Drilling Productivity Report
For key tight oil and shale gas regions

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### Anadarko Region

#### Drilling Productivity Report

**March 2020**

drilling data through February
projected production through April

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### Oil
- **April**: +31 barrels/day
- **March**: +74 barrels/day
- **Monthly additions from one average rig**: +4,446 barrels/day

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### Gas
- **April**: +126 thousand cubic feet/day
- **March**: +4,572 thousand cubic feet/day

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#### New-well oil production per rig
- **Anadarko Region**
  - barrels/day: 0, 100, 200, 300, 400, 500, 600, 700
  - rigs: 0, 50, 100, 150, 200, 250, 300

#### Legacy oil production change
- **Anadarko Region**
  - thousand barrels/day: 0, 10, 20, 30, 40, 50

#### Indicated change in oil production (Apr vs. Mar)
- **Anadarko Region**
  - thousand barrels/day: 0, 10, 20, 30, 40

#### Natural gas production
- **Anadarko Region**
  - million cubic feet/day: 0, 1,000, 2,000, 3,000, 4,000, 5,000, 6,000, 7,000

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### New-well gas production per rig
- **Anadarko Region**
  - thousand cubic feet/day: 0, 50, 100, 150, 200, 250, 300, 350, 400

### Legacy gas production change
- **Anadarko Region**
  - million cubic feet/day: 0, 50, 100, 150, 200, 250, 300, 350, 400

### Indicated change in natural gas production (Apr vs. Mar)
- **Anadarko Region**
  - million cubic feet/day: 0, 100, 200, 300, 400

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#### New-well gas production per rig
- **Anadarko Region**
  - thousand cubic feet/day: 0, 50, 100, 150, 200, 250, 300, 350, 400

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#### Natural gas production
- **Anadarko Region**
  - million cubic feet/day: 0, 1,000, 2,000, 3,000, 4,000, 5,000, 6,000, 7,000

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**March 2020**

**Anadarko Region**

- Monthly additions from one average rig: +4,446 barrels/day
- Gas: +126 thousand cubic feet/day

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**Oil production**

- **Anadarko Region**
  - thousand barrels/day: 0, 200, 400, 600, 800, 1,000, 1,200

**Gas production**

- **Anadarko Region**
  - million cubic feet/day: 0, 50, 100, 150, 200, 250, 300, 350, 400
### Appalachian Region Drilling Productivity Report

**March 2020**

**Oil**

- **April**
  - 146 barrels/day
- **March**
  - 138 barrels/day

**Monthly additions from one average rig**

- **April**
  - 15,550 thousand cubic feet/day
- **March**
  - 15,250 thousand cubic feet/day

**Gas**

- **April**
  - +300 thousand cubic feet/day
  - month over month

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**Appalachia Region**

#### New-well oil production per rig

- **2011** to **2020**

#### Rig count

- **2011** to **2020**

#### Legacy oil production change

- **2011** to **2020**

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

- **2011** to **2020**

#### Oil production

- **2011** to **2020**

#### Natural gas production

- **2011** to **2020**

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**Appalachia Region**

#### New-well gas production per rig

- **2011** to **2020**

#### Rig count

- **2011** to **2020**

#### Legacy gas production change

- **2011** to **2020**

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

- **2011** to **2020**

#### New-well gas production

- **2011** to **2020**

#### Rig count

- **2011** to **2020**

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**Appalachia Region**

#### Production from new wells

- **March**
  - 32,786 MMcf/d

#### Legacy production change

- **2011** to **2020**

#### Net change

- **2011** to **2020**

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

- **2011** to **2020**

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**Appalachia Region**

#### Oil production

- **March**
  - 146 barrels/day

#### Oil production change

- **March**
  - 7 thousand barrels/day

#### New-well oil production per rig

- **2011** to **2020**

#### Rig count

- **2011** to **2020**

#### Legacy oil production change

- **2011** to **2020**

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

- **2011** to **2020**

#### Oil production

- **2011** to **2020**

#### Natural gas production

- **March**
  - 32,555 MMcf/d

#### Natural gas production change

- **March**
  - 762 million cubic feet/day

#### New-well gas production per rig

- **2011** to **2020**

#### Rig count

- **2011** to **2020**

#### Legacy gas production change

- **2011** to **2020**

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

- **2011** to **2020**

#### New-well gas production

- **2011** to **2020**

#### Rig count

- **2011** to **2020**

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**Drilling Productivity Report**

- **Monthly additions from one average rig**
  - **April**
    - 149 Mbbl/d
  - **March**
    - 149 Mbbl/d

- **Indicated change in oil production (Apr vs. Mar)**
  - **March**
    - +7 thousand barrels/day
    - -7 thousand barrels/day
    - 0 thousand barrels/day

- **Indicated change in natural gas production (Apr vs. Mar)**
  - **March**
    - +762 million cubic feet/day
    - -993 million cubic feet/day
    - -231 million cubic feet/day

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

### Oil Production

- **New-well oil production per rig**
  - March: 1,448 barrels/day
  - April: 1,467 barrels/day
  - Indicated change in oil production (Apr vs. Mar): +19 barrels/day

