Drilling Productivity Report
For key tight oil and shale gas regions

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Anadarko Region
Drilling Productivity Report
February 2020

Drilling data through January
projected production through March

Anadarko Region
New-well oil production per rig
barrels/day

- New-well oil production per rig
- Rig count

Anadarko Region
Legacy oil production change
thousand barrels/day

Anadarko Region
Indicated change in oil production (Mar vs. Feb)
thousand barrels/day

Anadarko Region
Oil production
thousand barrels/day

Anadarko Region
Natural gas production
million cubic feet/day

Anadarko Region
New-well gas production per rig
thousand cubic feet/day

Anadarko Region
Legacy gas production change
million cubic feet/day

Anadarko Region
Indicated change in natural gas production (Mar vs. Feb)
million cubic feet/day

Anadarko Region
Rig count
rigs

Anadarko Region
Rig count
rigs

Anadarko Region
Gas
thousand cubic feet/day

Anadarko Region
Gas
million cubic feet/day

Oil +29 barrels/day month over month

Gas +116 thousand cubic feet/day month over month

March 4,481
February 4,365

Oil +29 barrels/day
February 751
March 722

-30
-15
0
15
30

Feb
7,395
536
Mmbld

Mar
526
Mmbld

Production from new wells
Legacy production change
Net change

Feb
7,255
MMcf/d

Mar
7,395
MMcf/d

Feb
536
Mbbl/d

Mar
526
Mbbl/d

March
536
Mbbl/d

Production from new wells
Legacy production change
Net change

Feb
4,365

Mar
4,481

-140
-351
+211
0
100
200
300
400
500

Feb
March

Anadarko Region
Gas -140 million cubic feet/day month over month

Anadarko Region
Oil -10 thousand barrels/day month over month

Oil +29 barrels/day

Gas +116 thousand cubic feet/day

barrels/day

month

month

thousand barrels/day

thousand cubic feet/day

month

month
Appalachia Region

**Drilling Productivity Report**

February 2020

Drilling data through January
Projected production through March

**Oil**

- March 2020: 127 barrels/day
- February 2020: 119 barrels/day

**Gas**

- March 2020: 15,250 thousand cubic feet/day
- February 2020: 15,060 thousand cubic feet/day

**Appalachia Region**

**New-well oil production per rig**

- 2011: 0 barrels/day
- 2012: 1,000 barrels/day
- 2013: 2,000 barrels/day
- 2014: 3,000 barrels/day
- 2015: 4,000 barrels/day
- 2016: 5,000 barrels/day
- 2017: 6,000 barrels/day
- 2018: 7,000 barrels/day
- 2019: 8,000 barrels/day
- 2020: 9,000 barrels/day

**Legacy oil production change**

- 2011: 0 thousand barrels/day
- 2012: 2 thousand barrels/day
- 2013: 4 thousand barrels/day
- 2014: 6 thousand barrels/day
- 2015: 8 thousand barrels/day
- 2016: 10 thousand barrels/day
- 2017: 12 thousand barrels/day
- 2018: 14 thousand barrels/day
- 2019: 16 thousand barrels/day
- 2020: 18 thousand barrels/day

**Indicated change in oil production (Mar vs. Feb)**

- February: +8 thousand barrels/day
- March: -1 thousand barrels/day

**New-well gas production per rig**

- 2011: 0 thousand cubic feet/day
- 2012: 15,000 thousand cubic feet/day
- 2013: 16,000 thousand cubic feet/day
- 2014: 17,000 thousand cubic feet/day
- 2015: 18,000 thousand cubic feet/day
- 2016: 19,000 thousand cubic feet/day
- 2017: 20,000 thousand cubic feet/day
- 2018: 21,000 thousand cubic feet/day
- 2019: 22,000 thousand cubic feet/day
- 2020: 23,000 thousand cubic feet/day

**Legacy gas production change**

- 2011: 0 million cubic feet/day
- 2012: 15,250 million cubic feet/day
- 2013: 15,000 million cubic feet/day
- 2014: 14,750 million cubic feet/day
- 2015: 14,500 million cubic feet/day
- 2016: 14,250 million cubic feet/day
- 2017: 14,000 million cubic feet/day
- 2018: 13,750 million cubic feet/day
- 2019: 13,500 million cubic feet/day
- 2020: 13,250 million cubic feet/day

