

## EIA-Short-Term Energy Outlook – Highlights

### Winter Fuels Outlook

EIA projects average U.S. household expenditures for natural gas, heating oil, electricity, and propane will increase this winter (October 1 through March 31) compared with last winter. Based on projections from the National Oceanic and Atmospheric Administration (NOAA), forecast temperatures this winter, measured using heating degree days, are 3% warmer than the previous 10-year average but colder than last winter, which was 15% warmer than the 10-year average nationally.

Forecast average household expenditures for heating oil, propane, and natural gas are 38%, 26%, and 22% higher than last winter, respectively, because of higher expected heating demand and higher fuel prices. However, expenditures for heating oil and propane this winter are forecast to be 32% and 18% lower, respectively, than in average of the five winters prior to last winter. Natural gas expenditures this winter are forecast to be similar to expenditures in the five winters prior to last year. Higher forecast heating demand contributes to electricity expenditures that are 5% higher than last winter, despite largely unchanged prices (for further discussion see the Winter Fuels Outlook supplement).

### Global petroleum and liquid fuels

U.S. crude oil production averaged 9.4 million barrels per day (b/d) in 2015, and it is forecast to average 8.7 million b/d in 2016 and 8.6 million b/d in 2017. Forecast production in 2017 is almost 0.1 million b/d higher than in the previous forecast.

Brent crude oil prices are forecast to average \$43/barrel (b) in 2016 and \$51/b in 2017, \$1/b higher and \$1/b lower than forecast in last month's STEO, respectively. West Texas Intermediate (WTI) crude oil prices are forecast to average about \$1/b less than Brent in 2016 and in 2017. The current values of futures and options contracts suggest high uncertainty in the price outlook. NYMEX contract values for January 2017 delivery traded during the five-day period ending October 6 suggest a price range from \$37/b to \$68/b encompasses the market expectation of WTI prices in January 2017.

Isolated refinery outages and a disruption to the Colonial Pipeline system contributed to U.S. average retail regular gasoline prices in September increasing by 4 cents/gallon (gal) from August to an average of \$2.22/gal. With a return to normal refinery and pipeline operations, the switch to less-expensive winter gasoline blends, and the typical seasonal decline in gasoline consumption, EIA expects gasoline prices to fall an average of \$1.97/gal in January. Retail gasoline prices are forecast to average \$2.12/gal in 2016 and \$2.26/gal in 2017.

Global oil inventory builds are forecast to average 0.7 million b/d in 2016 and 0.3 million b/d in 2017.

### Natural gas

Natural gas marketed production fell from 79.7 billion cubic feet per day (Bcf/d) in September 2015 to 76.5 Bcf/d in July 2016. EIA expects marketed natural gas production to average 77.5 Bcf/d in 2016, a decrease of 1.6% from the 2015 level, which would be the first annual decline since 2005. Forecast production increases by 3.7 Bcf/d in 2017.

