Natural Gas Annual

2016
This report was prepared by the U.S. Energy Information Administration (EIA), the statistical and analytical agency within the U.S. Department of Energy. By law, EIA’s data, analyses, and forecasts are independent of approval by any other officer or employee of the United States Government. The views in this report therefore should not be construed as representing those of the Department of Energy or other Federal agencies.
Contacts

The *Natural Gas Annual* (NGA) is prepared under the direction of the Director of the Office of Petroleum and Biofuels Statistics, Robert Merriam.

General questions and comments concerning the contents of the *Natural Gas Annual* may be directed to the National Energy Information Center via email at infoctr@eia.gov.

Specific questions about the information in this report may be directed to:

- **Consumption and Consumer Prices**.................................Jennifer Wade (jennifer.wade@eia.gov 202/586-4749)
- **Imports and Exports**..........................................................Jose Villar (jose.villar@eia.gov 202/586-9613)
- **Natural Gas Production** ..................................................Jeffrey Little (jeffrey.little@eia.gov, 202/586-6284)
- **Quality** ...........................................................................Vicki Spangler (vicki.spangler@eia.gov, 202/586-8555)
- **Supplemental Gaseous Fuels** .........................................Jennifer Wade (jennifer.wade@eia.gov 202/586-4749)
- **Underground Storage** .....................................................Jennifer Wade (jennifer.wade@eia.gov 202/586-4749)

Other contributors to this report include Sharon Belcher, Bridgette Brown, Michael Kopalek, Gary Long, and Barbara Mariner-Volpe.
Preface

The Natural Gas Annual 2016 (NGA) provides information on the supply and disposition of natural gas to a wide audience including Congress, federal and state agencies, industry analysts, consumers, and educational institutions. The 2016 data are presented in a sequence that follows natural gas (including supplemental supplies) from its production to its end use. Tables summarizing natural gas supply and disposition from 2012 to 2016 for each state follow these tables. Annual historical data are shown at the national level.

**Data Sources:** The data in the Natural Gas Annual 2016 are primarily taken from surveys conducted by the Energy Information Administration (EIA), U.S. Department of Energy (DOE). Most of the sector-level consumption data in the NGA are derived from responses to the mandatory Form EIA-176, “Annual Report of Natural and Supplemental Gas Supply and Disposition.” Production data were primarily obtained directly from state and federal agencies, state-sponsored public record databases, or EIA estimates derived from responses to the mandatory Form EIA-914, “Monthly Crude Oil, Lease Condensate, and Natural Gas Production Report.” When production data from these primary sources were not available, data were supplemented by commercial vendors such as DrillingInfo, PointLogic Energy, and Ventyx. See Appendix A for more information.

Other EIA surveys that provided information for this report are:

- Form EIA-923, “Power Plant Operations Report,” for the quantity of gas consumed by the electric power sector and the price of natural gas consumed by electric power; for 2016, electric power data in this publication are preliminary and shown as of the July 2016 Electric Power Monthly.
- Form EIA-910, “Monthly Natural Gas Marketer Survey,” for natural gas prices paid by residential and/or commercial end-use customers in the states of Georgia, New York, and Ohio.
- Office of Fossil Energy report, Natural Gas Imports and Exports, for the quantity and price of natural gas imports and exports.

More discussion of data sources and methodology is provided in Appendix A.

EIA’s ongoing data quality efforts have resulted in revisions to the 2015 data series. Production volumes have been revised for several states. Several data series based on the Form EIA-176, including deliveries to end-users in several states, were also revised.

