

EA 2017-01

April 24, 2017

## **PRELIMINARY FINDINGS CONCERNING 2016 NATURAL GAS RESERVES**

### **KEY FINDINGS**

Understanding the size and diversity of U.S. natural gas reserves is a fundamental underpinning for evaluating U.S. production capability and thus the natural gas industry's ability to serve customers of all types. Extraordinary positive trends in U.S. natural gas production and proved reserves growth have existed in the United States for much of the past decade and reserves today are near the highest in U.S. history. Much of the growth in production capability has been focused onshore in shale and tight sands producing areas. From year-end 2000 to 2014, domestic dry natural gas reserves grew from 177 Tcf to 369 Tcf (trillion cubic feet) – an increase of nearly 109 percent, according the Energy Information Administration (EIA), and a record for the country. Reserves in 2015 slid back to about 308 Tcf due to falling natural gas prices at the wellhead but still a large reserves number compared to history. Growth in domestic reserves has also translated into growth in domestic dry gas production – from about 19.1 Tcf in 2000 to 26.4 Tcf estimated for 2016.

Based on data from a sample of 30 large natural gas reserves holders national inventories in 2016 likely remained about the same as in 2015 (about 308 Tcf), even though natural gas acquisition prices continued to fall. That in-and-of-itself is unusual and likely reinforces the notion that producers in 2016 survived, in many cases, by tenaciously reducing costs and thus making more of their resource development prospective on the margin. EIA has yet to publish an official reserves inventory for 2016. Having said that; the sample of 30 large reserves holders in this study more than replaced their production in 2016 with primarily new sources of gas through extensions and discoveries.

## INTRODUCTION

A natural gas drilling and completion rate that averaged over 30,000 wells per year in 2007 and 2008 fell to about 18,000 wells in 2009 and 17,000 wells in 2010. Today, fewer natural gas well completions per year are being added to the more than 500,000 producing gas wells in the United States than in recent history. However, annual production has grown to near record levels.

Statistically, the sample of 30 large reserves holders referenced in this report has accounted for as much as 50 percent of domestic reserves and about half of U.S. production during the past decade. Today, the sample accounts for about 43 percent of production and reserves held by the 30 sample companies. Reserves are those volumes of gas associated with known drilling and are defined specifically for financial reporting to the Securities and Exchange Commission. A term also used to describe natural gas, *resources*, presents a broader view of gas and includes estimates of yet to be discovered natural gas in the country, which are evaluated periodically by groups such as the Potential Gas Committee (Colorado School of Mines). This report is specifically focused on the known quantities identified as *reserves* and the annual changes to those reserves.

The sample of companies identified in this report year after year is not normalized, which is to say that it may change slightly due to sales and purchases, mergers and acquisitions and other qualifiers. However, if the thousands of smaller producers that account for the other half of U.S. natural gas reserves and production reached similar results during 2016, then reserves in total are expected to have changed little in 2016 compared to 2015 – that is sufficient discoveries and extensions were identified to offset negative revisions and production during the year. A reserves life (inventory on the shelf) of about twelve years (reserve life = total reserves divided by production) today compares to a reserves life of less than nine years in 2000.

Broadly examined, the volume of dry natural gas extracted from producing wells, today, is about 26 trillion cubic feet, annually. In addition, the drilling of exploratory and development wells adds new volumes to the known reserves inventory or creates a basis for revising previous estimates of natural gas reserves in the ground up or down. For statistical purposes, if these combined reserve additions exceed annual production domestic natural gas reserves “grow.” Conversely, if production and/or downward revisions exceed reserve additions, then reserves fall year over year.

AGA examines the reserves activity of 30 large reserve holders in the United States through annual reporting tools, such as the company *Annual Report, Form 10-K and Form 20-F*, which are submitted to the Securities and Exchange Commission (SEC) by individual companies. The companies (see Table 1, page 10) are not necessarily the 30 largest producers of natural gas, particularly companies below #25 on the list, but may be considered representative of the industry. The Energy Information Administration has published official reserves statistics for all companies in aggregate every year since the late 1970s. AGA’s study of annual preliminary reserves changes provides guidance for reserves expectations months ahead of the traditional EIA reporting.

