Year-over-year summary
Drilling Productivity Report

New-well oil production per rig
barrels/day

December-2012
December-2013

Bakken
Eagle Ford
Haynesville
Marcellus
Niobrara
Permian

Legacy oil production change
thousand barrels/day

December-2012
December-2013

Bakken
Eagle Ford
Haynesville
Marcellus
Niobrara
Permian

Indicated monthly change in oil production (Dec vs. Nov)
thousand barrels/day

December-2012
December-2013

Bakken
Eagle Ford
Haynesville
Marcellus
Niobrara
Permian

Oil production
thousand barrels/day

December-2012
December-2013

Bakken
Eagle Ford
Haynesville
Marcellus
Niobrara
Permian

Natural gas production
million cubic feet/day

December-2012
December-2013

Bakken
Eagle Ford
Haynesville
Marcellus
Niobrara
Permian

Legacy gas production change
million cubic feet/day

December-2012
December-2013

Bakken
Eagle Ford
Haynesville
Marcellus
Niobrara
Permian

Indicated monthly change in gas production (Dec vs. Nov)
million cubic feet/day

December-2012
December-2013

Bakken
Eagle Ford
Haynesville
Marcellus
Niobrara
Permian

U. S. Energy Information Administration | Drilling Productivity Report

November 2013
Bakken

**Oil**
- New well oil production per rig
- Legacy oil production change
- Indicated change in oil production (Dec vs. Nov)

**Gas**
- New well gas production per rig
- Legacy gas production change
- Indicated change in natural gas production (Dec vs. Nov)

**Oil Production**
- New well oil production per rig
- Legacy oil production change
- Indicated change in oil production (Dec vs. Nov)

**Gas Production**
- New well gas production per rig
- Legacy gas production change
- Indicated change in natural gas production (Dec vs. Nov)
**November 2013**

**Drilling Productivity Report**

- **Oil** +1 barrels/day month over month

- **Gas** +23 thousand cubic feet/day month over month

### Haynesville

#### New-well oil production per rig

<table>
<thead>
<tr>
<th>Year</th>
<th>Barrels/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>1,200</td>
</tr>
<tr>
<td>2008</td>
<td>1,000</td>
</tr>
<tr>
<td>2009</td>
<td>800</td>
</tr>
<tr>
<td>2010</td>
<td>600</td>
</tr>
<tr>
<td>2011</td>
<td>400</td>
</tr>
<tr>
<td>2012</td>
<td>200</td>
</tr>
<tr>
<td>2013</td>
<td>100</td>
</tr>
</tbody>
</table>

#### Legacy oil production change

<table>
<thead>
<tr>
<th>Year</th>
<th>Thousand barrels/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>0</td>
</tr>
<tr>
<td>2008</td>
<td>(1)</td>
</tr>
<tr>
<td>2009</td>
<td>(2)</td>
</tr>
<tr>
<td>2010</td>
<td>(3)</td>
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</table>

#### Indicated change in oil production (Dec vs. Nov)

<table>
<thead>
<tr>
<th>Change</th>
<th>barrels/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov</td>
<td>+2</td>
</tr>
<tr>
<td>Mbb/d</td>
<td></td>
</tr>
<tr>
<td>Production from new wells</td>
<td>+231</td>
</tr>
<tr>
<td>Legacy production change</td>
<td>+332</td>
</tr>
<tr>
<td>Net change</td>
<td>+101</td>
</tr>
<tr>
<td>Dec</td>
<td>+1</td>
</tr>
<tr>
<td>Mbb/d</td>
<td></td>
</tr>
</tbody>
</table>

#### Oil production

<table>
<thead>
<tr>
<th>Year</th>
<th>Thousand barrels/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>5,041</td>
</tr>
<tr>
<td>2008</td>
<td>5,018</td>
</tr>
<tr>
<td>2009</td>
<td>4,996</td>
</tr>
<tr>
<td>2010</td>
<td>4,976</td>
</tr>
<tr>
<td>2011</td>
<td>4,951</td>
</tr>
<tr>
<td>2012</td>
<td>4,927</td>
</tr>
<tr>
<td>2013</td>
<td>4,903</td>
</tr>
</tbody>
</table>

### Haynesville

#### New-well gas production per rig

<table>
<thead>
<tr>
<th>Year</th>
<th>Thousand cubic feet/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>600</td>
</tr>
<tr>
<td>2008</td>
<td>500</td>
</tr>
<tr>
<td>2009</td>
<td>400</td>
</tr>
<tr>
<td>2010</td>
<td>300</td>
</tr>
<tr>
<td>2011</td>
<td>200</td>
</tr>
<tr>
<td>2012</td>
<td>100</td>
</tr>
<tr>
<td>2013</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Legacy gas production change

