Drilling Productivity Report
For key tight oil and shale gas regions

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### Year-over-year summary

**Drilling Productivity Report**

April 2018

Drilling data through March projected production through May

#### New-well oil production per rig

- **Oil production**
  - Thousand barrels/day
  - May-2017 vs. May-2018
  - Regions: Anadarko, Appalachia, Bakken, Eagle Ford, Haynesville, Niobrara, Permian

#### Legacy gas production change

- **Legacy gas production change**
  - Million cubic feet/day
  - May-2017 vs. May-2018
  - Regions: Anadarko, Appalachia, Bakken, Eagle Ford, Haynesville, Niobrara, Permian

#### Legacy oil production change

- **Legacy oil production change**
  - Thousand barrels/day
  - May-2017 vs. May-2018
  - Regions: Anadarko, Appalachia, Bakken, Eagle Ford, Haynesville, Niobrara, Permian

#### Indicated monthly change in oil production (May vs. Apr)

- **Indicated monthly change in oil production**
  - Thousand barrels/day
  - May-2017 vs. May-2018
  - Regions: Anadarko, Appalachia, Bakken, Eagle Ford, Haynesville, Niobrara, Permian

#### Oil production

- **Oil production**
  - Thousand barrels/day
  - May-2017 vs. May-2018
  - Regions: Anadarko, Appalachia, Bakken, Eagle Ford, Haynesville, Niobrara, Permian

#### Natural gas production

- **Natural gas production**
  - Million cubic feet/day
  - May-2017 vs. May-2018
  - Regions: Anadarko, Appalachia, Bakken, Eagle Ford, Haynesville, Niobrara, Permian

#### New-well gas production per rig

- **Natural gas production**
  - Thousand cubic feet/day
  - May-2017 vs. May-2018
  - Regions: Anadarko, Appalachia, Bakken, Eagle Ford, Haynesville, Niobrara, Permian
# Appalachia Region Drilling Productivity Report

## Oil Production

### New-well Oil Production per Rig

- **Appalachia Region**
- **Rig count**: 180
- **New-well oil production per rig**
- **2009 - 2018**

### Legacy Oil Production Change

- **Appalachia Region**
- **2009 - 2018**

### Indicated Change in Oil Production (May vs. Apr)

- **Appalachia Region**
- **2009 - 2018**

## Gas Production

### New-well Gas Production per Rig

- **Appalachia Region**
- **Rig count**: 180
- **New-well gas production per rig**
- **2009 - 2018**

### Legacy Gas Production Change

- **Appalachia Region**
- **2009 - 2018**

### Indicated Change in Natural Gas Production (May vs. Apr)

- **Appalachia Region**
- **2009 - 2018**

## Summary

### Oil

- **May 2018**: 145 barrels/day
- **April 2018**: 144 barrels/day
- **Month over month**: +1

### Gas

- **May 2018**: 15,586 thousand cubic feet/day
- **April 2018**: 15,409 thousand cubic feet/day
- **Month over month**: +177

### Drilling Data

- **Drilling data through March**
- **Projected production through May**

### Monthly Additions from One Average Rig

- **May 2018**: 15,564 barrels/day
- **April 2018**: 15,409 barrels/day
- **Month over month**: +386

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Bakken Region

New-well oil production per rig

- New-well oil production per rig (barrels/day)
- Rig count (rigs)

New-well oil production per rig

- April 1,214 Mbbld
- May 1,229 Mbbld

Legacy oil production change

- Thousand barrels/day

Indicated change in oil production (May vs. Apr)

- Thousand barrels/day

Oil +15

Bakken Region

New-well gas production per rig

- New-well gas production per rig (thousand cubic feet/day)
- Rig count (rigs)

New-well gas production per rig

- April 2,190 MMcfd
- May 2,227 MMcfd

Legacy gas production change

- Million cubic feet/day

Indicated change in natural gas production (May vs. Apr)

- Million cubic feet/day

Gas +37

Bakken Region

Natural gas production

- Million cubic feet/day

Oil +15

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April 2018
### Eagle Ford Region

**Drilling Productivity Report**

**April 2018**

- **Oil**
  - Monthly additions from one average rig: May 1,447, April 1,399 barrels/day

- **Gas**
  - Monthly additions from one average rig: May 5,772, April 5,512 thousand cubic feet/day

**New-well oil production per rig**

- **May**
  - 1,312 MBbl/d
- **April**
  - 1,254 MBbl/d

**New-well gas production per rig**

- **May**
  - 6.557 MMcf/d
- **April**
  - 6.674 MMcf/d

**Eagle Ford Region Legacy oil production change**

- **May**
  - 122 thousand barrels/day
- **April**
  - -98 thousand barrels/day

**Eagle Ford Region Legacy gas production change**

- **May**
  - 485 million cubic feet/day
- **April**
  - -368 million cubic feet/day