## **SUMMARY OF RESERVES, PRODUCTION AND CHANGES IN RESERVES**

Natural gas reserves represent a subset of an estimated total resource base that far exceeds the *on-the-shelf* reserves inventory. Current proved reserves to annual production life will last about 12 years in the U.S. (up from just under 9 years in 2000), while the total resource base from which reserves are developed is estimated at about 100 years given current production levels. Of course, resource base and reserves estimates are shaped by technology and economics and as such are dynamic.

For 2016, it is likely that the national inventory of gas reserves was similar to that estimated in 2015. This net result reflects production from the reserves inventory during the year, negative revisions tied primarily to lower natural gas field prices and information conveyed by drilling activities, some positive revisions reflecting geologic information and the addition of new discoveries and extensions of existing fields. Sustaining the national reserves inventory is a prerequisite for sustaining or growing natural gas production, which is necessary to support future long-term market demand and currently provides more than 90 percent of the natural gas consumed in the United States. Given the fact that natural gas prices during 2016 were lower than the prior year, it is unusual not to see stronger negative revisions and thus declines in reserves year over year. Instead, it is likely that producer commitment to lowering costs helped to keep some gas reserves on the margin economic and recoverable at the lower market prices.

With that said, infrastructure such as new gathering systems linking new supply areas to existing pipelines continue to be developed to guarantee timely delivery of gas to markets. The activities of the 30 large reserves holders identified in this report allow trends among all producers of natural gas to be examined and to demonstrate shifts in the balance between large producers and the smaller independent producing companies.