**What’s New**

The Natural Gas Annual 2016 includes changes and enhancements to the data. For example, Figure 13 has been redesigned to display natural gas flow capacity between five geographical regions of the United States, and the interstate movements map (Figure 14) now shows breakouts of imports and exports by pipeline, vessel, and truck.
Contents

Overview ......................................................................................................................................................... 1

Supplies ........................................................................................................................................................ 7

Imports and Exports ...................................................................................................................................... 19

Movements and Storage ............................................................................................................................ 33

Consumption ................................................................................................................................................. 47

Consumer Prices .......................................................................................................................................... 61

State Summaries .......................................................................................................................................... 75

Appendices
  A. Summary of Data Collection Operations and Report Methodology .................................................. 185
  B. Metric and Thermal Conversion Tables .............................................................................................. 197

Glossary ........................................................................................................................................................ 201
Tables

1. Summary Statistics for Natural Gas in the United States, 2012-2016 ......................................................... 1
2. Natural Gas Production, Transmission, and Consumption by State, 2016 ....................................................... 4
3. Gross Withdrawals and Marketed Production of Natural Gas by State and the Gulf of Mexico, 2012-2016 ........................................................................................................................................ 9
4. Offshore Gross Withdrawals of Natural Gas by State and the Gulf of Mexico, 2012-2016 .......................... 12
5. Number of Wells Producing Natural Gas by State and the Gulf of Mexico, 2012-2016 ............................ 13
6. Natural Gas Processed, Liquids Extracted, and Estimated Natural Gas Plant Liquids Production by State, 2016 .............................................................................................................................. 15
7. Supplemental Gas Supplies by State, 2016 ......................................................................................................... 17
9. Summary of U.S. Natural Gas Imports by Point of Entry, 2012-2016 ......................................................... 26
10. Summary of U.S. Natural Gas Exports, 2012-2016 .................................................................................. 30
11. Summary of U.S. Natural Gas Exports by Point of Exit, 2012-2016 .............................................................. 31
13. Additions to and Withdrawals from Gas Storage by State, 2016 ............................................................... 44
14. Underground Natural Gas Storage Capacity by State, December 31, 2016 ................................... 45
15. Consumption of Natural Gas by State, 2012-2016 ..................................................................................... 50
17. Natural Gas Delivered to Residential Consumers for the Account of Others by State, 2012-2016 ........ 54
18. Natural Gas Delivered to Commercial Consumers for the Account of Others by State, 2012-2016 .... 55
19. Natural Gas Delivered to Industrial Consumers for the Account of Others by State, 2012-2016 ......... 57
20. Number of Natural Gas Residential Consumers by Type of Service and State, 2014-2016 ............. 58
21. Number of Natural Gas Commercial Consumers by Type of Service and State, 2014-2016 .............. 59
22. Number of Natural Gas Industrial Consumers by Type of Service and State, 2014-2016 ................. 60
23. Average Citygate Price of Natural Gas in the United States, 2012-2016 .............................................. 66
24. Average Price of Natural Gas Delivered to Consumers by State and Sector, 2016 ......................... 67
25. Average Price of Natural Gas Delivered to Residential and Commercial Sector Consumers by Local Distribution and Marketers in Selected States, 2014-2016 ................................................................. 72
26. Number of Consumers Eligible and Participating in a Customer Choice Program in the Residential Sector, 2016 ......................................................................................................................... 73
27. Percent Distribution of Natural Gas Supply and Disposition by State, 2016 .............................................. 77
28. Percent Distribution of Natural Gas Delivered to Consumers by State, 2016 ........................................... 78
S2. Summary Statistics for Natural Gas - Alaska, 2012-2016 ..................................................................... 82
S5. Summary Statistics for Natural Gas - California, 2012-2016 ............................................................ 88
S11. Summary Statistics for Natural Gas - Georgia, 2012-2016 ............................................................... 100
S12. Summary Statistics for Natural Gas - Gulf of Mexico, 2012-2016 .................................................. 102
| 17. Summary Statistics for Natural Gas - Iowa, 2012-2016 | 112 |
| 22. Summary Statistics for Natural Gas - Maryland, 2012-2016 | 122 |
| 27. Summary Statistics for Natural Gas - Missouri, 2012-2016 | 132 |
| 29. Summary Statistics for Natural Gas - Nebraska, 2012-2016 | 136 |
| 32. Summary Statistics for Natural Gas - New Jersey, 2012-2016 | 142 |
| 33. Summary Statistics for Natural Gas - New Mexico, 2012-2016 | 144 |
| 34. Summary Statistics for Natural Gas - New York, 2012-2016 | 146 |
| 37. Summary Statistics for Natural Gas - Ohio, 2012-2016 | 152 |
| 38. Summary Statistics for Natural Gas - Oklahoma, 2012-2016 | 154 |
| 41. Summary Statistics for Natural Gas - Rhode Island, 2012-2016 | 160 |
| 42. Summary Statistics for Natural Gas - South Carolina, 2012-2016 | 162 |
| 43. Summary Statistics for Natural Gas - South Dakota, 2012-2016 | 164 |
| 44. Summary Statistics for Natural Gas - Tennessee, 2012-2016 | 166 |
| 45. Summary Statistics for Natural Gas - Texas, 2012-2016 | 168 |
| 46. Summary Statistics for Natural Gas - Utah, 2012-2016 | 170 |
| 47. Summary Statistics for Natural Gas - Vermont, 2012-2016 | 172 |
| 50. Summary Statistics for Natural Gas - West Virginia, 2012-2016 | 178 |
| 51. Summary Statistics for Natural Gas - Wisconsin, 2012-2016 | 180 |
| 52. Summary Statistics for Natural Gas - Wyoming, 2012-2016 | 182 |
| A1. Natural Gas Losses and Unaccounted for by State, 2016 | 194 |
| B2. Thermal Conversion Factors and Data, 2012-2016 | 200 |
Figures

