

Natural Gas Storage

Natural gas is an important fuel source in the United States, produced by wells drilled into rocks in the Gulf Coast states, in California, and along the continental shelf (among other locales). Natural gas consumption is currently running about 20 trillion cubic feet annually and is expected to increase another 10 Tcf over the next few decades as consumers switch from oil and electric heat to natural gas, and as new demands for natural gas crop up (see below).

Demand for natural gas for heating increases during the US winter, however it's not possible to increase production from gas wells to match the increasing demand; production remains more-or-less constant. Therefore, gas produced during the low demand summer months must be stored until needed, which presents a big challenge to the gas industry; natural gas, even condensed into LNG, takes up a lot of volume. Above ground storage tanks are useful and convenient on a small scale, but most natural gas is stored underground. Underground reservoirs for gas include oil fields that have been depleted of their petroleum (the extraction wells can be easily reversed and turned into injection wells) and abandoned salt mines (common in the Gulf Coast states where natural gas is produced from nearby formations). The current US underground storage capacity is over 3 trillion cubic feet.

The data show the variation in natural gas storage in the US (almost all underground) with time (on a weekly basis) from April 1997 to March 2000, covering three gas years. The data are quite cyclical, as expected. Stored gas increases throughout the summer months at a fairly constant rate until about September, when the storage rate begins to decline. Volume stored reaches a peak around New Years Day, when wellhead production can no longer meet demand, and net extraction from reservoirs begins to dominate.

Source: American Gas Association's report, *The Evolution of Underground Natural Gas Storage: Changes in Utilization Patterns*, prepared by International Gas Consulting, Inc. (whose website contains a condensed version of this report) and <http://www.seattlecentral.org/qelp/sets/065/065.html>.