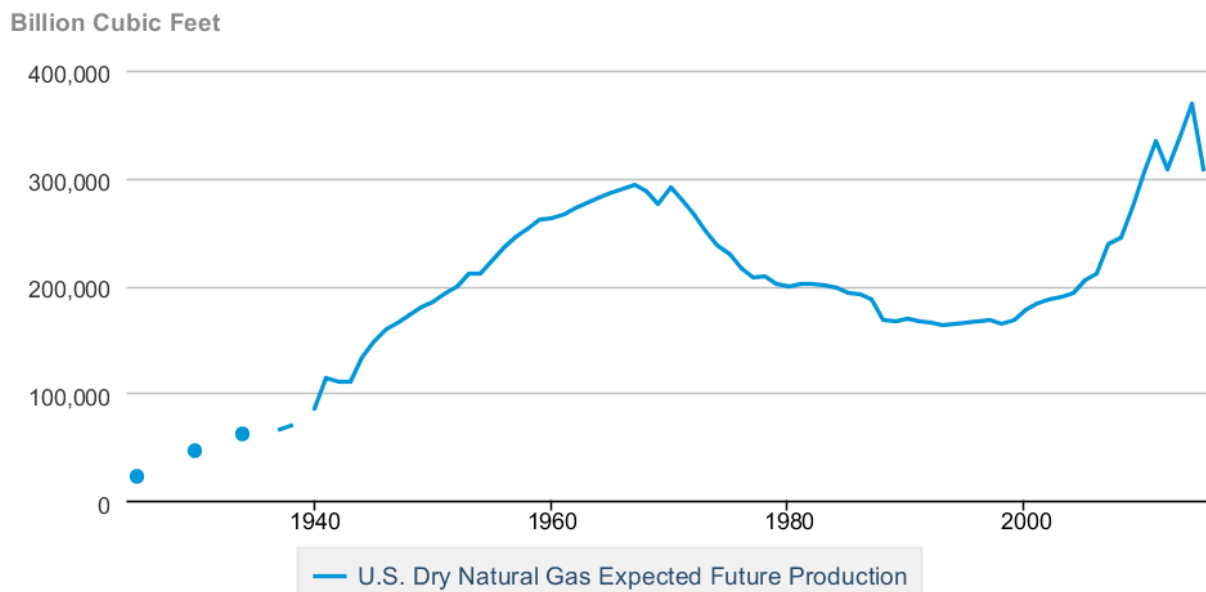
### *Reserves and Production*

- The 30 large reserve holders in the United States identified in this preliminary reserves report hold about 43 percent of the domestic natural gas reserves inventory, while the remaining producers (estimated to number in the thousands) hold the balance.
- AGA estimates that for 2016 cumulative producer additions were large, conservatively exceeding 28 Tcf. In addition, negative revisions to existing reserves were modest and therefore with domestic production of about 26.4 Tcf the reserves inventory held its own when compared to that estimated for 2015 (the last year of complete EIA reserves accounting is currently year-end 2015).
- It is expected that domestic year-end 2016 reserves (in total) may be about 310 Tcf, which is essentially the same as the 308 Tcf of dry natural gas reserves identified by EIA at year-end 2015 (see Figure 1).
- ExxonMobil is the largest natural gas reserves holder in the United States with nearly 18 Tcf followed by, Equitable Resources, Antero Resources, Cabot Oil and Gas and BP. Notice that only two of the top five would be considered integrated “majors” (see Table 1).

- Seven of the top ten reserves holders included in this report are large independent producers of oil and gas – only three are normally viewed as integrated multi-national oil and gas majors.
- The 30 reserves holders in this study in aggregate sustained their reserves position in 2016 at about 132 Tcf compared to 2015. However, this inventory is about 23 Tcf less than the 30 companies representing the sample from 2013 (154.7 Tcf).
- Twenty-seven of the 30 companies cited in this report held more than 1 Tcf of gas reserves at year-end 2016.
- Fifteen of the 30 producers noted in this report increased their natural gas reserves position in 2016 over 2015. The 30 companies listed hold 132.6 Tcf of gas reserves both because of new discoveries, extensions and acquisitions. For 2016, incremental natural gas additions for the sample companies from new discoveries and extensions (16.7 Tcf), overcame the 4.3 Tcf of net negative revisions and improved recovery gas to show more additions than production for the year.

**Figure 1. Natural Gas Proved Reserves**

**U.S. Dry Natural Gas Expected Future Production**



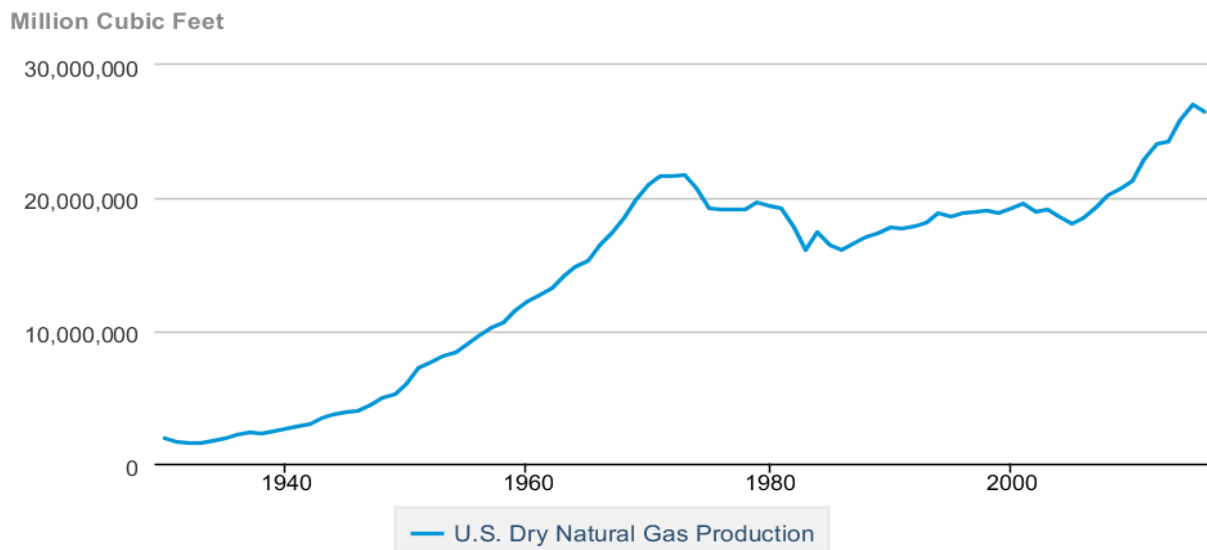
 Source: U.S. Energy Information Administration