**Indicated change in oil production (May vs. Apr)**

- **Oil**
  - +24 thousand barrels/day

**Indicated change in natural gas production (May vs. Apr)**

- **Gas**
  - +117 million cubic feet/day

**Natural gas production**

- **May**
  - 10,000 MMcf/d
- **April**
  - 8,000 MMcf/d

**New-well gas production per rig**

- **May**
  - 6,557 MMcf/d
- **April**
  - 6,674 MMcf/d

- **Rig count**
  - **May**
    - 350 rigs
  - **April**
    - 350 rigs

- **New-well oil production per rig**
  - **May**
    - 1,447 barrels/day
  - **April**
    - 1,399 barrels/day

- **Rig count**
  - **May**
    - 160 rigs
  - **April**
    - 140 rigs

- **New-well gas production per rig**
  - **May**
    - 1,312 MBbl/d
  - **April**
    - 1,254 MBbl/d

- **Rig count**
  - **May**
    - 300 rigs
  - **April**
    - 280 rigs

**Legacy oil production change**

- **May**
  - (600) thousand barrels/day
- **April**
  - (500) thousand barrels/day

**Legacy gas production change**

- **May**
  - (100) million cubic feet/day
- **April**
  - (100) million cubic feet/day

**Rig count**

- **May**
  - 350 rigs
- **April**
  - 350 rigs

**New-well gas production per rig**

- **May**
  - 5,772 thousand cubic feet/day
- **April**
  - 5,512 thousand cubic feet/day

**New-well oil production per rig**

- **May**
  - 1,336 MBbl/d
- **April**
  - 1,280 MBbl/d

**Rig count**

- **May**
  - 350 rigs
- **April**
  - 300 rigs
Haynesville Region

Drilling Productivity Report

April 2018

drilling data through March
projected production through May

Haynesville Region

New-well oil production per rig

barrels/day

Rig count

250

150

50

0


Haynesville Region

Legacy oil production change

thousand barrels/day

(1)

(2)

(3)


Haynesville Region

Indicated change in oil production (May vs. Apr)
thousand barrels/day

+1

-1

+0

Apr 42 Mbbld/

Production from new wells

Legacy production change

Net change

May 42 Mbbld/

Haynesville Region

New-well gas production per rig

thousand cubic feet/day

Rig count

250

150

50

0


Haynesville Region

Legacy gas production change

million cubic feet/day

(100)

(200)

(300)

(400)

(500)

(600)

(700)


Haynesville Region

Indicated change in natural gas production (May vs. Apr)
million cubic feet/day

+479

-271

+208

Apr 8,333 MMcfd

Production from new wells

Legacy production change

Net change

May 8,541 MMcfd

Haynesville Region

Oil +0

thousand barrels/day

month over month


Haynesville Region

Natural gas production

million cubic feet/day

+208

million cubic feet/day

month over month


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Permian Region
Drilling Productivity Report

Oil
+2
barrels/day
month over month

Gas
0
thousand cubic feet/day
month over month

### Permian Region
#### New-well oil production per rig
- **Rig count**: 600
- **new-well oil production per rig**: 4,800 barrels/day

#### Legacy oil production change

#### Indicated change in oil production (May vs. Apr)

#### Oil production

#### Natural gas production
- **Gas**: +222
- **Gas production**: 10,273 MMcf/d

#### Permian Region
- **May**: 1,187 thousand barrels/day
- **April**: 1,187 thousand barrels/day

#### Monthly additions from one average rig

- **May**: +274
- **April**: -201

#### Permian Region
- **New-well gas production per rig**: 500 barrels/day
- **Rig count**: 500

#### Legacy gas production change

#### Indicated change in natural gas production (May vs. Apr)

- **April**: 10,051 MMcf/d
- **May**: 10,273 MMcf/d
- **Gas**: +520
- **Legacy**: -298

#### Permian Region
- **New-well gas production per rig**: 400 barrels/day
- **Rig count**: 400

#### Rig count

#### Production from new wells
- **April**: 3,110 Mbbl/d
- **May**: 3,183 Mbbl/d
- **Net change**: +73 barrels/day

#### Production from legacy change
- **April**: 10,051 MMcf/d
- **May**: 10,273 MMcf/d
- **Net change**: +222 million cubic feet/day

### Notes
- Drilling data through March
- Projected production through May

### April 2018

- **New-well oil production per rig**: 500 barrels/day
- **Rig count**: 500
- **New-well gas production per rig**: 400 barrels/day
- **Rig count**: 400

- **Legacy oil production change**: (250)
- **Legacy gas production change**: (350)

- **Indicated change in oil production**: +73 barrels/day
- **Indicated change in natural gas production**: +222 million cubic feet/day

- **Oil**: +2
- **Gas**: +222

- **New-well oil production per rig**: 500 barrels/day
- **Rig count**: 500
- **New-well gas production per rig**: 400 barrels/day
- **Rig count**: 400

- **Legacy oil production change**: (250)
- **Legacy gas production change**: (350)

- **Indicated change in oil production**: +73 barrels/day
- **Indicated change in natural gas production**: +222 million cubic feet/day

- **Oil**: +2
- **Gas**: +222
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.
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.

**Oklahoma Corporation Commission** (http://www.occeweb.com/og/oghome.htm) Source of well production, permit, and completion data in the counties associated with this report in Oklahoma.