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Short-Term Energy Outlook: Changes to the Natural Gas Storage Regions

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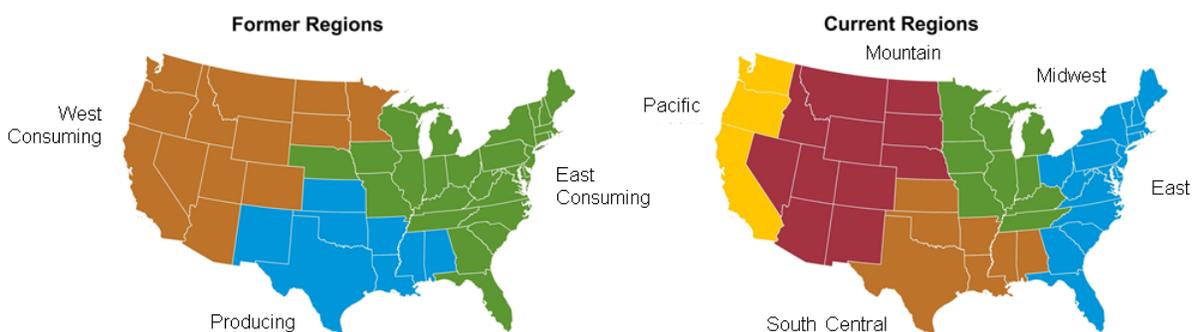


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1. Overview

EIA's *Weekly Natural Gas Storage Report* (WNGSR) publishes weekly natural gas [storage inventories by region](#). To better capture regional storage trends and changing geographic dynamics of natural gas markets, EIA recently began publishing weekly data for five regions, rather than the previous three (Figure 1). Weekly historical data going back to 2010 are also available for the new five regions, and data for the former three regions were discontinued as of November 6, 2015.

Figure 1: Former and new storage regions



When the WNGSR was established in 1993 by the American Gas Association, data for the Lower 48 states were separated into three regional groups: the Consuming East, the Consuming West, and the Producing region. At the time, the Producing region, which bordered the Gulf of Mexico, was home to 82% of U.S. natural gas production, while the other two regions were generally importers from the producing region and other countries. EIA assumed responsibility for the survey in 2002. With the development of shale resources and changes in regional trends in natural gas consumption and storage, the previous regions were reevaluated. The new categorization generally splits each of the previous two consuming regions into two parts, while the coverage of the former Producing region is now largely encompassed by the new South Central region. EIA incorporated customer feedback in determining the final boundaries for each of the five regions.

As it did for the Producing region in the previous three-region format, the WNGSR further disaggregates data for the South Central into [salt and non-salt facilities](#). Injection and withdrawal dynamics of salt facilities differ significantly from traditional depleted fields or aquifers. Natural gas stored in salt facilities can be drawn down and refilled, or cycled, as many as a dozen times a year, while gas stored in depleted fields or aquifers generally cycles only once a year. In salt facilities, both withdrawals and injections can occur in the same season, whereas traditional facilities mainly inject in the summer and withdraw in the winter.

In addition to weekly data, EIA also collects monthly data on storage facilities on [Form EIA-191](#), and reports aggregate data in the [Natural Gas Monthly](#) (NGM) and field-level data in a [respondent query system](#). EIA began publishing monthly data in the new five-region format with the [November NGM](#), released November 30, 2015.

2. Changes to STEO series and tables

To reflect the changes in the WNGSR, the *Short-Term Energy Outlook* (STEO) will adjust its methodology and produce forecasts for the five new storage regions. Prior to the December 2015 STEO, the STEO forecast monthly inventories in the three regions, as well as a U.S. total. The STEO will now forecast working inventory levels for each of the five new regions, as well as for Alaska, which is not included in the WNGSR, but is surveyed monthly on Form EIA-191. The new regional forecast will be published in [STEO table 5a](#). STEO forecasts on a monthly basis, and all STEO forecasts represent the level in storage on the last day of the month in a given region. Monthly historical data are provided by the NGM, and WNGSR numbers are used to estimate data for the most recent months not yet reported in the NGM.

Although STEO forecasts now include five regions and Alaska, the essential structure of the forecast model does not change (see the [Short-Term Energy Outlook Model documentation: Natural Gas Consumption and Prices](#)). The East, Midwest, Mountain, South Central, and Pacific regions are all forecast econometrically. In Alaska, inventories are small and data for the state have only been collected since 2013. Alaska inventories do not display the same seasonal variation as they do in the contiguous United States, and therefore, are forecast as the previous month's inventory plus the month-over-month change from one year ago. For example, August 2016 Alaska inventories would be equal to July 2016 inventory forecast plus the month-over-month change between July and August 2015.

Temperature is the most significant independent variable in inventory models as storage withdrawals and builds are highly dependent on space heating and air-conditioning demand from the electric power sector. Temperatures are represented in the model by heating degree days (HDD) and cooling degree days (CDD). HDD imply greater consumption of natural gas for heating, and therefore, larger withdrawals in the winter. A hotter-than-normal summer, on the other hand, would limit injections during the refill season because of the increase in natural gas demand in the electric power sector.

Each equation takes into account the National Oceanic and Atmospheric Administration (NOAA) degree-day forecasts for its predominant overlapping Census divisions. For example, in the East storage region, the forecast incorporates NOAA forecasts for the Middle Atlantic, New England, and South Atlantic Census divisions.

In addition to HDD and CDD, the STEO forecast also incorporates typical monthly withdrawals or builds for the past seven years. For example, if the STEO is forecasting end-of-July 2016 inventories for the new East region, that equation will use the average July build from 2009 through 2015.

EIA’s current forecast for inventories by region is shown below. While data are now more granular, there are only small changes to total U.S. working inventories.

Total U.S. working inventories reached their highest recorded level, 4,009 billion cubic feet, on November 20, according to EIA’s November 25 WNGSR report. Looking ahead to October 2016, EIA projects Lower 48 inventories will fall slightly short of their record high (Figure 2). The South Central has the highest storage capacity of the five regions, and typically peaks at the end of November, whereas the East and Midwest usually have net withdrawals in November.

Figure 2: Monthly Working Inventories by Region, 2015–2016

