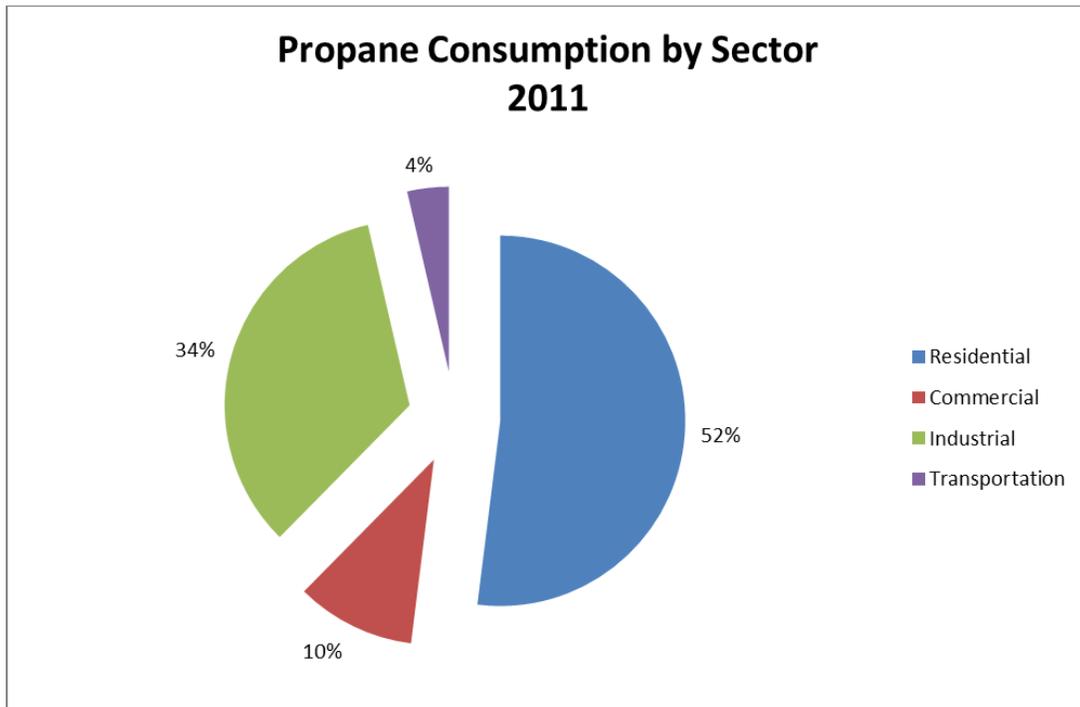
But while most propane is consumed by the residential sector, significant amounts are consumed by the industrial, commercial, and transportation sectors as well.

<sup>4</sup> The winters of 1977-1978 and 1978-1979, by comparison, saw average temperatures around 24°F.

<sup>5</sup> "Missouri Average Winter Temperature." Missouri Climate Center, College of Agriculture, Food, and Natural Resources, University of Missouri. (<http://climate.missouri.edu/charts/chart2.php>). Accessed June 23<sup>rd</sup>, 2014.

<sup>6</sup> "NOAA: Winter 2013-2014 Among coldest on Record in Midwest; Driest, Warmest in Southwest". March 13<sup>th</sup>, 2014. The Weather Channel. (<http://www.weather.com/news/winter-ncdc-state-climate-report-2013-2014-20140313>). Accessed June 23<sup>rd</sup>, 2014.

**Figure 3: Propane Consumption by Sector**



Source: <http://www.eia.gov/state/seds/seds-data-complete.cfm?sid=MO#Consumption>

(Consumption-->Sector)

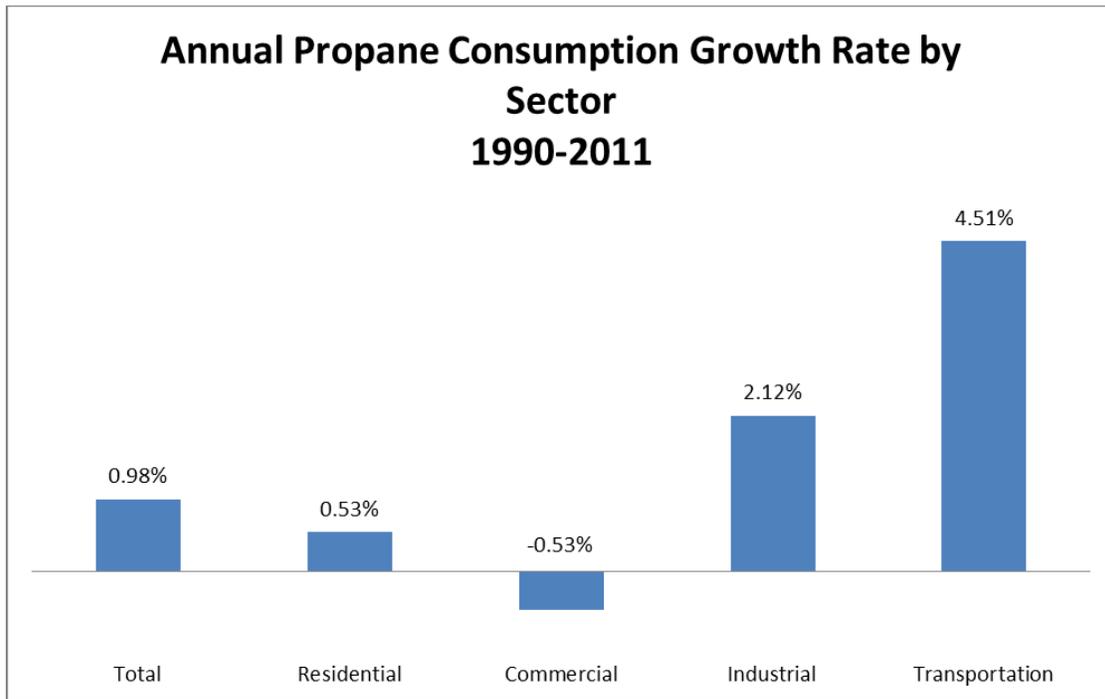
Figure 3 presents a breakdown of Missouri propane consumption by sector for 2011. We can see that the residential sector accounted for 52 percent of consumption. The industrial sector consumed 34 percent. And the commercial and transportation sectors consumed 10 percent and 4 percent, respectively.

### **Growth of Propane Consumption in Transportation**

In 2011, the transportation sector consumed only 309,000 barrels of propane at a cost of \$34 million, amounting to 4 percent of total consumption in Missouri. However, between 1990 and 2011, propane consumption in the transportation sector grew faster than in any other sector as measured by the compound annual growth rate (see figure 4).

In Missouri, there has been an increased use of propane as a clean-burning fuel for application in material handling equipment, landscaping equipment, public transportation, and other fleet vehicles. While total propane consumption in the transportation sector may be modest (309,000 barrels in 2011), it continues to grow as a transportation fuel in Missouri.

**Figure 4: Annual Propane Growth Rate by Sector**



Source: <http://www.eia.gov/state/seds/seds-data-complete.cfm?sid=MO#Consumption>

(Consumption-->Sector)

### **Additional Information**

Additional propane statistics are available from the U.S. Department of Energy's Energy Information Administration (<http://www.eia.gov>). During the winter heating season, the Missouri Division of Energy also surveys propane retailers and reports price information in its bimonthly Missouri Energy Bulletins (<http://ded.mo.gov/division-of-energy/transportation/missouri-energy-bulletins>).

This document was last revised and updated on June 23<sup>rd</sup>, 2014.