- During 2016, the 30 companies identified in this analysis were slight net sellers of gas reserves rather than net purchasers – 7.7 Tcf of sales compared to 7.3 Tcf of purchases. It is not unusual to see sales and purchasing activities ramp up when prices are falling. One company’s need to sell becomes another’s opportunity at a bargain price. Chesapeake (1,190 Bcf), Consol (711 Bcf) and Anadarko (1,263 Bcf) EOG Resources (752 Bcf) and WPX Energy (1,506 Bcf) were the companies with the largest sales. Equitable Resources, Consol and Rice Energy were all major purchasers in 2016 and are by the way all located primarily in the Marcellus/Utica play in Pennsylvania.
- Eighteen of the 30 companies noted in this analysis reported negative net revisions to prior estimates of gas reserves (including improved recovery of gas). However, significant improved recovery volumes noted by BP and Occidental helped to offset about 600 Bcf of the negative revisions.

The 30 large natural gas reserves holders identified in this energy analysis accounted for 44 percent of the natural gas produced in the United States during 2016. However, this means that more than 50 percent domestic gas production was delivered by thousands of additional independent gas producers.

**Figure 2**

**U.S. Dry Natural Gas Production**

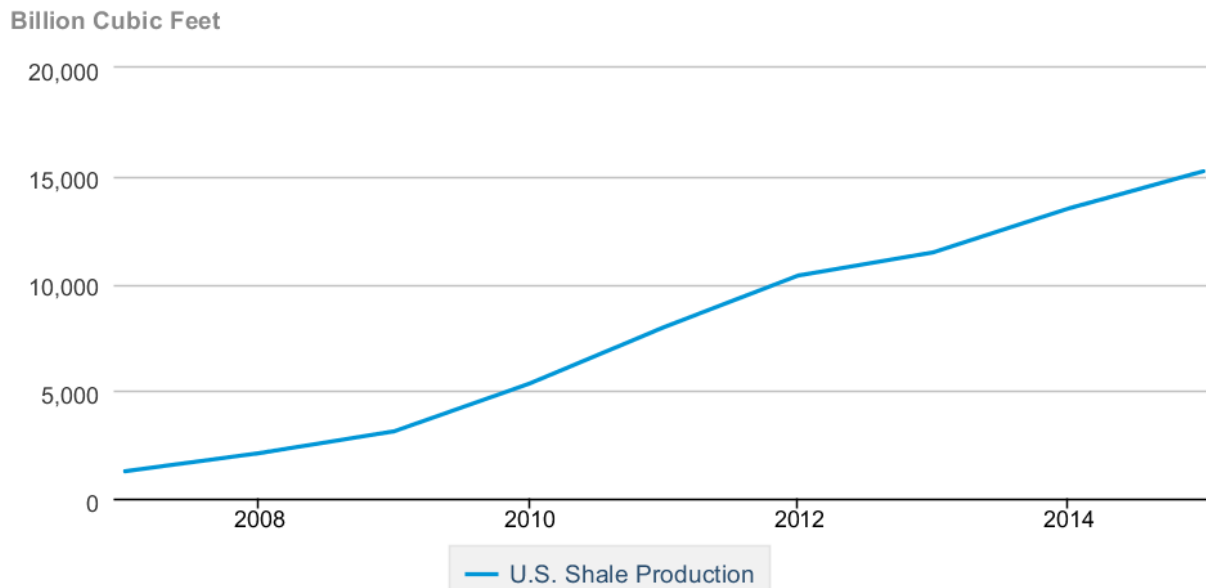


eia Source: U.S. Energy Information Administration

- Domestic dry gas production has risen about 38 percent since 2000, growing from 19.1 Tcf to the current estimate of 26.4 Tcf of dry gas in 2016 (see Figure 2). Many industry observers believe that future production capability may remain in the 26-27 Tcf range per annum (or higher) for the foreseeable future unless (1) significant policy decisions impede access to potential resources or economic activity slows, or (2) on the other side of the coin, gas demand prompts another production growth spurt.
- ExxonMobil was the largest domestic producer in 2016 (1,236 Bcf). Only Chesapeake Energy also produced more than 1 Tcf of gas in 2016, pointing to a very competitive gas supply market. The largest natural gas producer in the United States only supplies about five percent of the natural gas produced nationwide.
- As is well known, much of the resource development and production of natural gas today originates from shale deposits around the country. This is relatively new with the shale revolution beginning in about 2006 but currently accounts for more than half of US natural gas production (see Figure 3).