# Vermont Fuel Price Report

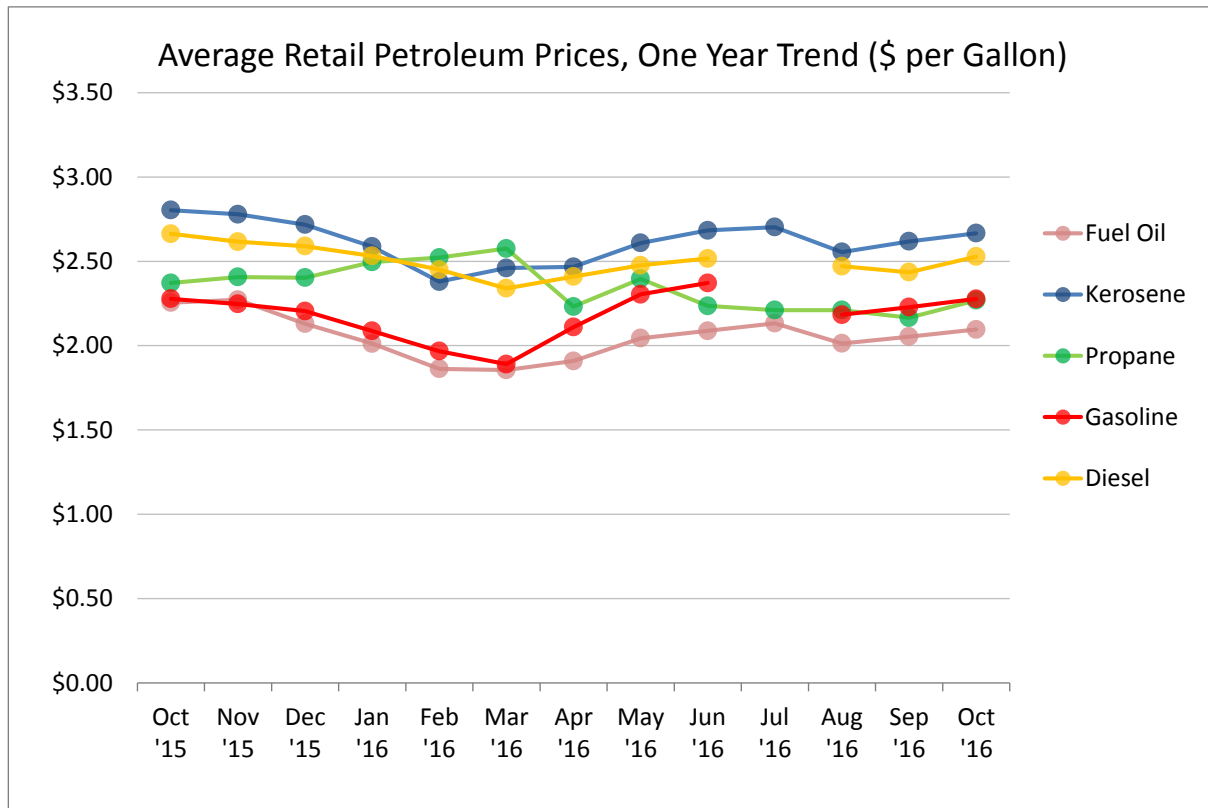
October  
2016

Henry Hub spot prices are forecast to average \$3.04/million British thermal units (MMBtu) in the fourth quarter of 2016 and \$3.07/MMBtu in 2017. Natural gas futures contracts for January 2017 delivery traded during the five-day period ending October 6 averaged \$3.34/MMBtu. NYMEX contract values for January 2017 delivery traded during the five-day period ending October 6 suggest a price range from \$2.28/MMBtu to \$4.88/MMBtu encompasses the market expectation of Henry Hub natural gas prices in January 2017.

Editor's Note: Data presented in the Vermont Fuel Price Report, as in the past, is collected on the first Monday of the month.

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Percentage Change in Average Retail Petroleum Prices, Month over Month & Year to Date

	<u>Oct '16</u>	<u>Sep '16</u>	<u>% Change</u>	<u>Oct '15</u>	<u>% Change</u>
No. 2 Fuel Oil	\$2.10	\$2.05	2.0%	\$2.26	-7.1%
Kerosene	\$2.67	\$2.62	1.9%	\$2.80	-4.9%
Propane	\$2.27	\$2.17	4.7%	\$2.37	-4.3%
Reg. Unleaded Gasoline	\$2.28	\$2.23	2.2%	\$2.28	0.0%
Diesel	\$2.53	\$2.44	3.8%	\$2.66	-5.1%

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## Comparing the Cost of Heating Fuels

Type of Energy	BTU/unit	Typical Efficiency	\$/unit	\$/MMBtu	High Efficiency	\$/MMBtu
Fuel Oil, gallon	138,200	80%	\$2.10	\$18.95	95%	\$15.96
Kerosene, gallon	136,600	80%	\$2.67	\$24.40		
Propane, gallon	91,600	80%	\$2.27	\$30.96	95%	\$26.07
Natural Gas, Ccf	100,000	80%	\$1.41	\$17.67 *	95%	\$14.88
Electricity, kWh (resistive)	3,412	100%	\$0.15	\$43.46		
Electricity, kWh (heat pump)	3,412		\$0.15	#	240%	\$18.32
Wood, cord (green)	22,000,000	60%	\$227	\$17.21 ^		
Pellets, ton	16,400,000	80%	\$278	\$21.18 ^		