- **Legacy oil production change**
  - March: -450 thousand barrels/day
  - April: -400 thousand barrels/day

- **Natural gas production**
  - March: 6,851 million cubic feet/day
  - April: 6,851 million cubic feet/day

### Gas Production

- **New-well gas production per rig**
  - March: 4,936 thousand cubic feet/day
  - April: 4,956 thousand cubic feet/day
  - Indicated change in natural gas production (Apr vs. Mar): +401 thousand cubic feet/day

- **Legacy gas production change**
  - March: -1 thousand cubic feet/day
  - April: 0 thousand cubic feet/day

- **Oil and gas production for April 2020**
  - Oil: 1,448 barrels/day
  - Gas: 4,956 thousand cubic feet/day

**Notes:**
- Drilling data through February.
- Projected production through April.
- Monthly additions from one average rig.
Niobrara Region

Bar chart showing monthly additions from one average rig for oil and gas.

Niobrara Region

New-well oil production per rig

- New-well oil production per rig.
- Rig count.

Niobrara Region

Legacy oil production change

- Legacy oil production change.

Niobrara Region

Indicated change in oil production (Apr vs. Mar)

- Indicated change in oil production.

Niobrara Region

Oil production

- Oil production.

Niobrara Region

Natural gas production

- Natural gas production.

March 2020

Drilling Productivity Report

Drilling data through February

Projected production through April

Oil +4 barrels/day month over month

1,237 April

1,233 March

Monthly additions from one average rig

Gas +23 thousand cubic feet/day month over month

April 4,309

March 4,286

Oil production

thousand barrels/day

Niobrara Region

1,200

1,000

800

600

400

200

0


Rig count

120

100

80

60

40

20

0

New-well oil production per rig

Niobrara Region

8,400

7,200

6,000

4,800

3,600

2,400

1,200

0


Rig count

120

100

80

60

40

20

0

New-well gas production per rig

Niobrara Region

2011

2012

2013

2014

2015

2016

2017

2018

2019

2020

Niobrara Region

New-well gas production per rig

thousand cubic feet/day

Mar 774 MMBtu/d

Production from new wells

Legacy production change

Net change

Apr 766 MMBtu/d

Niobrara Region

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

- Indicated change in natural gas production.

Niobrara Region

Natural gas production

million cubic feet/day

Mar 5,711 MMcf/d

Production from new wells

Legacy production change

Net change

Apr 5,692 MMcf/d

Niobrara Region

Oil production

thousand barrels/day

2011

2012

2013

2014

2015

2016

2017

2018

2019

2020

1,000

800

600

400

200

0

Niobrara Region

Oil production

Niobrara Region

Natural gas production

Gas -19 million cubic feet/day month over month

- Gas production.

- New-well gas production per rig.

- Legacy gas production change.

- Natural gas production.

- Oil production.

- Rig count.

- Oil production.

- Natural gas production.

- Legacy oil production change.

- Indicated change in oil production.

- Indicated change in natural gas production.

- Oil production.

- Gas production.

- Rig count.

- Oil production.

- Natural gas production.

- Legacy oil production change.

- Indicated change in oil production.

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- Natural gas production.

- Legacy oil production change.

- Indicated change in oil production.

- Indicated change in natural gas production.

- Oil production.

- Gas production.

- Rig count.

- Oil production.

- Natural gas production.

- Legacy oil production change.

- Indicated change in oil production.

- Indicated change in natural gas production.

- Oil production.

- Gas production.

- Rig count.

- Oil production.

- Natural gas production.

- Legacy oil production change.

- Indicated change in oil production.

- Indicated change in natural gas production.
Permian Region
Drilling Productivity Report

Oil
barrels/day
month over month

807 April
807 March
barrels/day

Monthly additions
from one average rig

April 1,580
March 1,580
thousand cubic feet/day

Gas
thousand cubic feet/day
month over month

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

Rig count
rigs

Permian Region
Legacy oil production change
thousand barrels/day

Permian Region
Indicated change in oil production (Apr vs. Mar)
thousand barrels/day

Permian Region
Oil production
thousand barrels/day

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

Rig count
rigs

Permian Region
Legacy gas production change
million cubic feet/day

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

Permian Region
Natural gas production
million cubic feet/day

Drilling data through February
projected production through April

March 2020

4,754 Mbbl/d
Production from new wells
Legacy production change
Net change
April 4,792 Mbbl/d

Indicated change in oil production (Apr vs. Mar)

Mar
4,754 Mbbl/d
Production from new wells
Legacy production change
Net change
Apr
4,792 Mbbl/d

March
4,754 Mbbl/d

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

Mar
16,962 MMcf/d
Production from new wells
Legacy production change
Net change
Apr
17,171 MMcf/d

March
16,962 MMcf/d

Oil
+38
thousand barrels/day
month over month

Gas
+209
million cubic feet/day
month over month

Oil +38
Gas +209
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\(^1\) and natural gas\(^2\) 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\(^3\) contribution to production of oil and natural gas from new wells.\(^4\) 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.\(^5\) 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