**Figure 3**

### U.S. Shale Production



 Source: U.S. Energy Information Administration

### *Reserve Additions*

Examining annual reserve additions can provide a measure of health for the producing segment of the natural gas industry. Total reserve additions in this report are defined as those quantities added to or deleted from natural gas reserves through field extensions, new field discoveries and new discoveries in old fields. They are important because reserve additions replace gas produced each year and serve to maintain the inventory of on-the-shelf gas reserves for future production and eventual delivery to customers.

In addition, positive and negative revisions to previous estimates and improved recovery of gas in place may add or delete reserves from the domestic inventory and are included in total reserve additions. It should be noted that wellhead price can influence the amount of gas *in-the-ground* estimated to be recoverable for new reservoirs and revisions to old reservoirs, alike. New Securities and Exchange Commission rules now require an annual average price to be used in reserves calculations rather than a price designated on the last day of the year – December 31.

Table 1 places in descending order (based on total reserves in 2016) the 30 companies chosen for this study. In addition, Table 1 shows reserves for year-end 2015 and changes in reserves (additions, deletions and production) during 2016.

- During the period 2000-2011, the 30 companies in AGA's reserves study generally accounted for 33 to 54 percent (about a third to one-half) of all annual domestic natural gas reserve additions from all domestic producers (resulting from discoveries, extensions, improved recovery and revisions).
- Since total reserve additions from this year's companies were firmly positive (12.4 Tcf), the estimate for all companies is likewise strong – perhaps 28 Tcf or more estimated.
- Companies with the largest net total additions to reserves during 2016 from the AGA sample include Equitable Resources (1,635 Bcf), Chesapeake (2,396 Bcf), Cabot Oil and Gas (1,055 Bcf), Rice Energy (1,685), Range Resources (1,186 Bcf), Gulfport Energy (834 Bcf) and Continental Resources (805 Bcf). Each of these companies has significant investment in domestic onshore, unconventional gas resources. During 2016, fifteen companies accounted for more than 300 Bcf of total reserve additions compared to only 10 companies in 2012.

### *New Gas Additions and Revisions*

Natural gas reserve additions are composed of new gas from extensions and discoveries and revisions of previous estimates, including improved recovery. Each is important to understanding reserve additions. Revisions to existing estimates of reserves and improved recovery can be greatly impacted by developing technology and natural gas prices. That is to say that changing commodity prices often bring revisions as more or less *gas-in-place* is deemed recoverable. Table 3 shows data from 2012 indicating the respective roles of new gas and revisions within the context of total reserve additions for the 30 companies in no particular order.

- For 2016, new gas additions (extensions and discoveries) were a solid 16.7 Tcf among the 30 companies and net revisions (including improved recovery) were negative for the 30 companies collectively coming in at -4,250 Bcf in 2016.
- Seven companies reported over 1.0 Tcf of discoveries and extensions (new gas) during 2016 compared to eight companies in 2013.

### *2016 Reserves Replacement*

The natural gas reserves inventory grows when annual additions to reserves exceed annual production. Replacing annual reserves at 100 percent implies that new gas and revisions to existing reserves equal production for a given year. For 1990, 1994-1997, and the thirteen-year period 1999-2011 reserves replacement was actually more than 100 percent and total reserves increased for the nation. There was a dip in reserves in 2012 but growth thereafter until 2015 when there was a price related dip once again. However, it is likely that reserves sustained themselves for the country as a whole in 2016. Table 2 shows data from the 30 large companies.

- Production for 2016 is estimated to have been 26.4 Tcf. Reserve additions are conservatively estimated from the sample extrapolated to the whole to have been about 28 Tcf; therefore, reserve replacement (of gas produced) for all producers in 2013 is estimated to have been about 106 percent.