**Indicated change in natural gas production (Mar vs. Feb)**

- February: +778 million cubic feet/day
- March: -220 million cubic feet/day

**New-well gas production per rig**

- 2011: 0 thousand cubic feet/day
- 2012: 15,250 thousand cubic feet/day
- 2013: 15,000 thousand cubic feet/day
- 2014: 14,750 thousand cubic feet/day
- 2015: 14,500 thousand cubic feet/day
- 2016: 14,250 thousand cubic feet/day
- 2017: 14,000 thousand cubic feet/day
- 2018: 13,750 thousand cubic feet/day
- 2019: 13,500 thousand cubic feet/day
- 2020: 13,250 thousand cubic feet/day

**Rig count**

- 2011: 10 rigs
- 2012: 8 rigs
- 2013: 6 rigs
- 2014: 4 rigs
- 2015: 2 rigs
- 2016: 0 rigs
- 2017: 0 rigs
- 2018: 0 rigs
- 2019: 0 rigs
- 2020: 0 rigs

**Drilling data through January**

- Projected production through March

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Bakken Region
Drilling Productivity Report

February 2020

Monthly additions from one average rig

New-well oil production per rig

New-well gas production per rig

Legacy oil production change

Legacy gas production change

Indicated change in oil production (Mar vs. Feb)

Indicated change in natural gas production (Mar vs. Feb)

Oil production

Natural gas production

Bakken Region

U. S. Energy Information Administration | Drilling Productivity Report
Eagle Ford Region

**Drilling Productivity Report**

February 2020

**Oil**

- New-well oil production per rig
- Legacy oil production change
- Indicated change in oil production (Mar vs. Feb)
- Oil production

**Natural gas**

- New-well gas production per rig
- Legacy gas production change
- Indicated change in natural gas production (Mar vs. Feb)
- Natural gas production

**Drilling data through January**

**Projected production through March**

**Month over month**

**New-well oil production per rig**

- 2011 to 2020
- 1,800 barrels/day

**Rig count**

- 2011 to 2020
- 300 to 1,500 thousand barrels/day

**New-well gas production per rig**

- 2011 to 2020
- 9,000 thousand cubic feet/day

**Rig count**

- 2011 to 2020
- 350 thousand cubic feet/day

**Monthly additions from one average rig**

- March 4,937 barrels/day
- February 4,927 barrels/day

**Gas**

- 2011 to 2020
- 1,482 barrels/day

**February**

- 1,461 barrels/day

**March**

- 21 barrels/day

**Natural gas**

- 2011 to 2020
- 4,937 million cubic feet/day

**February**

- 4,927 million cubic feet/day

**March**

- 19 million cubic feet/day

**month over month**

**Indicated change in oil production (Mar vs. Feb)**

- +116 thousand barrels/day
- -116 thousand barrels/day
- 0 thousand barrels/day

**Indicated change in natural gas production (Mar vs. Feb)**

- +385 million cubic feet/day
- -404 million cubic feet/day
- -19 million cubic feet/day

**Oil production**

- 2011 to 2020
- 1,800 thousand barrels/day

**Natural gas production**

- 2011 to 2020
- 10,000 million cubic feet/day
Niobrara Region

Drilling Productivity Report

February 2020

drilling data through January
projected production through March

Oil +5 barrels/day
month over month

1,237 March
1,232 February

Monthy additions from one average rig

March 4,292 thousand cubic feet/day
February 4,270 thousand cubic feet/day

Gas +22 thousand cubic feet/day
month over month

Niobrara Region
New-well oil production per rig
barrels/day

Niobrara Region
New-well gas production per rig
t housand cubic feet/day

Rig count
rigs

Niobrara Region
Legacy oil production change
thousand barrels/day

Niobrara Region
Legacy gas production change
million cubic feet/day

Niobrara Region
Indicated change in oil production (Mar vs. Feb)
thousand barrels/day

Niobrara Region
Indicated change in natural gas production (Mar vs. Feb)
million cubic feet/day

Niobrara Region
Oil production
thousand barrels/day

Niobrara Region
Natural gas production
million cubic feet/day
The Drilling Productivity Report uses recent data on the total number of drilling rigs in operation along with estimates of drilling productivity and estimated changes in production from existing oil and natural gas wells to provide estimated changes in oil and natural gas production for seven key regions. EIA’s approach does not distinguish between oil-directed rigs and gas-directed rigs because once a well is completed it may produce both oil and gas; more than half of the wells do that.

