Drilling Productivity Report

For key tight oil and shale gas regions

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Bakken Region

**Oil**

- New-well oil production per rig:
  - November: 1,538 barrels/day
  - October: 1,523 barrels/day
- Legacy oil production change:
  - November: -15 thousand barrels/day
  - October: -18 thousand barrels/day
- Indicated change in oil production (Nov vs. Oct): +13 thousand barrels/day

**Gas**

- New-well gas production per rig:
  - November: 1,984 thousand cubic feet/day
  - October: 1,940 thousand cubic feet/day
- Legacy gas production change:
  - November: -44 thousand cubic feet/day
  - October: -48 thousand cubic feet/day
- Indicated change in natural gas production (Nov vs. Oct): +22 thousand cubic feet/day
**Eagle Ford Region**

**Drilling Productivity Report**

**October 2018**

- **Oil**
  - +7 barrels/day month over month
  - New-well oil production per rig:
    - Rig count: 1,452 barrels/day
  - Legacy oil production change (Nov vs. Oct):
    - Change: +30 thousand barrels/day

- **Gas**
  - +129 thousand cubic feet/day month over month
  - New-well gas production per rig:
    - Rig count: 5,993 thousand cubic feet/day
  - Legacy gas production change (Nov vs. Oct):
    - Change: +50 million cubic feet/day

**Monthly additions from one average rig**

- **Oil**
  - New-well oil production per rig:
    - Rig count: 1,445 barrels/day
  - Legacy oil production change (Oct vs. September):
    - Change: +116 thousand barrels/day

- **Gas**
  - New-well gas production per rig:
    - Rig count: 5,864 thousand cubic feet/day
  - Legacy gas production change (Oct vs. September):
    - Change: +424 million cubic feet/day

**Indicated change in oil production (Nov vs. Oct)**

- +131 thousand barrels/day
- -116 thousand barrels/day
- +15 thousand barrels/day

**Indicated change in natural gas production (Nov vs. Oct)**

- +539 million cubic feet/day
- -424 million cubic feet/day
- +115 million cubic feet/day

**New-well gas production per rig**

- Rig count: 350 thousand cubic feet/day

- New-well oil production per rig:
  - Rig count: 350 barrels/day

- Legacy oil production change (Oct vs. September):
  - Change: -100 thousand barrels/day

- Legacy gas production change (Oct vs. September):
  - Change: +50 million cubic feet/day

**Natural gas production**

- Rig count: 7,122 million cubic feet/day

- New-well gas production per rig:
  - Rig count: 350 thousand cubic feet/day

- Legacy gas production change (Oct vs. September):
  - Change: +50 million cubic feet/day

- Legacy oil production change (Nov vs. Oct):
  - Change: +15 thousand barrels/day

- Legacy oil production change (Oct vs. September):
  - Change: +115 thousand barrels/day

**Projected production through November**

- **Oil**
  - +7 barrels/day month over month
  - New-well oil production per rig:
    - Rig count: 1,452 barrels/day

- **Gas**
  - +129 thousand cubic feet/day month over month
  - New-well gas production per rig:
    - Rig count: 5,993 thousand cubic feet/day

**Drilling data through September**

- **Oil**
  - New-well oil production per rig:
    - Rig count: 1,452 barrels/day

- **Gas**
  - New-well gas production per rig:
    - Rig count: 5,993 thousand cubic feet/day

- **Natural gas production**
  - rig count: 7,122 million cubic feet/day

- **Oil production**
  - New-well oil production per rig:
    - Rig count: 1,452 barrels/day

- **Gas production**
  - New-well gas production per rig:
    - Rig count: 5,993 thousand cubic feet/day

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Niobrara Region

Oil production

- New-well oil production per rig
- Legacy oil production change
- Indicated change in oil production (Nov vs. Oct)
- Oil +6 barrels/day month over month

New-well oil production per rig

- Niobrara Region
- barrels/day
- new-well oil production per rig
- rig count

Legacy oil production change

- Niobrara Region
- thousand barrels/day
- October
- November
- Oil +2 barrels/day month over month

Indicated change in oil production (Nov vs. Oct)

- Niobrara Region
- thousand barrels/day
- +58
- -52
- +6

Oil production

- Niobrara Region
- thousand barrels/day
- 1,191
- 1,193
- November
- October

Rig count

- Niobrara Region
- rigs
- new-well oil production per rig
- rig count

Niobrara Region

- Oil production
- Natural gas production
- Gas +50 million cubic feet/day month over month

Natural gas production

- Niobrara Region
- million cubic feet/day
- 5,214
- 5,164
- November
- October
- Gas +12 thousand cubic feet/day month over month

Niobrara Region

- Legacy gas production change
- Natural gas production
- Indicated change in natural gas production (Nov vs. Oct)
- million cubic feet/day
- +218
- -168
- +50

Niobrara Region

- New-well gas production per rig
- Rig count
- Rig count
- new-well gas production per rig
- rig count

Niobrara Region

- New-well gas production per rig
- thousand cubic feet/day
- 8,400
- 8,400
- October
- November
- Gas +12 thousand cubic feet/day month over month

Niobrara Region

- Legacy gas production change
- Natural gas production
- Indicated change in natural gas production (Nov vs. Oct)
- million cubic feet/day
- +218
- -168
- +50

Niobrara Region

- Indicated change in oil production (Nov vs. Oct)
- thousand barrels/day
- +58
- -52
- +6

Niobrara Region

- Indicated change in natural gas production (Nov vs. Oct)
- million cubic feet/day
- +218
- -168
- +50

Niobrara Region

- Oil +6 barrels/day month over month

Niobrara Region

- Natural gas production
- million cubic feet/day
- 5,214
- 5,164
- November
- October
- Gas +50 million cubic feet/day month over month

November 4,443

October 4,431

October

thousand cubic feet/day

Niobrara Region

- New-well oil production per rig
- barrels/day
- 1,191
- 1,193
- October
- November
- Oil +2 barrels/day month over month

October 2018

Drilling Productivity Report

Monthly additions from one average rig

Niobrara Region

- New-well oil production per rig
- barrels/day
- 1,191
- 1,193
- October
- November
- Oil +2 barrels/day month over month

October 2018

Niobrara Region

- New-well oil production per rig
- barrels/day
- 1,191
- 1,193
- October
- November
- Oil +2 barrels/day month over month
**Permian Region**

**Modified Production Data**

- **Oil**
  - New-well oil production per rig: 800 barrels/day
  - Legacy oil production change: 100 thousand barrels/day
  - Indicated change in oil production (Nov vs. Oct): +288, -235, +53 thousand barrels/day
  - Oil production: 3,496 Mbbl/d in Oct, 3,549 Mbbl/d in Nov
  - New-well oil production per rig: +43 barrels/day

- **Gas**
  - New-well gas production per rig: 4,800 thousand cubic feet/day
  - Legacy gas production change: 50 million cubic feet/day
  - Indicated change in natural gas production (Nov vs. Oct): +596, -353, +243 million cubic feet/day
  - Gas production: 11,889 MMcf/d in Oct, 12,132 MMcf/d in Nov
  - New-well gas production per rig: +243 thousand cubic feet/day

**Projected Production Data**

- **Oil**
  - Monthly additions from one average rig: Oil 595 barrels/day, Gas 0 thousand cubic feet/day

- **Gas**
  - Monthly additions from one average rig: Oil 552 barrels/day, Gas 1,230 thousand cubic feet/day

**Notes**

- Drilling data through September
- Projected production through November

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*U. S. Energy Information Administration | Drilling Productivity Report*
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. 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.