### *2016 Net Purchases*

The results of sales and purchases of reserves by the 30 companies in this report are shown in Table 1. Sales and purchases of natural gas reserves may occur when companies are purchased or sold during industry consolidation and merger activities. In addition, specific properties are bought and sold that may have significant or marginal reserves value to specific companies. Depending on the point of view, a property is sold by one company no longer interested in the potential or known quantity of gas in place and is purchased by a company expecting to economically develop or grow the reserves. These transactions can occur between any reserves holder, but are often conducted between large and smaller independent companies.

- During 2016 both sales and purchases were relatively large at 7.7 and 7.4 Tcf, respectively; resulting in net sales of only 321 Bcf. Nine of the 30 companies listed purchased more than 100 Bcf in 2016, while 12 companies sold more than 100 Bcf among the 30. WPX Energy was the leading seller with sales of 1,506 Bcf in 2016, whereas Equitable Resources was the largest purchaser at more than 2 Tcf of natural gas.

### *Wellhead Prices*

Table 4 shows three years of wellhead price history (2014-2016) for the 30 companies in the AGA sample. The general trend for natural gas acquisition prices in 2016 was declining at Henry Hub over the three-year period. With that said; often producers hedge production just as many local gas utilities do as purchasers. Therefore, prices paid to producers net of financial instruments and hedging can be higher or lower than prevailing prices. The data in the table offers a view of general price movements.



- In looking at history, the median price represented by the 30 companies decreased about 14 percent from \$2.36 per thousand cubic feet (mcf) in 1997 to \$2.03 per mcf in 1998, but rebounded about 7 percent to \$2.18 per mcf in 1999. Price volatility but at relatively low prices.
- A more extraordinary increase in wellhead prices developed in 2000 and was reflected in the median price of gas paid to the 30 large reserve holders during 2000 of \$3.61 per mcf. That was a remarkable 65 percent increase as growing demand for natural gas outpaced supply. However, higher commodity prices translated to increased drilling activity and added deliverability of gas into pipelines for transport to customers, particularly in 2000 and 2001.
- For 2005, the combination of a warm summer, which placed more gas in power generation than the year before; supply disruptions due to an active Gulf of Mexico hurricane season; and very cold temperatures in early December added to upward pressure on wellhead natural gas prices. The median wellhead price (including the effects of hedging) increased 34.3 percent over 2004 (for the 30 companies) to \$6.97.
- 2006 saw a slight reduction (7.4 percent) in the wellhead price of natural gas for the 30 companies as the median price slipped to \$6.46 per mcf. However, wellhead prices rose sharply, once again, rising 17% in 2008 to \$7.67 per mcf over the 2007 median price of \$6.56. With economic recession, reductions in gas demand (particularly in the large-volume industrial sector) and strength in natural gas supply prices fell a remarkable 40 percent on average during 2009 to \$4.60 per mcf for the 30 companies only to increase slightly during 2010 to \$4.80 per mcf.
- Since 2010, commodity prices for natural gas have been influenced by seasonal demand (summer and winter) and the persistent growth domestic shale production. Supply outpaced demand for much of the 2014-2016 period such that the general direction of price movements was a two-year slide, even with record volumes of natural gas to power generation. For the sample of companies in this report, median wellhead acquisition prices moved from almost \$4 per thousand cubic feet to only \$2.16 per mcf in 2016.

