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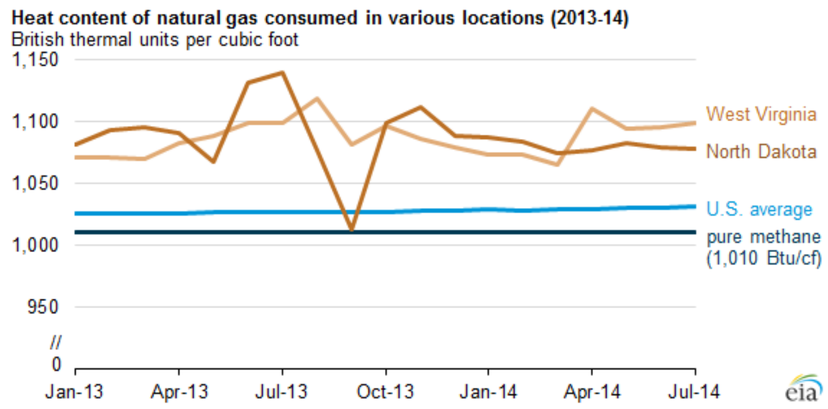
Newly released heat content data allow for state-to-state natural gas comparisons



Source: U.S. Energy Information Administration, *Natural Gas Monthly*

The heat content of natural gas, or the amount of energy released when a volume of gas is burned, varies according to the extent that gases with higher heat content than methane are included in delivered gas. EIA is now publishing the heat content of end-use natural gas by state in the *Natural Gas Monthly*.

The primary constituent of natural gas is methane, which has a heat content of 1,010 British thermal units per cubic foot (Btu/cf) at standard temperature and pressure. In July 2014, the heat content of natural gas in the United States was around 1,030 Btu/cf, or almost 2% more heat content than pure methane, reflecting the composition of the gases in the natural gas stream.

Natural gas requires a certain fuel-to-oxygen mix to burn properly, so stoves and other gas-fueled appliances typically require natural gas to be within a certain range of Btu content. Pipelines also have a range of acceptable Btu content for natural gas going through their systems, which can vary from one pipeline to another.

High-Btu natural gas contains higher concentrations of natural gas liquids (mostly ethane and some propane) that have higher heat content than methane. Pure ethane has a heat content of 1,770 Btu/cf and pure propane 2,516 Btu/cf.

Natural gas liquids are often removed during natural gas processing. However, because of the low price of ethane, many natural gas processors are choosing to leave ethane in the natural gas stream, a practice known as ethane rejection, rather than remove it for sale as a distinct product. A relatively high Btu content in a given state may be indicative of ethane rejection.

Regions with processing constraints or limited ethane demand are also more likely to reject ethane. This is particularly evident in 2013 in the Marcellus Shale play in Pennsylvania, West Virginia, and Ohio, as well as in the Bakken formation in North Dakota. In July 2014, natural gas delivered in West Virginia and North Dakota had average heat contents 6% and 5% higher, respectively, than the national average.

Other factors can contribute to variation in the average heat content of natural gas across states, including the presence of carbon dioxide or other nonhydrocarbons that remain in the natural gas stream after processing, various state and local regulations, and the presence of straddle plants (or downstream gas processing plants) that remove components from the dry gas stream.

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Tags: ethane, methane, natural gas, North Dakota, states, West Virginia