**Monthly additions from one average rig**

Monthly additions from one average rig represent EIA’s estimate of an average rig’s contribution to production of oil and natural gas from new wells. The estimation of new-well production per rig uses several months of recent historical data on total production from new wells for each field divided by the region's monthly rig count, lagged by two months. Current- and next-month values are listed on the top header. The month-over-month change is listed alongside, with +/- signs and color-coded arrows to highlight the growth or decline in oil (brown) or natural gas (blue).

**New-well oil/gas production per rig**

Charts present historical estimated monthly additions from one average rig coupled with the number of total drilling rigs as reported by Baker Hughes.

**Legacy oil and natural gas production change**

Charts present EIA’s estimates of total oil and gas production changes from all the wells other than the new wells. The trend is dominated by the well depletion rates, but other circumstances can influence the direction of the change. For example, well freeze-offs or hurricanes can cause production to significantly decline in any given month, resulting in a production increase the next month when production simply returns to normal levels.

**Projected change in monthly oil/gas production**

Charts present the combined effects of new-well production and changes to legacy production. Total new-well production is offset by the anticipated change in legacy production to derive the net change in production. The estimated change in production does not reflect external circumstances that can affect the actual rates, such as infrastructure constraints, bad weather, or shut-ins based on environmental or economic issues.

**Oil/gas production**

Charts present all oil and natural gas production from both new and legacy wells since 2007. This production is based on all wells reported to the state oil and gas agencies. Where state data are not immediately available, EIA estimates the production based on estimated changes in new-well oil/gas production and the corresponding legacy change.

**Footnotes:**

1. Oil production represents both crude and condensate production from all formations in the region. Production is not limited to tight formations. The regions are defined by all selected counties, which include areas outside of tight oil formations.
2. Gas production represents gross (before processing) gas production from all formations in the region. Production is not limited to shale formations. The regions are defined by all selected counties, which include areas outside of shale formations.
3. The monthly average rig count used in this report is calculated from weekly data on total oil and gas rigs reported by Baker Hughes.
4. A new well is defined as one that began producing for the first time in the previous month. Each well belongs to the new-well category for only one month. Reworked and recompleted wells are excluded from the calculation.
5. Rig count data lag production data because EIA has observed that the best predictor of the number of new wells beginning production in a given month is the count of rigs in operation two months earlier.
Drilling Productivity Report

The data used in the preparation of this report come from the following sources. EIA is solely responsible for the analysis, calculations, and conclusions.

Drilling Info (http://www.drillinginfo.com) Source of production, permit, and spud data for counties associated with this report. Source of real-time rig location to estimate new wells spudded and completed throughout the United States.

Baker Hughes (http://www.bakerhughes.com) Source of rig and well counts by county, state, and basin.

North Dakota Oil and Gas Division (https://www.dmr.nd.gov/oilgas) Source of well production, permit, and completion data in the counties associated with this report in North Dakota.

Railroad Commission of Texas (http://www.rrc.state.tx.us) Source of well production, permit, and completion data in the counties associated with this report in Texas.

Pennsylvania Department of Environmental Protection (https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Welcome/Welcome.aspx) Source of well production, permit, and completion data in the counties associated with this report in Pennsylvania.

West Virginia Department of Environmental Protection (http://www.dep.wv.gov/oil-and-gas/Pages/default.aspx) Source of well production, permit, and completion data in the counties associated with this report in West Virginia.

Colorado Oil and Gas Conservation Commission (http://cogcc.state.co.us) Source of well production, permit, and completion data in the counties associated with this report in Colorado.

Wyoming Oil and Conservation Commission (http://wogcc.state.wy.us) Source of well production, permit, and completion data in the counties associated with this report in Wyoming.

Louisiana Department of Natural Resources (http://dnr.louisiana.gov) Source of well production, permit, and completion data in the counties associated with this report in Louisiana.

Ohio Department of Natural Resources (http://oilandgas.ohiodnr.gov) Source of well production, permit, and completion data in the counties associated with this report in Ohio.