**TABLE 1**

**30 LARGE RESERVES HOLDERS  
RESERVES AND CHANGES IN RESERVES 2016  
(BILLION CUBIC FEET)**

<b>COMPANY</b>	<b>12/31/15 RESERVES</b>	<b>NET REVISIONS</b>	<b>IMPROVED RECOVERY</b>	<b>DISCOVERIES/ EXTENSIONS</b>	<b>SALES</b>	<b>PURCHASES</b>	<b>PRODUCTION</b>	<b>12/31/16 RESERVES</b>	<b>RANK</b>
ExxonMobil	19,600	(1,626)	0	1,156	45	148	1,236	17,997	1
Equitable Resources	9,110	(607)	0	2,242	0	2,288	701	12,332	2
Antero Resources	9,533	(2,069)	0	1,990	10	475	505	9,414	3
Cabot Oil and Gas	7,856	405	0	650	30	0	600	8,281	4
BP	8,363	(231)	469	1	2	91	676	8,014	5
Range Resources	6,278	(7)	0	1,193	161	943	376	7,870	6
ConocoPhillips	7,518	(229)	0	164	70	0	567	6,816	7
Chesapeake Energy	6,041	598	0	1,798	1,190	299	1,050	6,496	8
Consol	5,060	(159)	0	644	711	1,353	358	5,828	9
Devon Energy	5,808	525	0	280	521	33	510	5,615	10
Southwestern Energy	5,917	(446)	0	198	15	0	788	4,866	11
Anadarko	5,991	310	0	59	1,263	68	766	4,399	12
Rice Energy	1,700	17	0	1,668	0	924	304	4,005	13
Continental Resources	3,152	(63)	0	911	15	0	195	3,789	14
Chevron	4,242	(6)	2	388	544	4	410	3,676	15
EOG Resources	3,490	298	0	202	752	92	309	3,021	16
Noble Energy	2,711	181	0	492	224	0	322	2,838	17
QEP Resources	2,109	413	0	158	4	55	177	2,554	18
Gulfport Energy	1,560	(248)	0	1,082	0	0	228	2,167	19
Seneca Resources	2,142	(248)	0	185	261	0	144	1,675	20
Apache	1,573	(215)	0	220	0	0	145	1,432	21
Newfield Exploration	1,305	116	0	92	102	90	135	1,366	22
BHP	3,296	(1,644)	0	37	0	0	379	1,311	23
Marathon Oil	1,151	(146)	0	362	25	61	115	1,288	24
Pioneer Nat Resources	1,356	(77)	0	121	1	5	140	1,264	25
Encana	1,112	177	0	91	150	16	153	1,093	26
Occidental	1,019	(19)	138	0	89	128	132	1,045	27
PDC Energy	661	(80)	0	4	4	305	52	834	28
WPX Energy	2,190	(50)	0	215	1,506	4	119	735	29
Swift Energy	312	271	0	93	8	0	41	6268	30
<b>Totals</b>	<b>132,156</b>	<b>(4,859)</b>	<b>609</b>	<b>16,696</b>	<b>7,703</b>	<b>7,382</b>	<b>11,633</b>	<b>132,647</b>	

**TABLE 2**

**30 LARGE RESERVES HOLDERS  
RESERVES REPLACEMENT 2016  
(BILLION CUBIC FEET)**

<b>Company</b>	<b>Total Reserve Additions</b>	<b>Production</b>	<b>Reserves Replacement %</b>
Chesapeake Energy	2,396	1,050	228
Southwestern Energy	(248)	788	---
BHP	519	491	106
BP	(1,607)	379	---
EOG Resources	500	309	162
Swift Energy	364	41	888
Equitable Resources	1,635	701	233
Newfield Exploration	208	135	154
ConocoPhillips	(65)	567	---
QEP Resources	571	177	323
Devon	805	510	158
Encana	268	153	175
ExxonMobil	(470)	1,236	---
Anadarko	369	766	48
Antero	(79)	505	---
Cabot Oil and Gas	1,055	600	176
PDC Energy	(76)	52	---
WPX Energy	165	119	139
Apache	5	145	3
Chevron	384	410	94
Marathon Oil	216	115	188
Consol	485	358	136
Seneca Resources	(63)	144	---
Gulfport Energy	834	228	366
Range Resources	1,186	376	315
Rice Energy	1,685	304	554
Continental Resources	848	195	435
Noble Energy, Inc.	673	322	209
Occidental	119	132	90
Pioneer Natural Res.	44	140	31
<b>Totals</b>	<b>12,446</b>	<b>11,633</b>	<b>107</b>