1. Selected Average Prices of Natural Gas in the United States, 2012-2016 ........................................... 3
2. Natural Gas Supply and Disposition in the United States, 2016 ................................................................. 5
3. Marketed Production of Natural Gas in the United States and the Gulf of Mexico, 2016 ......................... 10
4. Marketed Production of Natural Gas in Selected States and the Gulf of Mexico, 2014-2016 ..................... 11
5. Gross Withdrawals of Natural Gas in the United States, by Type of Well, 2012-2016 ............................. 14
6. Natural Gas Processing in the United States and the Gulf of Mexico, 2016 ........................................... 16
7. U.S. Natural Gas Trade Summary, 2012-2016 ......................................................................................... 21
8. Net Imports as a Percentage of Total Consumption of Natural Gas, 2012-2016 ................................. 22
10. U.S. Natural Gas Imports by Type, 2012-2016 ......................................................................................... 24
11. Flow of Natural Gas Exports, 2016 .......................................................................................................... 28
12. U.S. Natural Gas Exports by Type, 2012-2016 ......................................................................................... 29
15. Locations of Existing Natural Gas Underground Storage Fields in the United States, 2016 ............... 46
16. Natural Gas Delivered to Consumers in the United States, 2012-2016 ................................................. 49
17. Natural Gas Delivered to Consumers in the United States, 2016 ......................................................... 53
18. Percent of Natural Gas Deliveries in the United States Representing Deliveries
    for the Account of Others, by Consumer Sector, 2012-2016 ................................................................. 56
19. Average Price of Natural Gas Delivered to Consumers in the United States, 2012-2016 ..................... 63
20. Average Price of Natural Gas Delivered to Residential Consumers, 1980-2016 ............................. 64
21. Average Citygate Price of Natural Gas in the United States, 2016 ......................................................... 65
22. Average Price of Natural Gas Delivered to U.S. Residential Consumers, 2016 .............................. 68
23. Average Price of Natural Gas Delivered to U.S. Commercial Consumers, 2016 ........................... 69
24. Average Price of Natural Gas Delivered to U.S. Onsystem Industrial Consumers, 2016 ............. 70
25. Average Price of Natural Gas Delivered to U.S. Electric Power Consumers, 2016 ......................... 71
26. Top Five States with Participants in a Residential Customer Choice Program, 2016 ....................... 73