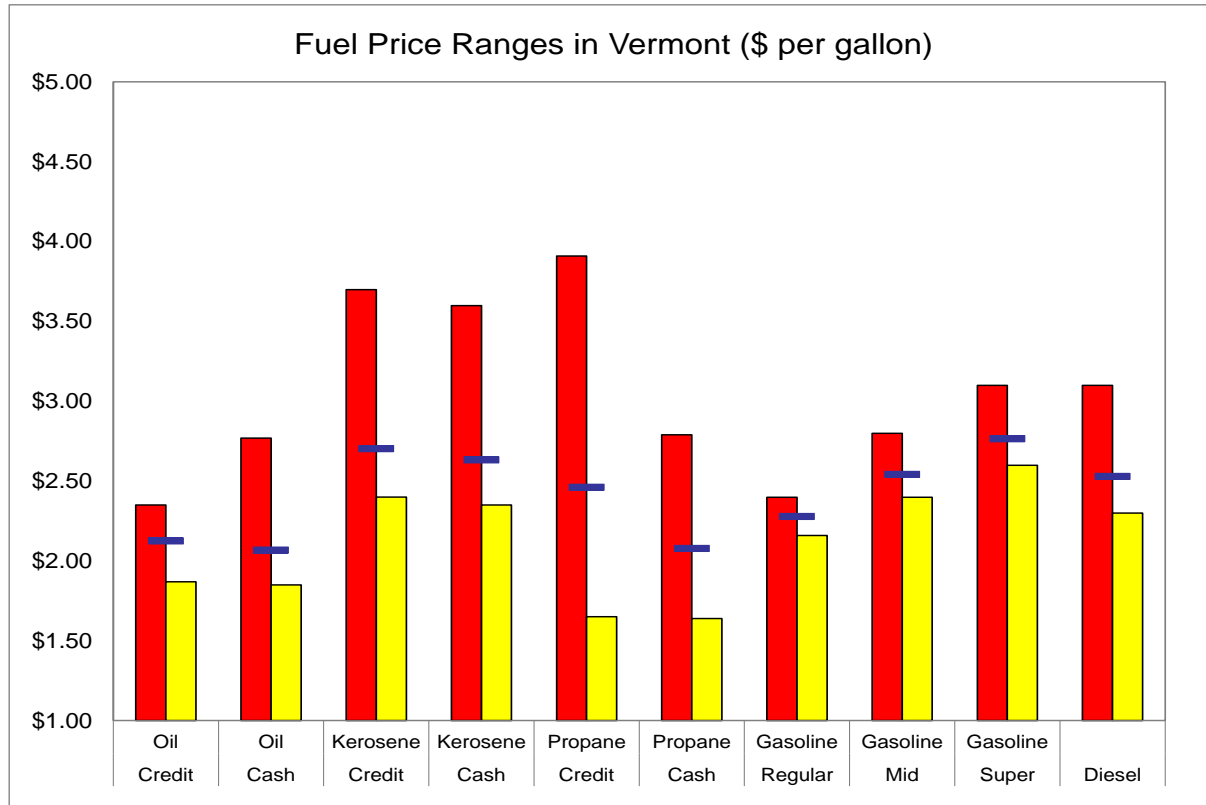
\* Natural Gas price is based on VGS residential rate effective Aug 5th, 2016.

# see October 2015 Fuel Price Report for discussion of heat pump coefficient of performance

^ Cord Wood price updated 8/2015 from small survey sample. Pellet price updated 10/2016 from small survey sample

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*NOTE: The Vermont Fuel Price Report is published monthly by the Vermont Department of Public Service. Prices are collected on or about the first Monday of each month and reflect dealer discounts for cash or self-service, except propane prices, which are an average of the credit and discount price. Propane prices are based on 1,000 + gallons. For more information please contact John Woodward at (802) 828-3061 or by email at [john.woodward@vermont.gov](mailto:john.woodward@vermont.gov).*