**TABLE 3**

**30 LARGE RESERVES HOLDERS  
NEW GAS ADDITIONS 2016  
(BILLION CUBIC FEET)**

<b>Company</b>	<b>Discoveries/ Extensions</b>	<b>Net Revisions/ Improved Recovery</b>	<b>New Gas %</b>
BP	1	(231)	1
ExxonMobil	1,156	(1,626)	---
Chevron	388	(4)	101
Marathon Oil	362	(146)	168
Swift Energy	93	271	26
Southwestern Energy	198	(446)	---
WPX Energy	215	(50)	130
ConocoPhillips	164	(229)	---
Rice Energy	1,668	17	99
Range Resources	1,193	-7	101
EOG Resources	202	298	40
Seneca Resources	185	(248)	---
Continental Resources	911	(63)	107
Encana	268	177	34
Antero Resources	1,990	(2,069)	---
Anadarko	59	310	16
Occidental	0	(19)	---
PDC Energy	4	(80)	---
QEP Resources	158	413	28
Apache	220	-215	4,400
Devon Energy	280	525	35
Gulfport Energy	1,082	(248)	130
Noble Energy, Inc	492	181	73
BHP	37	(1,644)	---
Pioneer Natural Res.	121	(77)	275
Cabot Oil and Gas	650	405	62
Consol	644	(159)	133
Equitable Resources	2,242	(607)	137
Chesapeake Energy	1,798	598	75
Newfield Exploration	92	116	44
<b>Totals</b>	<b>16,696</b>	<b>(4,250)</b>	<b>134</b>

**TABLE 4**  
**30 LARGE RESERVES HOLDERS**  
**PRICE OF GAS SOLD AT THE WELLHEAD (INCLUDING HEDGES WHERE POSSIBLE)**  
**(\$/Mcf)**

<b>Company</b>	<b>2016 Price</b>	<b>2015 Price</b>	<b>2014 Price</b>
BP	1.90	2.10	3.80
ExxonMobil	1.44	1.65	3.62
Chevron	1.59	1.92	3.90
Marathon Oil	2.38	2.66	4.57
Rice Energy	2.83	3.18	3.46
Encana	2.29	2.60	4.62
WPX Energy	3.25	6.01	3.41
ConocoPhillips	2.20	2.43	4.29
Swift Energy	2.55	4.27	3.70
Range Resources	2.01	2.13	3.99
EOG Resources	1.60	1.97	3.93
Seneca Resources	3.02	3.38	3.56
Continental Resources	1.87	2.31	5.40
Southwestern Energy	1.64	2.37	3.72
Gulfport Energy	2.45	2.79	3.61
Anadarko	2.04	2.36	4.07
Occidental	1.90	2.15	3.97
PDC Energy	1.77	2.04	3.87
QEP Resources	2.36	2.59	4.33
Chesapeake Energy	2.20	2.72	3.97
Apache	2.17	2.38	4.33
Devon Energy	1.91	2.71	3.85
Antero Resources	4.39	4.15	4.10
Noble Energy, Inc.	2.11	2.10	3.86
BHP	2.16	3.27	4.10
Pioneer Natural Res.	2.11	2.40	4.12
Cabot Oil and Gas	1.70	2.15	3.28
Consol	2.63	2.81	4.37
Equitable Resources	2.41	3.06	4.21
Newfield Exploration	2.20	2.51	3.81
Est. Median Price	2.16	2.43	3.95
Est. Average Price	2.24	2.71	3.99

In issuing and making this publication available, AGA is not undertaking to render professional or other services for or on behalf of any person or entity. Nor is AGA undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances. The statements in this publication are for general information and represent an unaudited compilation of statistical information that could contain coding or processing errors. AGA makes no warranties, express or implied, nor representations about the accuracy of the information in the publication or its appropriateness for any given purpose or situation.

This publication shall not be construed as including, advice, guidance, or recommendations to take, or not to take, any actions or decisions in relation to any matter, including without limitation, relating to investments or the purchase or sale of any securities, shares or other assets of any kinds. Should you take any such action or decision, you do so at your own risk. Information on the topics covered by this publication may be available from other sources, which the user may wish to consult for additional views or information not covered by this publication.

Copyright © 2017 American Gas Association. All Rights Reserved.