<table>
<thead>
<tr>
<th>Year</th>
<th>Million cubic feet/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>-101</td>
</tr>
<tr>
<td>2008</td>
<td>-99</td>
</tr>
<tr>
<td>2009</td>
<td>-97</td>
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<tr>
<td>2010</td>
<td>-95</td>
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<tr>
<td>2011</td>
<td>-93</td>
</tr>
<tr>
<td>2012</td>
<td>-91</td>
</tr>
<tr>
<td>2013</td>
<td>-89</td>
</tr>
</tbody>
</table>

#### Indicated change in natural gas production (Dec vs. Nov)

<table>
<thead>
<tr>
<th>Change</th>
<th>Million cubic feet/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov</td>
<td>+231</td>
</tr>
<tr>
<td>MMc/d</td>
<td></td>
</tr>
<tr>
<td>Production from new wells</td>
<td>+332</td>
</tr>
<tr>
<td>Legacy production change</td>
<td>+101</td>
</tr>
<tr>
<td>Net change</td>
<td>-101</td>
</tr>
<tr>
<td>Dec</td>
<td>-101</td>
</tr>
<tr>
<td>MMc/d</td>
<td></td>
</tr>
</tbody>
</table>

#### Natural gas production

<table>
<thead>
<tr>
<th>Year</th>
<th>Million cubic feet/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>6,761</td>
</tr>
<tr>
<td>2008</td>
<td>6,661</td>
</tr>
<tr>
<td>2009</td>
<td>6,616</td>
</tr>
<tr>
<td>2010</td>
<td>6,561</td>
</tr>
<tr>
<td>2011</td>
<td>6,511</td>
</tr>
<tr>
<td>2012</td>
<td>6,461</td>
</tr>
<tr>
<td>2013</td>
<td>6,411</td>
</tr>
</tbody>
</table>
Marcellus Drilling Productivity Report

November 2013

Drilling data through October projected production through December

**Marcellus New-well oil production per rig**

- Thousand barrels/day
- **Rig count**
- **New-well oil production per rig**
- **Rig count**

**Marcellus Legacy oil production change**

- Thousand barrels/day
- **2007**
- **2008**
- **2009**
- **2010**
- **2011**
- **2012**
- **2013**

**Marcellus Indicated change in oil production (Dec vs. Nov)**

- Thousand barrels/day
- **November**
- **December**
- **Production from new wells**
- **Legacy production change**
- **Net change**

**Marcellus Oil production**

- Thousand barrels/day
- **2007**
- **2008**
- **2009**
- **2010**
- **2011**
- **2012**
- **2013**

**Marcellus Natural gas production**

- Million cubic feet/day
- **2007**
- **2008**
- **2009**
- **2010**
- **2011**
- **2012**
- **2013**

**Marcellus Legacy gas production change**

- Million cubic feet/day
- **2007**
- **2008**
- **2009**
- **2010**
- **2011**
- **2012**
- **2013**

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

- Million cubic feet/day
- **2007**
- **2008**
- **2009**
- **2010**
- **2011**
- **2012**
- **2013**

**Oil**

- 2 barrels/day month over month
- 10 barrels/day
- **40 December**
- **38 November**

**Gas**

- 118 barrels/day month over month
- **6,038 December**
- **5,920 November**

**Natural gas production**

- 411 million cubic feet/day month over month
- **6,038 December**
- **5,920 November**
**Niobrara Drilling Productivity Report**

**November 2013**

*drilling data through October projected production through December*

### Oil Production

- **New-well oil production per rig**
  - **2007-2013**
  - **Month over Month**
  - **Average rig**

- **Legacy oil production change**
  - **2007-2013**
  - **Month over Month**

- **Indicated change in oil production (Dec vs. Nov)**
  - **2007-2013**
  - **Month over Month**

- **Oil production**
  - **2007-2013**
  - **Month over Month**

### Gas Production

- **New-well gas production per rig**
  - **2007-2013**
  - **Month over Month**

- **Legacy gas production change**
  - **2007-2013**
  - **Month over Month**

- **Indicated change in natural gas production (Dec vs. Nov)**
  - **2007-2013**
  - **Month over Month**

- **Natural gas production**
  - **2007-2013**
  - **Month over Month**

*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 and natural gas production for six key fields. 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 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. The monthly average rig count used in this report is calculated from weekly data on total oil and gas rigs reported by Baker Hughes
2. 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.
3. 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.